



CDOT NEPA Manual March 2013 Update (Version 3)

The last update to the CDOT NEPA Manual was completed in December 2008. Since then, many regulatory and process changes have occurred. This update reflects the most current policies, regulations, and processes available as of March 2013. Future updates will be made as necessary. Below is a summary of some of the more considerable changes made to the Manual during this revision.

Chapter	Description of Updates
Chapter 2 – National Environmental Policy Act and Implementing Regulations	Chapter 2 has been updated to include a new Section 2.6 on the Moving Ahead for Progress in the 21 st Century Act (MAP-21). Table 2-3 provides a summary of the Subtitle C provisions designed to speed up the project delivery process. The Manual only includes the aforementioned summary of MAP-21 provisions related to the project delivery process because MAP-21 rulemaking and guidance was not available at the time of this update. When guidance is available, the Manual will be updated, as appropriate.
Chapter 3 – CDOT’s NEPA-Specific Planning and Project Development Elements	Chapter 3 has been updated to include revised PEL guidance, new sections on Funding and Fiscal Constraint in NEPA (Section 3.5) and Innovative Project Delivery and NEPA (Section 3.6). Section 3.5 subsections include: <ul style="list-style-type: none"> ▶ Fiscal Constraint Requirements (Section 3.5.1) ▶ Phasing/Timing of Construction (Section 3.5.2) ▶ Interim Construction (Section 3.5.3) ▶ Timing of Mitigation (3.5.4) Section 3.6 includes subsections: <ul style="list-style-type: none"> ▶ Project Delivery Methods (Section 3.6.1) ▶ NEPA Requirements and Permissible Project Activities (Section 3.6.2) ▶ Approval to Proceed with Activities Beyond the Normal Scope of Preliminary Design (Section 3.6.3) ▶ Design-Build and Construction Manager/General Contractor (CM/GC) Contracting Restrictions During the NEPA Process (Section 3.6.4) ▶ Other Measures to Accelerate Project Delivery (Section 3.6.5)
Chapter 4 – Environmental Impact Statement (Class I)	Chapter 4 updates include: <ul style="list-style-type: none"> ▶ An updated Section 4.20.2 (Reevaluations of an EIS using CDOT’s approved Form 1399) ▶ A new Section 4.22, which includes subsections on Project Files (Section 4.22.1) and Administrative Record (Section 4.22.2) with a project file example.



Chapter	Description of Updates
Chapter 5 – Categorical Exclusions (Class II)	Chapter 5 updates include: <ul style="list-style-type: none"> ▶ An updated list of non-programmatic and programmatic CatEx categories (Section 5.2.1 – Programmatic CatEx – Actions and Section 5.3.1 Non-Programmatic Catex - Actions) based on the Programmatic Agreement with FHWA. ▶ The updated CDOT CatEx Form 128 is included in Figures 5-1 and 5-2. Directions are included for how to appropriately fill out the Form 128. Attachment 1 includes instructions on how to fill out the Form 128 in SAP.
Chapter 6 – Environmental Assessments (Class III)	Chapter 6 updates include an updated Section 6.13.1 – Documenting Reevaluations Using CDOT Form 1399.
Chapter 8 – NEPA Document Review Procedures	Chapter 8 has been updated to be more reflective of the way CDOT and other agencies manage reviews, comments, and dissemination of documents.
Chapter 9 – Resource Considerations	
Section 9.2 Air Quality	Section 9.2 has been updated based on CDOT's <i>Air Quality Procedures Manual</i> (2010) and <i>Air Quality Program Book</i> (2012).
Section 9.4 Water Quality	Section 9.4 updates include: <ul style="list-style-type: none"> ▶ A Water Quality Model Program Decision Tree developed by FHWA, EPA, and CDOT to determine if modeling is necessary for a project and if so, what model a project should use. ▶ Template language for a standard water quality NEPA document section.
Section 9.10 Historic Resources	Section 9.10.3 has been updated to include information on CDOT's evaluation process based on the Colorado Register of Historic Places (CRS 24-80 and 8 CCR 1504-5).
Section 9.15 Environmental Justice	Section 9.15 replaces <i>CDOT's Title VI and Environmental Justice Guidelines for NEPA Projects</i> (2005) guidance. The section now includes step-by-step information on how to determine minority and/or low-income thresholds using the 2010 US Census, which was previously included in Appendix A of <i>CDOT's Title VI and Environmental Justice Guidelines for NEPA Projects</i> (2005) guidance.
Section 9.16 Transportation Resources	Section 9.16 (Transportation Resources) is a new section that includes information on roadway, freight, transit and rail, aviation, and bike/pedestrian resources.
Section 9.19 Section 4(f) Evaluation	Section 9.19 has been updated to reflect the July 20, 2012 FHWA Section 4(f) policy paper.



Chapter	Description of Updates
Section 9.22 Noise	Section 9.22 has been updated based on <i>CDOT's Noise Analysis and Abatement Guidelines</i> (2011) and <i>CDOT's Noise Program Book</i> (2012).
Section 9.25 Hazardous Materials	Section 9.25 has been updated to reflect CDOT's new <i>Hazardous Material Document Guidance Table</i> (2011). This section also indicates that CDOT has a contract with a database firm for their projects and that consultants should request that CDOT run the environmental data search rather than ordering the data themselves.
Appendices	<p>The following appendices were removed/replaced:</p> <ul style="list-style-type: none"> ▶ Appendix C – Regulations and Policies – these are available online with the majority of links provided in other chapters throughout the Manual ▶ Appendix E – CDOT Generic Scope of Work (GSOW) – the most current version of the GSOW should be utilized for projects and obtained from CDOT's website. ▶ Appendix F – Forms – the most current versions of forms should be obtained from CDOT's website. <p>The following appendices are included:</p> <ul style="list-style-type: none"> ▶ Appendix A – NEPA Abbreviations and Acronyms ▶ Appendix B – Typical NEPA Terminology ▶ Appendix C – Style Guide for NEPA Documents ▶ Appendix D – Quality Assurance (QA)/Quality Control (QC) Guidance for NEPA Documents ▶ Appendix E – Agency Coordination Plan Template ▶ Appendix F – Standardized Language for NEPA Documents (NEW)
Other	
NEPA Policy Directive 1904.0	The directive states that the NEPA Manual is the method that CDOT will use for maintaining compliance with NEPA standards. This reference is listed throughout the NEPA Manual.
Environmental Commitment Tracking Spreadsheet	CDOT has a standard environmental commitment tracking spreadsheet. Reference to the mandatory use of this tracking tool has been added throughout the NEPA Manual.





CHAPTER 1: INTRODUCTION

	<u>Page</u>
1.0 INTRODUCTION	1-1
1.1 Purpose of this Manual.....	1-1
1.1.1 Use of this Manual	1-2
1.1.2 Organization of this Manual.....	1-2
1.1.3 Updating this Manual	1-4
1.2 References	1-5





1.0 INTRODUCTION

The Colorado Department of Transportation (CDOT) invests considerable resources, time, and talent in compiling detailed information about environmental issues, conducting environmental analysis, and preparing documents to comply with the National Environmental Policy Act of 1969 (NEPA) [NEPA, 42 United States Code (USC) § 4321 – 4347]. This NEPA Manual (Manual) is a resource for CDOT staff, local agency representatives, and consultants engaged in these efforts.

1.1 Purpose of this Manual

The purpose of this Manual is to provide guidance on preparing and processing documents that comply with NEPA and other applicable state and federal environmental laws affecting transportation projects in Colorado. This Manual provides references and links to related federal and state laws, executive orders, regulations, and policies. It also provides “best practice” examples for various compliance processes where appropriate. It is intended that CDOT staff, local agency representatives, and consultants use this Manual to implement NEPA in an effective manner, producing more consistent, improved environmental documents that decision-makers may use to make well-informed transportation decisions.

Users are encouraged to closely follow the level of detail and documentation presented in this Manual in order to standardize and streamline NEPA compliance throughout CDOT. Special situations, such as Environmental Assessment (EA) or Environmental Impact Statement (EIS) re-evaluations, may dictate a prudent variation from this content and format (within legal limitations); in such cases, documentation and approval by the CDOT project manager in consultation with the Region Transportation Director (RTD) and the Region Planning and Environmental Manager (RPEM) or their representative(s) is required. Consultation with CDOT’s Environmental Programs Branch (EPB) at headquarters may be required. Depending on the funding mechanisms for the project, consultation with Federal Highway Administration (FHWA) may also be required.

It has been established through CDOT Policy Directive 1904.0 that all divisions, regions, offices and branches of CDOT, as well as consulting firms performing contracting work, use the Manual as the method for maintaining compliance with NEPA standards. The Manual sets forth uniform criteria and procedures for determining the applicability of NEPA requirements to specific projects and establishes procedural requirements for assuring compliance. Users of the Manual should periodically check for updated versions on CDOT’s website. Additional guidance to improve the readability and functionality of NEPA documents for transportation projects also is



Who are the ‘Users’ of this Manual?

- Professional staff at CDOT, consultants working on CDOT projects, and local agency staff are the primary audiences for this manual
- Users should have a general understanding and some experience working with NEPA
- Users should have a basic understanding of the required sections in a NEPA document



CDOT’s website
<http://www.coloradodot.info/>





included in the American Association of State Highway and Transportation Officials (AASHTO), the American Council of Engineering Companies (ACEC), and FHWA, *Improving the Quality of Environmental Documents* report (AASHTO, ACEC, and FHWA, 2006).

1.1.1 Use of this Manual

This Manual has been organized to encourage its use by a wide audience of users. To facilitate an understanding of the information presented in this Manual, call-out boxes have been included throughout. These call-out boxes have been divided into two groups. The first set of boxes, which are denoted by a columbine flower and green border, contain tips, tools, quotes, and other items that have been highlighted for use by the reader. The second set of call-out boxes, which are denoted by an aspen leaf and orange border, include resources, such as websites, regulatory citations, guidance documents, and other references that can be researched by the reader for additional information.



Items in these call-out boxes include tips, tools, quotes and other items that have been highlighted for use by the reader.

In order to maintain consistency between NEPA documents CDOT has compiled a standardized list of acronyms and abbreviations, as well as terminology that should be utilized in CDOT NEPA documents. Deviations from the standardized list of acronyms are not recommended, as standardizing usage helps assure reader friendly documents for the public. The acronyms and abbreviations are included in **Appendix A**, and the typical NEPA terminology is included in **Appendix B** of this document.

1.1.2 Organization of this Manual

This Manual is organized into nine chapters:

- ▶ **Chapter 1: Introduction.** Chapter 1 provides the manual purpose and organization.
- ▶ **Chapter 2: NEPA and Implementing Regulations.** Chapter 2 provides an introduction to major regulations and guidelines that are applicable to transportation projects.
- ▶ **Chapter 3: CDOT's NEPA-Specific Planning and Project Development Elements.** Chapter 3 discusses the NEPA elements of the CDOT overall transportation planning and project development process.
- ▶ **Chapter 4: Environmental Impact Statements (EIS) (Class I).** Chapter 4 outlines the preparation and process of an EIS. Document components and standard document sections are presented and discussed.



Items in these call-out boxes are websites, regulatory citations, guidance documents, and other references that can be researched by the reader for additional information.



- ▶ **Chapter 5: Categorical Exclusions (CatEx) (Class II).** Chapter 5 discusses CDOT's process and procedures for a CatEx.
- ▶ **Chapter 6: Environmental Assessments (EA) (Class III).** Chapter 6 outlines the preparation and process of an EA. Document components and standard document sections are presented and discussed.
- ▶ **Chapter 7: Stakeholder Involvement Guidance and Public Involvement Plan.** Chapter 7 summarizes how CDOT involves the public in the NEPA process and how public comments are managed.
- ▶ **Chapter 8: Document Review Procedures.** Chapter 8 outlines the CDOT NEPA document review procedures.
- ▶ **Chapter 9: Resource Considerations.** Chapter 9 is broken down by resource topics often analyzed in NEPA documents. It offers detailed resource-specific information regarding applicable regulations and policies, collection of baseline data, methodologies for impact analysis, best practices, and necessary consultation and coordination.

For easy reference, this Manual includes the following appendices, which contain more detailed information on topics found throughout this Manual:

- ▶ **Appendix A** Abbreviations and Acronyms
- ▶ **Appendix B** Typical NEPA Terminology
- ▶ **Appendix C** Style Guide for NEPA Documents
- ▶ **Appendix D** Quality Assurance (QA)/Quality Control (QC) Guidance for NEPA Documents
- ▶ **Appendix E** Agency Coordination Plan Template
- ▶ **Appendix F** Standardized Language for NEPA Documents



What is NEPA?

- National Environmental Policy Act of 1969
- Requires federal agencies to assess and document the environmental impact of and alternatives to federal actions affecting the environment
- Consideration of potential impacts includes the social and natural environments
- Fundamental objectives include interagency coordination and public involvement
- Potential project impacts and mitigation measures must be documented





1.1.3 Updating this Manual

Updating and revising this Manual will be an on-going process because of the ever-changing status of environmental issues and laws. As a result, many of the processes and procedures in this Manual are subject to change. As this Manual is updated, the date in the footer will be changed to reflect the revision date for the appropriate section.

While CDOT strives to keep this Manual current, it is the user's responsibility to ensure that any action taken complies with environmental laws and regulations and is based on the most current information available. This Manual lists websites and agency contacts that can assist a user with this task. This Manual will be updated regularly and revisions posted on CDOT's website.

Comments and suggestions for improving this Manual are welcome. For questions about this Manual and comments for consideration in the next revision, users may contact CDOT's Environmental Policy and Biological Resources Section Manager at EPB.



1.2 References

AASHTO, ACEC, and FHWA. 2006. Improving the Quality of Environmental Documents. May. Retrieved December 2012 from http://environment.transportation.org/pdf/IQED-1_for_CEE.pdf.

National Environmental Policy Act (NEPA). 1969, as amended August 9, 1975. 42 USC § 4321 – 4347. Retrieved December 2012 from <http://ceq.hss.doe.gov/nepa/regs/nepa/nepaegja.htm>





CHAPTER 2: NATIONAL ENVIRONMENTAL POLICY ACT AND IMPLEMENTING REGULATIONS

	<u>Page</u>
2.0 NATIONAL ENVIRONMENTAL POLICY ACT AND IMPLEMENTING REGULATIONS.....	2-1
2.1 National Environmental Policy Act	2-1
2.2 Council on Environmental Quality – Regulations for Implementing the National Environmental Policy Act	2-2
2.2.1 1500.1 Purpose	2-2
2.2.2 1500.2 Policy	2-3
2.2.3 When Does the National Environmental Policy Act Apply To Your Project?.....	2-4
2.3 Joint Federal Highway Administration/ Federal Transit Administration – Environmental Impact and Related Procedures	2-4
2.4 Classes of Action	2-6
2.5 Safe, Accountable, Flexible, Efficient Transportation Equity Act :A Legacy for Users	2-10
2.6 Moving Ahead for Progress in the 21 st Century Act.....	2-12
2.7 References	2-16

LIST OF FIGURES

Figure 2-1 NEPA Umbrella	2-5
Figure 2-2 NEPA Process Options (Classes of Actions).....	2-8

LIST OF TABLES

Table 2-1 NEPA Classes of Action	2-7
Table 2-2 SAFETEA-LU Requirements	2-10
Table 2-3 MAP-21 Requirements	2-13



2.0 NATIONAL ENVIRONMENTAL POLICY ACT AND IMPLEMENTING REGULATIONS

Transportation projects must comply with a wide range of federal and state environmental laws, regulations, permits, reviews, notifications, consultations, and other approvals. This chapter provides an introduction to major regulations and guidelines that are applicable to transportation projects in Colorado.

The National Environmental Policy Act (NEPA) and implementing regulations discussed in this chapter mandate that transportation decisions involving federal funds adhere to these regulations. In addition, CDOT has committed to complying with the intent and requirements of NEPA for all transportation activities, regardless of whether or not they are federally funded.

2.1 National Environmental Policy Act

NEPA was developed in 1969 and signed into law on January 1, 1970 [NEPA, 42 United States Code (USC) § 4321 – 4347]. NEPA requires that federal agencies use a systematic, interdisciplinary approach to decision-making when actions may affect the quality of the human environment. The purpose of NEPA is to declare a national policy that will:

- ▶ Encourage productive and enjoyable harmony between man and his environment
- ▶ Promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man
- ▶ Enrich the understanding of the ecological systems and natural resources important to the Nation
- ▶ Establish a Council on Environmental Quality (CEQ)

NEPA is implemented through supporting federal regulations developed by the CEQ (CEQ, 40 Code of Federal Regulations [CFR] § 1500 – 1508) and regulations established by other federal agencies. The CEQ regulations establish requirements to be followed for any project that is “financed, assisted, conducted, or approved by a federal agency.” Prior to initiating a project, it is important to determine whether or not a federal action is involved and if and how NEPA is applicable to the project.



NEPA contains three important elements:

- Declaration of national environmental policies and goals
- Establishment of action-forcing provisions for federal agencies to implement those policies and goals
- Establishment of CEQ in the Executive Office of the President



CEQ's website

<http://www.whitehouse.gov/ceq/>

CEQ NEPA Task Force's website

<http://ceq.hss.doe.gov/nepa/nepanet.htm>





The Federal Highway Administration (FHWA) is the primary lead federal agency for roadway projects in Colorado and works as a partner with CDOT and local agencies to implement NEPA on federally aided or approved projects. The Federal Transit Administration (FTA) is the primary lead federal agency for transit projects.

2.2 Council on Environmental Quality - Regulations for Implementing the National Environmental Policy Act

In 1978, CEQ published the implementing regulations for NEPA, which are still in effect and apply to all federal agencies (CEQ, 40 CFR § 1500 – 1508). The CEQ regulations indicate that each federal agency should then develop its own more specific implementing regulations for NEPA. The first section of the CEQ regulations, 1500.1 and 1500.2, brings forth the essence of the law. The CEQ purposely left many parts of the mandated procedure flexible so each federal agency could develop specific procedures for applying the law and regulations to its own mission and needs.

In 1981, CEQ issued the guidance document, *Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations*, to answer frequently asked questions related to the CEQ regulations (CEQ, 1981). Since that time, CEQ has issued additional guidance and other information covering a variety of issues relevant to the NEPA process. This guidance is available on the CEQ website. Key portions of the CEQ regulations are presented below.

2.2.1 1500.1 Purpose

- (a) NEPA is our basic national charter for protection of the environment. It establishes policy, sets goals (section 101), and provides means (section 102) for carrying out the policy. Section 102(2) contains "action-forcing" provisions to make sure that federal agencies act according to the letter and spirit of the Act. The regulations implement section 102(2). Their purpose is to tell federal agencies what they must do to comply with the procedures and achieve the goals of NEPA. The President, the federal agencies, and the courts share responsibility for enforcing NEPA so as to achieve the substantive requirements of section 101.
- (b) NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA. Most



CEQ - Regulations for Implementing NEPA:

- Part 1500 – Purpose, Policy, and Mandate
- Part 1501 – NEPA and Agency Planning
- Part 1502 – Environmental Impact Statement
- Part 1503 – Commenting
- Part 1504 – Pre-decision Referrals to the Council of Proposed Federal Actions Determined to be Environmentally Unsatisfactory
- Part 1505 – NEPA and Agency Decision-making
- Part 1506 – Other Requirements of NEPA
- Part 1507 – Agency Compliance
- Part 1508 – Terminology and Index





important, NEPA documents must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail.

- (c) Ultimately, of course, it is not better documents but better decisions that count. NEPA's purpose is not to generate paperwork – even excellent paperwork – but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment. These regulations provide the direction to achieve this purpose.

2.2.2 1500.2 Policy

Federal agencies shall to the fullest extent possible:

- (a) Interpret and administer the policies, regulations, and public laws of the US in accordance with the policies set forth in NEPA and in these regulations.
- (b) Implement procedures to make the NEPA process more useful to decision-makers and the public, to reduce paperwork and the accumulation of extraneous background data, and to emphasize real environmental issues and alternatives. Environmental Impact Statements (EIS) shall be concise, clear, and to the point and shall be supported by evidence that agencies have made the necessary environmental analyses.
- (c) Integrate the requirements of NEPA with other planning and environmental review procedures required by law or by agency practice so that all such procedures run concurrently rather than consecutively.
- (d) Encourage and facilitate public involvement in decisions which affect the quality of the human environment.
- (e) Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.
- (f) Use all practicable means, consistent with the requirements of NEPA and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment.



CEQ. 1981. Memorandum for Federal NEPA Liaisons, Federal, State, and Local Officials and Other Persons Involved in the NEPA Process. Subject: Questions and Answers about the NEPA Regulations. March 16.

FHWA Technical Advisory T 6640.8A. 1987. Guidance for Preparing and Processing Environmental and Section 4(f) Documents. October 30.





2.2.3 When Does the National Environmental Policy Act Apply To Your Project?

Under federal law, NEPA applies to any proposed action or transportation project that has a federal nexus, including but not limited to instances where:

- ▶ Federal funds or assistance will be used at some phase of project development
- ▶ Federal funding or assistance eligibility must be maintained
- ▶ Federal permits or approvals are required (Clean Water Act - Section 404 Individual Permit, US Department of Transportation [USDOT] Act - Section 4(f), Endangered Species Act - Biological Opinion for Section 7, etc.)
- ▶ There will be new or revised access to the interstate system, which requires FHWA approval



CDOT's Policy Directive 1904.0 establishes the CDOT NEPA Manual as the method that CDOT and consultants working for CDOT shall use for maintaining compliance with NEPA standards.

2.3 Joint Federal Highway Administration/ Federal Transit Administration - Environmental Impact and Related Procedures

To address the NEPA responsibilities established by CEQ, the FHWA and FTA jointly issued regulations, *Environmental Impact and Related Procedures* (FHWA and FTA, 23 CFR 771 § 771.101 – 771.131). FHWA guidance, complementing the regulations, was issued in the form of a Technical Advisory (T 6640.8a), *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA, 1987). The Technical Advisory was developed by FHWA to provide guidance to its field offices and applicants regarding the types of information needed to comply with NEPA, Section 4(f) of the US Department of Transportation (USDOT) Act of 1966 (USDOT Act, 49 USC § 303), and other environmental requirements. The Technical Advisory provides detailed information on the contents and processing of environmental documents. The FTA issues guidance, often in the form of circulars, to provide grantees with direction on program specific issues and statutory requirements.



FTA's website
<http://www.fta.dot.gov/>

USDOT's website
<http://www.dot.gov/>

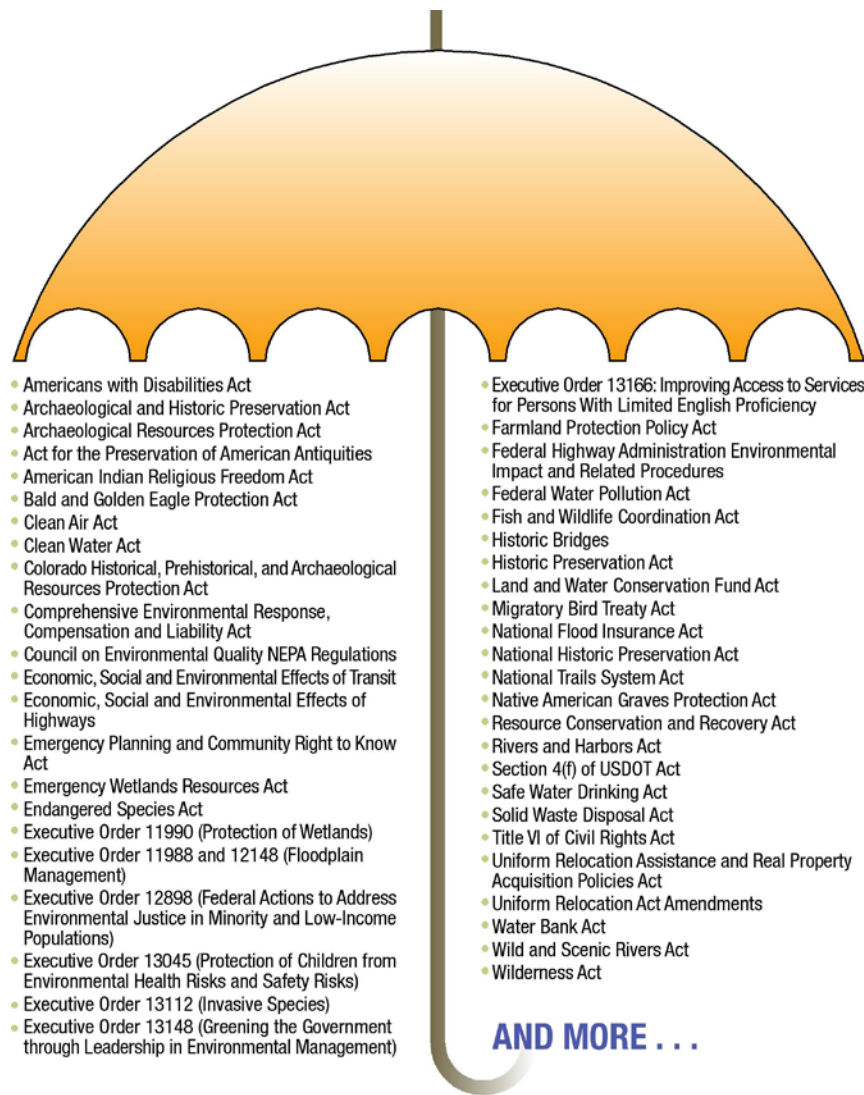
FHWA and FTA adopted the policy of managing the NEPA project development and decision-making process as a coordinated process or "umbrella," under which all applicable environmental laws, executive orders, and regulations are considered and addressed prior to the final project decision and document approval. **Figure 2-1** depicts the NEPA "umbrella" and related environmental laws, executive orders, regulations, etc.; specific discussion of the relevant laws, executive orders, and regulations can be





found in **Chapter 9**. Conclusion of the NEPA process results in a decision that addresses multiple concerns and requirements. The FHWA and FTA NEPA process allows transportation officials to make project decisions that balance engineering and transportation needs with social, economic, and natural environment factors. During the process, a wide range of stakeholders, including the public, businesses, interest groups, and agencies at all levels of government provide input into project and environmental decisions.

Figure 2-1 NEPA Umbrella



Prior to implementing NEPA compliance for a specific project, please check online to be certain there are no recent regulatory changes. At a minimum, check the CEQ website, the CDOT environmental website, and the FHWA environmental website.





2.4 Classes of Action

Transportation projects vary in type, size, complexity, and potential to affect the environment. Transportation project effects can vary from very minor to significant impacts on the human and natural environment. To account for the variability of project impacts, there are three basic “classes of action” that prescribe the level of documentation required in the NEPA process:

- ▶ Class I – EIS
- ▶ Class II – Categorical Exclusion (CatEx)
- ▶ Class III – Environmental Assessment (EA)

The class of action determines how compliance with NEPA is carried out and documented.

The three classes of action are shown in **Table 2-1**. Additional information on each of the classes of action is presented in **Chapters 4, 5, and 6**. The NEPA process is outlined in **Figure 2-2**.

If there are any changes to the project that may affect the classification determination, the CDOT project team and FHWA jointly reconsider the appropriate classification and FHWA approves the revised classification determination. FHWA is the ultimate decision-maker for federal project classification. If no federal action is anticipated, CDOT can make the determination for classification without FHWA consultation.



Table 2-1 NEPA Classes of Action

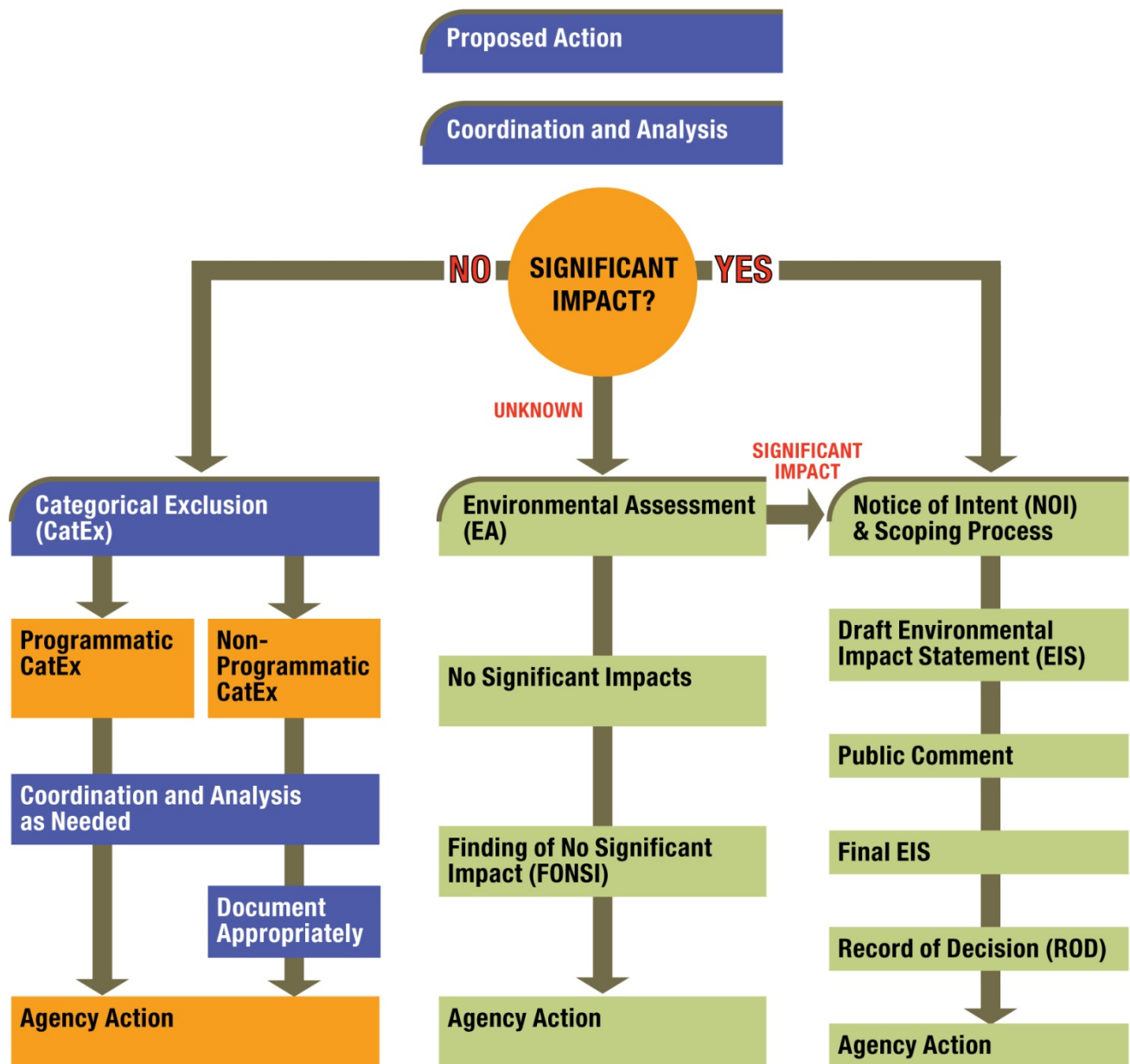
Class I	Class II	Class III
Environmental Impact Statement (EIS) – Chapter 4	Categorical Exclusion (CatEx) – Chapter 5	Environmental Assessment (EA) – Chapter 6
Required for actions likely to have significant environmental effects that cannot be mitigated.	Required for actions that do not individually or cumulatively have a significant environmental effect. Necessary environmental studies and compliance with all applicable requirements are still required for the project.	Required for actions that do not qualify as CatEx, but where there is insufficient information to determine whether the project’s impacts warrant an EIS. An EA may also be a useful tool in that it incorporates environmental considerations with project design and can aid in NEPA compliance when an EIS is not required.
Examples include: <ul style="list-style-type: none"> ■ A new, controlled-access freeway ■ A highway project of four or more lanes in a new location ■ New construction or extension of fixed rail transit facilities 	Examples include: <ul style="list-style-type: none"> ■ Pedestrian facilities ■ Landscaping ■ Routine maintenance, including resurfacing, bridge replacement and rehabilitation, and minor widening 	Examples include: <ul style="list-style-type: none"> ■ Actions that are not clearly Class II (CatEx) ■ Actions that are not clearly Class I (EIS) ■ New construction of highway interchange
Upon completing the EIS, FHWA signs a Record of Decision (ROD) that presents the basis for the determination, summarizes any mitigation measures to be incorporated in the project, and documents any Section 4(f) approval.	CDOT or FHWA approval is required on all CatEx projects. In Colorado, FHWA has programmatically approved some CatExs.	In coordination with FHWA, CDOT determines whether a Finding of No Significant Impact (FONSI) is appropriate or if further study is required in an EIS.

According to the CEQ regulations (40 CFR § 1500–1508), the determination that a project will have a “significant impact” is a function of both context and intensity of the anticipated impacts. Context means that the significance of the potential impact must be analyzed in several perspectives such as society as a whole (human, national), the affected region, the affected interests, and the locality. Intensity refers to the severity of impact. Significance of the impact will vary with the setting of the proposed action and the surrounding area (including residential, industrial, commercial, and natural sites).





Figure 2-2 NEPA Process Options (Classes of Actions)





CEQ regulations call for consideration of the following in determining significance:

- ▶ Degree of effect on public health or safety
- ▶ Presence of unique characteristics of the project area such as proximity to resources or protected areas
- ▶ Degree to which effects on the quality of the human environment are likely to be highly controversial
- ▶ Degree to which possible effects are uncertain or involve unique or unknown risks
- ▶ Degree to which the action would set a precedent for future actions with significant effects
- ▶ Contribution to cumulatively significant effects
- ▶ Degree to which there may be adverse effects to properties or districts on, or eligible for, listing on the National Register of Historic Places
- ▶ Degree to which there may be adverse effects on an endangered or threatened species or its critical habitat
- ▶ Conflict with federal, state, or local laws for the protection of the environment
- ▶ Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance the effect will be beneficial

To determine significance, the severity of the impact must be examined in terms of:

- ▶ Type, quality, and sensitivity of the resource involved
- ▶ Location of the proposed project
- ▶ Duration of the effect (short- or long-term)
- ▶ Other considerations of context



2.5 Safe, Accountable, Flexible, Efficient Transportation Equity Act :A Legacy for Users

In August 2005, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users was signed into law (known as SAFETEA-LU) (SAFETEA-LU, 23 USC § 1001 - 11167). SAFETEA-LU authorizes the federal surface transportation programs for highways, highway safety, and transit for the 5-year period 2005 to 2009. SAFETEA-LU was extended past 2009 because MAP-21 was not put in place until October 2012. SAFETEA-LU incorporates changes aimed at improving and streamlining the environmental process for transportation projects. These changes, however, come with some additional steps and requirements on transportation agencies.

SAFETEA-LU represents the largest surface transportation investment in US history and builds on the foundation of previous transportation laws (Intermodal Surface Transportation Efficiency Act [ISTEA, 23 USC § 1001 – 8005] and Transportation Equity Act for the 21st Century [TEA-21, 23 USC § 1101 – 9012]) to refine, among other things, the transportation planning and project development processes. SAFETEA-LU retains and increases funding for the environmental programs of TEA-21 and adds new programs focused on the environment. SAFETEA-LU requirements play an integral role in the development of the NEPA process for transportation projects. A brief discussion of these requirements is presented in **Table 2-2** below.

Table 2-2 SAFETEA-LU Requirements

Section ¹	Title	Description of Section
Section 6001	Transportation Planning	Section 6001 revises regulations governing the development of metropolitan transportation plans and programs for urbanized areas, state transportation plans and programs and the regulations for congestion management systems. Changes to the metropolitan and statewide transportation planning requirements extended the planning update cycles and integrated big-picture environmental considerations.
Section 6002	Efficient Environmental Reviews for Project Decision-Making	Section 6002 prescribes a new environmental review process for transportation projects, which is mandatory for Environmental Impact Statements (EIS) and optional for Environmental Assessments (EA), at the discretion of the Federal Highway Administration (FHWA) Division Office. The process includes new obligations to create enhanced opportunity for coordination with the public and promotes efficient project management by lead agencies. Section 6002 defines the roles and responsibilities of lead, cooperating, and, a new category "participating agency." In this section, Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) also sets forth various





Section ¹	Title	Description of Section
		<p>requirements for engaging broad agency and public input throughout the development and approval processes.</p> <p>Section 6002 requires notice and comment periods for purpose and need statements and the range of reasonable alternatives prior to circulation of the draft EIS. The law also provides a 180-day statute of limitations on legal actions following publication of a Federal Register notice that the final environmental approval or permit has been issued for a project. (This is separate from the notice of availability for a Record of Decision [ROD] or Finding of No Significant Impact [FONSI]).</p>
Section 6003	State Assumption of Responsibilities for Certain Programs and Projects	Section 6003 establishes a pilot program under which, during the first three years after enactment, the Secretary may allow up to five states to assume environmental responsibilities (including National Environmental Policy Act [NEPA] and Section 4(f)) for Recreational Trails and Transportation Enhancement projects.
Section 6004	State Assumption of Responsibility for Categorical Exclusions	After entering into a Memorandum of Understanding (MOU) with the Secretary, each state may assume responsibility for Categorical Exclusions (CatEx), with FHWA in a programmatic monitoring role. Another provision calls for the Secretary to establish a CatEx, to the extent appropriate, for activities that support the deployment of intelligent transportation infrastructure and systems.
Section 6005	Surface Transportation Project Delivery Pilot Program	Section 6005 establishes a project delivery pilot program for five states (specified as Alaska, Ohio, Oklahoma, Texas, and California), allowing them to apply to the US Department of Transportation (USDOT) to assume all USDOT environmental responsibilities under NEPA and other environmental laws (excluding the Clean Air Act and transportation planning requirements). This delegation authority is limited to highway projects and could be for specific projects within a state or a programmatic delegation.
Section 6006	Environmental Restoration and Pollution Abatement Guidance	<p>Section 6006 provides for added National Highway System eligibility for retrofits to projects undergoing reconstruction, rehabilitation, resurfacing, or restoration, if both National Highway System and Surface Transportation Program funds could be used for stand-alone projects for retrofits to address water pollution or environmental degradation caused wholly or partially by a transportation facility.</p> <p>Section 6006 makes activities for the control of noxious weeds and the establishment of native species eligible for federal-aid funds.</p>
Section 6007	Exemption of Interstate System	Section 6007 acts in general to exempt the bulk of the Interstate Highway System from consideration as a historic property under existing Section 4(f) requirements. It effectively excludes the vast majority of the 46,700 mile Dwight D. Eisenhower System of Interstate and Defense Highways (Interstate System) from review as an/a historic property under both Sections 106 and 4(f). Only distinct elements of the system, which meet the National Register of Historic Places criteria for national or exceptional significance, will continue to be treated as historic properties under both authorities. When designated by FHWA, elements such as certain bridges, tunnels, and rest stops, shall be excluded from the general exemption.





Section¹	Title	Description of Section
Section 6008	Integration of Natural Resource Concerns into Transportation Project Planning	Section 6008 mandates the integration of natural resource concerns into transportation planning.
Section 6009	Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites	Section 4(f) of the USDOT Act prohibits projects on publicly owned parks, recreation areas, wildlife and waterfowl refuges, or historic sites unless there is no feasible and prudent alternative and all possible mitigation is used. Under SAFETEA-LU, the Secretary can comply with Section 4(f) in a streamlined manner by finding that the program or project will have a "de minimis" impact on the area – i.e., there are no adverse effects of the project and the relevant State Historic Preservation Officer (SHPO) or other official with jurisdiction over a property concurs.
Section 6010	Environmental Review of Activities that Support Deployment of Intelligent Transportation Systems	Section 6010 calls for the Secretary to establish a CatEx, to the extent appropriate, for activities that support the deployment of intelligent transportation infrastructure and systems.
Section 6011	Transportation Conformity	Transportation conformity ("conformity") is a provision of the Clean Air Act that ensures that federal funding and approval goes to those transportation activities that are consistent with air quality goals. Conformity applies to transportation plans and projects funded or approved by the FHWA or the Federal Transit Administration (FTA) in areas that do not meet or previously have not met air quality standards for ozone, carbon monoxide, particulate matter, or nitrogen dioxide. The air quality conformity process is improved with changes in the frequency of conformity determinations and conformity horizons.

NOTE:

- (1) SAFETEA-LU Sections 6012 to 6018 include the Federal Reference Method, air quality monitoring data influenced by exceptional events, federal procurement of recycled coolant, clean school bus program, special designation, increased use of recovered mineral component in federally funded projects involving procurement of cement or concrete, and use of granular mine tailings, which are not relevant to the changes aimed at improving and streamlining the environmental process for transportation

2.6 Moving Ahead for Progress in the 21st Century Act

In July 2012, the Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law. MAP-21 authorizes the funding of surface transportation programs for federal fiscal years 2013 and 2014 and is the first long-term highway authorization enacted since the 2005 SAFETEA-LU. MAP-21 extends current law for the remainder of FY 2012; new provisions for 2012 and beyond took effect on October 1, 2012. Not all MAP-21 provisions take effect immediately. Some went into effect on October 1, 2012; however, others have specific timeframes in the language of the provision that require rulemaking from USDOT, which can take a year or





longer. Therefore, this Manual update does not include all MAP-21 provisions. Once rulemaking is complete another update to the Manual will occur reflecting current MAP-21 provisions.

MAP-21 transforms the policy and programmatic framework for investments to guide the growth and development of the country's vital transportation infrastructure. MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the US transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

Table 2-3 provides a broad overview of the MAP-21 requirements that are relevant to accelerating the project delivery process.

Table 2-3 MAP-21 Requirements

Section	Title	Description of Section
1301*	Declaration of Policy and Project Delivery Initiative	Section 1301 is a statement of policy similar to procedures or practices currently being implemented by USDOT under existing regulation or through programs. "...it is in the national interest to expedite delivery of surface transportation projects by substantially reducing the average length of the environmental review process" Also directs that "Each federal agency shall cooperate with [DOT] to expedite the environmental review process ..."
1302	Advance Acquisition of Real Property Interests	Section 1302 broadens the ability for states to acquire or preserve right-of-way prior to completion of the NEPA review process.
1303	Letting of Contracts	Section 1303 authorizes contracting agencies to use the Construction Manager/General Contractor (CM/GC) project delivery method for preconstruction (including scheduling, cost engineering, constructability, cost estimating, and risk identification) and construction services.
1304	Innovative Project Delivery Methods	Section 1304 promotes the use of innovative technologies and practices that increase the efficiency of construction, accelerate construction, improve the safety, improve the quality, reduce congestion from construction, and extend the service life of highways and bridges. Includes a federal share (up to 100%) for these innovative technologies and practices.
1305*	Efficient Environmental Reviews for Project Decisionmaking	Section 1305 allows for the use of programmatic approaches to conduct environmental reviews. It establishes that projects with more than one modal administration may have a single modal administration established as the federal lead agency. It also includes provisions that require multiple agency reviews to be conducted concurrently, rather than sequentially.





Section	Title	Description of Section
1306**	Accelerated Decisionmaking	Section 1306 amends Chapter 1 of Title 23, United States Code, as amended by Section 139(h). This provision applies to projects that require an EIS. The provision establishes a framework for setting deadlines for decision-making and includes the following provisions 1) the USDOT may convene a meeting 30 days after a DEIS is issued with resource agencies and others to ensure all are on schedule to meet deadlines for project decisions. 2) Establishes a process for issue resolution that may be initiated by USDOT 3) Establishes financial penalties for agencies that fail to make a decision in the specified timeframe. This provision applies to environmental laws beyond NEPA.
1307*	Assistance to Affected Federal and State Agencies	Section 1307 amends Chapter 1 of Title 23, United States Code, as amended by Section 139(j). When federal funds are to be used to dedicate staffing at an affected federal agency, an MOU must be established between the state and federal agencies to identify how the federal funds will be used to expedite environmental reviews and permitting processes.
1308*	Limitations on Claims	Section 1308 amends Chapter 1 of Title 23, United States Code, as amended by Section 139(l) and shortens the time period to file a lawsuit to 150 days after the release of a Final EIS.
1309**	Accelerating Completion of Complex Projects within 4 Years	Section 1309 amends Chapter 1 of Title 23, United States Code, as amended by Section 139 and includes provisions for certain projects involved in EIS preparation to receive technical assistance (e.g., provide additional staff, training, or supplying outside assistance) from the USDOT to resolve outstanding issues and project delays.
1310	Integration of Planning and Environmental Review	Section 1310 includes changes in the environmental review process – providing earlier coordination, greater linkage between planning and environmental review processes, using a programmatic approach where possible, and environmental document consolidation.
1311	Development of Programmatic Mitigation Plans	Section 1311 amends Chapter 1 of Title 23, United States Code Section, as amended by Section 1310(a) and adds the provision for allowing statewide or metropolitan planning organizations to develop programmatic mitigation plans to address potential environmental impacts of future projects.
1312	State Assumption of Responsibilities for Categorical Exclusions	Section 1312 amends 23 United States Code Section 326. This provision allows states to choose to assume federal authority for determining whether specific activities are CatExs. The amendment specifies that the USDOT shall not require states to forego project delivery methods that are “otherwise permissible for highway projects” as a condition of allowing states to assume responsibility for CatEx determinations.
1313	Surface Transportation Project Delivery Program	Section 1313 amends Chapter 1 of Title 23, United States Code Section 327. This is an amendment to an existing pilot program that allows states to assume FHWA's role in the NEPA process if program conditions are met. The provision makes the pilot program permanent, allows all states to participate, and expands the program to include NEPA responsibilities with respect to one or more railroad, public transportation, or multimodal projects within the state.





Section	Title	Description of Section
1314	Application of Categorical Exclusions for Multimodal Projects	Section 1314 expands the authority for use of Categorical Exclusions (CatExs) to a variety of other projects and includes multi-modal projects.
1315	Categorical Exclusions in Emergencies	Section 1315 expands the authority for use of CatExs for the repair or reconstruction of any road, highway, or bridge that is in operation or under construction when damaged under certain declared emergencies or disasters.
1316	Categorical Exclusion for Projects within the Right-of-Way	Section 1316 expands the authority for use of CatExs for projects within existing operational right-of-way and projects with limited federal assistance.
1318	Programmatic Agreements and Additional Categorical Exclusions	Under Section 1318, the USDOT must review projects processed as CatExs since 2005 and survey state agencies to solicit new CatEx designations to add to the regulatory list. USDOT must also propose a rulemaking to move some activities from subsection (d) to subsection (c) of CFR 771.117.
1319*	Accelerated Decisionmaking in Environmental Reviews	Statement of practices similar to procedures or practices currently being implemented by USDOT under existing regulation or through programs.
1320*	Memoranda of Agency Agreements for Early Coordination	Under Section 1320, the USDOT and federal resource agencies must provide technical assistance to states or MPOs, when requested. Also, the lead agency may establish MOAs with other agencies if requested by states or MPOs. Statement of practices similar to procedures or practices currently being implemented by USDOT under existing regulation or through programs.
1321	Environmental Procedures Initiative	Section 1321 establishes "an initiative to review and develop consistent procedures for environmental permitting and procurement requirements"
1322	Review of State Environmental Reviews and Approvals for the Purpose of Eliminating Duplication of Environmental Reviews	Section 1322 requires a review of state environmental laws that are similar to federal environmental laws and the identification of the frequency and cost of duplicative review processes. The result of this research will be submitted in a report to the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Environment and Public Works of the Senate no later than two years of enactment of MAP-21.
1323	Review of federal Project and Program Delivery	Section 1323 requires USDOT to review the completion times of CatExs, EAs, and EISs

NOTE:

- * Provisions that state national policies or priorities similar to procedures or practices currently being implemented to streamline the environmental review process by the USDOT under existing regulation or through programs such as Every Day Counts.
- ** Provisions that may lead to appreciable changes in the NEPA environmental review process.





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CHAPTER 3: CDOT'S NEPA-SPECIFIC PLANNING AND PROJECT DEVELOPMENT ELEMENTS

	<u>Page</u>
3.0 CDOT'S NEPA-SPECIFIC PLANNING AND PROJECT DEVELOPMENT ELEMENTS	3-1
3.1 Why CDOT Follows NEPA	3-1
3.1.1 Developing the Project Team	3-1
3.1.2 Agency Project Roles	3-3
3.1.3 Agency Coordination Plan	3-4
3.1.4 Project Life-Cycle.....	3-5
3.2 Planning and Environmental Linkages (PEL).....	3-6
3.3 Context Sensitive Solutions (CSS).....	3-9
3.4 CDOT and the 1601 Process	3-10
3.5 Funding and Fiscal Constraint in NEPA	3-12
3.5.1 Fiscal Constraint Requirements	3-13
3.5.2 Phasing/Timing of Construction	3-16
3.5.3 Interim Conditions	3-17
3.5.4 Timing of Mitigation	3-18
3.6 Innovative Project Delivery and NEPA	3-19
3.6.1 NEPA Requirements and Permissible Project Activities	3-19
3.6.2 Project Delivery Methods.....	3-20
3.6.3 Approval to Proceed with Activities Beyond the Normal Scope of Preliminary Design---	3-22
3.6.4 Design-Build and CM/GC Contracting Restrictions During the NEPA Process	3-23
3.6.5 Other Measures to Accelerate Project Delivery	3-23
3.7 References	3-24





LIST OF FIGURES

Figure 3-1 PEL Process Flow Chart----- 3-7

LIST OF TABLES

Table 3-1 Planning Requirements for NEPA*-----3-15
Table 3-2 Fiscal Constraint Requirement before Approving the NEPA Decision-----3-16





3.0 CDOT'S NEPA-SPECIFIC PLANNING AND PROJECT DEVELOPMENT ELEMENTS

The development of transportation projects is a multi-phased, multi-year process that involves significant commitment of technical and financial resources. This chapter discusses the National Environmental Policy Act (NEPA) elements of the Colorado Department of Transportation's (CDOT) overall transportation planning and project development process.

3.1 Why CDOT Follows NEPA

CDOT has committed to following the intent and requirements of NEPA for all transportation projects, regardless of whether or not the projects have a federal nexus (Section 2.2.3). Although non-federal projects will not require federal agency approval, the NEPA process is an excellent framework for ensuring environmental factors are considered consistent with CDOT's environmental ethic. Thus, the guiding principles of NEPA have been incorporated into the CDOT transportation planning and project development process, as well as maintenance and operations of the state transportation system. Additionally, CDOT is committed to following NEPA and this NEPA Manual is the main guidance document for NEPA compliance at CDOT as stated in CDOT Policy Directive 1904.0 *National Environmental Policy Act Compliance* (CDOT, 2012).

A key principle in NEPA is the use of an interdisciplinary approach. The application of this approach will lead to good transportation decisions and ensure responsible decision-making that takes into account social and environmental considerations. There are several actions that can be taken before the NEPA process officially begins to further promote CDOT's environmental ethic and help streamline projects. These actions are discussed below.

3.1.1 Developing the Project Team

A project is initiated with the assignment of a project manager. Each Region's Program Engineer assigns a project to a Resident Engineer, who in turn assigns a project manager. The project manager guides the project through the remainder of the process.

The project manager is required to involve the Region Planning and Environmental Manager (RPEM) in the development of Form 1048A *Project Scoping/Clearance Record*, which is used in conjunction with the *Project Development Manual* (CDOT, 2006), to scope the project and track documentation or activity sign off dates.



"CDOT will support and enhance efforts to protect the environment and quality of life for all of Colorado's citizens in the pursuit of providing the best transportation systems and services possible."

CDOT's Environmental Ethics Statement



CDOT's *Environmental Stewardship Guide* (CDOT, 2005a) was developed to document CDOT's environmental ethic information. This document can be obtained at: <http://www.coloradodot.info/programs/environmental/resources/guidance-standards>





The RPEM will involve environmental specialists, who represent physical, biological, cultural, and socio-economic resources to:

- ▶ Identify environmental considerations during the early stages of project definition
- ▶ Identify environmental issues that could impact schedule or budget
- ▶ Guide the formal NEPA process, particularly if CDOT retains consultants for NEPA support

The NEPA process is initiated immediately after the initial NEPA class of action designation (**Section 2.4**) and environmental study requirements are determined. The results of Form 1048A Sections 1 and 2 are discussed with the RPEM when an environmental study is needed. All information must be kept in the project file, which becomes part of the administrative record (further discussed in **Section 6.14**). Early coordination with the RPEM and environmental specialists will reduce the potential for time delays, increased costs, and changes to project design. If the project manager and RPEM decide to contract a consultant to complete the study they can use the CDOT *Generic Scope of Work* (CDOT, 2011a) to assign time and tasks to various team members. Section 6 of the *Generic Scope of Work* specifically refers to environmental tasks.

CDOT's environmental program as described in the *Environmental Stewardship Guide* is an iterative and collaborative process between CDOT's regions and Environmental Programs Branch (EPB), in cooperation with the Federal Highway Administration (FHWA).

The core of the NEPA interdisciplinary project team will consist of an assigned project manager from the region, a RPEM or their designee, an EPB NEPA specialist, the consultant (as needed), the Operations Engineer from FHWA's Colorado Division assigned to the project, and local agency representatives (as needed). Other staff members, who may contribute to the project team over the course of the project, will include staff from CDOT Right-of-Way, Access, Engineering, Maintenance, Safety, and Traffic, and others as necessary. **Chapter 8** identifies staff and team members involved in document review.

Outside of the CDOT/FHWA project team, external agencies will also participate in the process. When different agencies have independent decision-making authority, the goal is to produce one NEPA document that will meet the regulatory requirements of all agencies.



For more information on CDOT's *Generic Scope of Work* (CDOT, 2011) please refer to <http://www.coloradodot.info/business/consultants/submittting-a-bid/GENERIC%20SCOPE%20OF%20WORK%205-5-06.doc/view>





3.1.2 Agency Project Roles

The US Department of Transportation (USDOT) agency conducting the NEPA analysis, such as FHWA or the Federal Transit Administration (FTA), serves as the lead federal agency for NEPA compliance on transportation projects. FHWA may act as a joint lead agency with either another federal agency (40 CFR § 1501.5 [b]) or a state or local agency under the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) Amendments (SAFETEA-LU, 23 USC § 1001 – 11167). More detailed information about SAFETEA-LU can be found in **Section 2.5**.

The joint lead agency is typically the project sponsor that is a state or local government, such as CDOT, receiving federal funds. When other transportation authorities or governmental entities are serving in the role of a joint lead agency, FHWA will generally request CDOT to assist these governmental entities by acting as a program administrator for NEPA compliance. When CDOT performs NEPA, the standard used for document development and processing will be this CDOT NEPA Manual as stated in Policy Directive 1904.0 *National Environmental Policy Act Compliance* (CDOT, 2012). The project sponsors are the local agencies applying to connect to a local roadway, state highway, or interstate or those that receive federal funds for a project.

A federal, state, Tribal, or local agency having special expertise with respect to an environmental issue or jurisdiction by law may be a cooperating agency in the NEPA process. A cooperating agency has the responsibility to assist the lead agency through participation in the NEPA process at the earliest possible time. The cooperating agency also participates in the scoping process and in development of information and preparation of environmental analyses (including portions of an Environmental Impact Statement [EIS] where the cooperating agency has special expertise). Cooperating agencies also make available support staff at the lead agency's request to enhance the lead agency's interdisciplinary capabilities.

Participating agencies, as defined by SAFETEA-LU, are those with an interest in the project. The standard for participating agency status is more encompassing than the standard for cooperating agency status described above. Therefore, cooperating agencies are, by definition, participating agencies, but not all participating agencies are cooperating agencies. The lead agencies should consider the distinctions in deciding whether to invite an agency to serve as a cooperating/participating agency or only as a participating agency.

The roles and responsibilities of cooperating and participating agencies are similar, but cooperating agencies have a higher degree of authority,



CDOT's *Local Agency Manual* (CDOT, 2006) was developed to assist local agency personnel involved in the design, construction, and management of state and federally funded projects.



Integrating NEPA with Project Development

- Start NEPA early
- Conduct a site visit with a multi-disciplinary team including engineering and environmental
- Involve resource specialists from the regions and headquarters to represent physical, biological, cultural, and socioeconomic resources
- Maintain continuity of staff from project inception to completion whenever possible
- Collaborate and communicate across disciplines frequently and consistently





responsibility, and involvement in the environmental review process. A distinguishing feature of a cooperating agency is that the Council on Environmental Quality (CEQ) regulations (CEQ, 40 Code of Federal Regulations [CFR] § 1500 – 1508) permit a cooperating agency to "assume on request of the lead agency responsibility for developing information and preparing environmental analyses including portions of the environmental impact statement concerning which the cooperating agency has special expertise." An additional distinction is that, pursuant to 40 CFR § 1506.3, "a cooperating agency may adopt without recirculation of the environmental impact statement of a lead agency when, after an independent review of the statement, the cooperating agency concludes that its comments and suggestions have been satisfied." This provision is particularly important to permitting agencies, such as the US Army Corps of Engineers (USACE), who, as cooperating agencies, routinely adopt USDOT environmental documents.

3.1.3 Agency Coordination Plan

If conducting an EIS, Section 6002 of SAFETEA-LU requires that a project team completes an Agency Coordination Plan prior to the start of a project. The Agency Coordination Plan will define the roles and responsibilities of the various agencies, outline major project milestones, and define how input from stakeholders will be solicited. While this plan is required for EISs it is encouraged for Environmental Assessments (EA) as well. A template for an Agency Coordination Plan is included as **Appendix E**.

CEQ regulations include criteria for designating a lead agency if a conflict exists (CEQ, 40 CFR § 1501.5), as well as the roles and responsibilities of cooperating agencies (CEQ, 40 CFR § 1501.6). External agency involvement may also be dictated by existing intergovernmental agreements (IGAs) between CDOT and/or FHWA and the agency, such as:

- ▶ Memorandum of Understanding (MOU) among CDOT, FHWA, Bureau of Land Management (BLM), and the US Forest Service (USFS) Related to Activities Affecting the State Transportation System and Public Lands in the State of Colorado
- ▶ MOU among CDOT, FHWA Central Federal Lands Division, and USFS Region 2 for the Planning, Programming, Project Development, Construction and Maintenance of Forest Highways in the State of Colorado
- ▶ NEPA / Clean Water Act (CWA) Section 404 Merger Process
- ▶ MOU between FHWA, US Environmental Protection Agency (EPA), and CDOT that formalizes the cooperative working relationship between these agencies



Existing intergovernmental agreements can be found at

<http://www.coloradodot.info/programs/environmental/resources/agreements>





3.1.4 Project Life-Cycle

In 1991, Colorado's General Assembly enacted legislation directing that transportation planning is to occur as a cooperative process:

"...the General Assembly recognizes the Department of Transportation as the proper body, in cooperation with regional planning commissions and local government officials, for developing and maintaining the state transportation planning process and the state transportation plan." §43-1-1101 Colorado Revised Statutes

With policy direction provided at the statewide level through the Colorado Transportation Commission, regional planning commissions prepare regional transportation plans (RTP) identifying and prioritizing their long range transportation needs for all modes. These regional transportation plans and priorities are integrated and consolidated into the long range multimodal statewide transportation plan (SWP), which serves as the blueprint for how transportation resources are invested and projects are selected for implementation.

Decisions made during planning can be reflected in project-specific NEPA documentation without revisiting those decisions depending on the process that was followed and the magnitude and sensitivity of the related issues. CDOT project managers must also work closely with their RPEM and planning staff to understand the required components of the project that have already gone through the planning process and may not need to be revisited. For more information on integrating planning with NEPA, see **Section 3.2**.

CDOT's *Project Development Manual* (CDOT, 2013) identifies and describes the activities related to project development from conception to award of the build contract, and establishes a uniform application of processes and procedures for use across CDOT. The *Project Development Manual* is organized into eight sections, each covering an important aspect of Form 1048A *Project Scoping/Clearance Record*. The following sections of Form 1048A are important to the initiation of NEPA:

- ▶ Section 1 states that the need for a preliminary field survey be assessed.
- ▶ Section 2 must be reviewed in coordination with the RPEM to determine the presence or absence of environmental considerations and the documentation of that information. This information will be used during the initiation of the NEPA process and will help the project team assess the need for supplemental field studies.



To find out more about the current 2035 Statewide and Regional Transportation Plans and other transportation planning related topics, see CDOT's Statewide/Regional Planning website at:

<http://www.coloradodot.info/programs/statewide-planning>





Section 2 also addresses route location approval and environmental compliance. As noted in **Section 3.2.4** and in compliance with the FHWA and the FTA jointly issued regulations, *Environmental Impact and Related Procedures* (FHWA and FTA, 23 CFR 771 § 771.101 – 771.131), all proposed projects must be assigned an environmental class of action designation, which helps determine the appropriate level of environmental studies and public involvement activities required for approval by CDOT staff. The RPEM is responsible for scoping the project and, in consultation with the project team and FHWA, determining the initial class of action and the environmental studies, approvals and permits required.

3.2 Planning and Environmental Linkages (PEL)

FHWA defines planning and environmental linkages (PEL), formerly referred to as Linking Planning and NEPA, as a voluntary approach to transportation decision-making that considers environmental, community, and economic goals early in the planning process and carries them through project development, design, and construction (FHWA, 2008). The PEL process can lead to a better decision-making process that minimizes duplication of effort, promotes environmental stewardship, and reduces delays in project delivery.

The PEL process is based on the need to streamline decision-making, improve project delivery, to include environmental considerations in the transportation planning process, and to better link planning with NEPA. Accordingly FHWA and FTA have been working with state and local transportation agencies and public works departments for the past several years to reduce the duplication of work between transportation planning and NEPA and to reduce potential delays in project delivery as projects move from planning to project design and development.

Decision-making for transportation projects involving federal actions begins with transportation planning before proceeding to project development, which includes the evaluation of environmental resources as required by NEPA. Decision-making processes are intended to work in tandem, with the results of the transportation planning process feeding into project development, including the NEPA process (**Figure 3-1**).



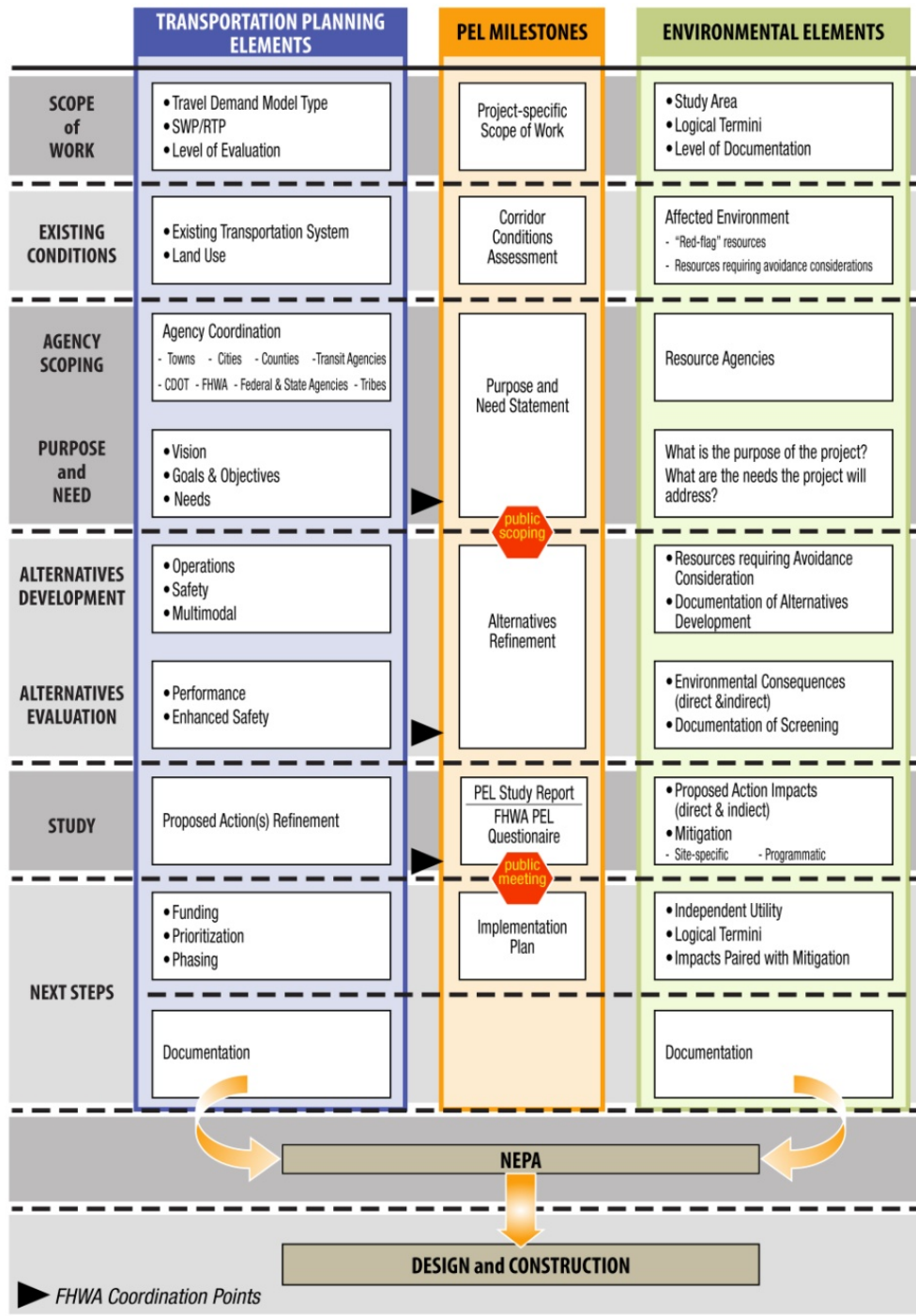
CDOT's PEL Handbook, completed in December 2012 is available at:
<http://www.coloradodot.info/programs/environmental/planning-env-link-program/pel-handbook-december-2012/view>



PEL has been identified by FHWA in their Every Day Counts (EDC) as one of several initiatives to be included in a toolkit that will address shortening project delivery time.



Figure 3-1 PEL Process Flow Chart





Congress recognized the need to streamline the transportation decision-making process in the SAFETEA-LU transportation funding legislation, which emphasized the need to include environmental considerations in the planning process and better link planning with NEPA. Specifically, Section 6001 (Environmental Considerations in Planning) requires certain elements and activities to be included in the development of long range transportation plans, including:

- ▶ Consultations with agencies, such as those responsible for land-use management, natural resources, environmental protection, conservation, and historic preservation, which shall involve, as appropriate, comparisons of resource maps and inventories
- ▶ Discussion of potential environmental mitigation activities and potential areas to carry out these activities
- ▶ Participation plans that identify a process for stakeholder involvement including those traditionally underserved by existing transportation systems
- ▶ Visualization of proposed transportation strategies where practicable

The statewide and metropolitan transportation planning regulations (23 CFR 450) explain how results or decisions of transportation planning studies may be used as part of the overall project development process consistent with NEPA (FHWA, 2001). Appendix A of 23 CFR 450 - Linking the Transportation Planning and NEPA Processes provides details on how information, analysis, and products from transportation planning can be incorporated into and relied upon in NEPA documents under existing laws. The statewide and metropolitan planning regulations regarding PEL are intended to be non-binding and voluntary.

The need for a project to meet fiscal-constraint requirements before the NEPA process can begin (Section 3.5) is an opportunity for the PEL process to provide initial evaluation of a project without identified construction funding. PEL studies do not need to be in the fiscally-constrained RTP or SWP), unless they are federally funded, and can be initiated at any time.

CDOT has had a PEL program in place since 2006. Since then, CDOT has become a PEL national leader because of its many accomplishments. CDOT has incorporated various tools and techniques into their transportation planning process to support the PEL approach. When the PEL approach is successfully implemented, the lifecycle of the project flows more efficiently.



Interactive training for PEL is available at:

<http://www.coloradodot.info/programs/environmental/planning-env-link-program>

This training will introduce you to the contents of the PEL program, which includes:

- Basics of the statewide and regional planning process
- Basics of the NEPA process
- Opportunities for linking statewide and regional planning to the NEPA process





3.3 Context Sensitive Solutions (CSS)

Context Sensitive Solutions (CSS) represents an evolution in the philosophical approach to transportation development. It recognizes the need to develop transportation solutions that supplement and support the social, economic, and environmental context of the facility. CSS seeks a balance between four primary elements:

- ▶ Mobility
- ▶ Safety
- ▶ Preservation and Enhancement of the Natural Environment
- ▶ Community Values

Balancing these elements is accomplished through the use of four key components:

- ▶ Project Purpose and Need
- ▶ Effective Involvement of a Full Range of Stakeholders
- ▶ Survey and Analysis of Environmental Features
- ▶ Use of Multi-Disciplinary Teams

Through the use of these components and balancing the four elements, CSS seeks to proactively identify and address issues early in the project development process thereby reducing redundancy and lost time during project development, design, and construction. The early use of the four key components balance the four primary elements of CSS and lead to transportation solutions that are more effective and sustainable with fewer corrections and changes needed later.

While aesthetic treatments and visual enhancements are often features in designing a facility that is responsive to stakeholder needs, CSS should not be construed as simply a beautification requirement. CSS represents comprehensive solutions to transportation issues in such a way as to minimize negative impacts to all stakeholders and to design projects that best fit the physical setting, work with and enhance the community and environment of which they are a part.

A specific section on CSS should not appear in any NEPA document. It should be reflected in the way the NEPA process is implemented. Ideally, CSS will influence how project decisions are made and how the other sections are written.



CDOT has established CSS guidance specifically for the I-70 Mountain Corridor available at:

<http://i70mtncorridorcss.com/>



Because each project has a unique context, a one-size-fits-all process for CSS is not appropriate. How CSS principles and tools can be effective for each project must be developed individually, through the level of stakeholder involvement appropriate for each project.

3.4 CDOT and the 1601 Process

The CDOT Policy Directive 1601.0 and Procedural Directive 1601.1 *Interchange Approval Process* describe a CDOT process to review requests for interchanges and major improvements to existing interchanges on the state and federal-aid highway system that could affect highway travel (CDOT, 2001; CDOT, 2005a; CDOT, 2005b). CDOT Policy Directive 1601.0 and Procedural Directive 1601.1 were established by the Colorado Transportation Commission to provide fair and consistent procedures regarding the review and evaluation of requests for new interchanges and major improvements to existing interchanges on the state highway system.

The 1601 process requires, among other things, that the interchange:

- ▶ Be consistent with an approved fiscally-constrained RTP and SWP, and included in a Transportation Improvement Program (TIP) and/or Statewide Transportation Improvement Program (STIP)
- ▶ Be the subject of approved IGAs which address the funding of the application development and review process, timeline and analytical expectations, and an IGA covering construction, operations, maintenance, and replacement of the interchange
- ▶ Have sufficient environmental, operational, and other studies performed consistent with FHWA interchange approval and NEPA requirements

The scope of study and level of detail and effort is dependent on the improvement type and the complexity of the interchange proposal. The 1601 interchange approval process identifies three types of interchange requests: Type 1, Type 2, and Type 2a.

Type 1 requests consist of two categories: (1) Proposals for new interchanges on the state highway system with a functional classification of interstate or freeway; and (2) Any type of proposal on the state highway system not initiated by CDOT that anticipates CDOT cost-sharing participation. Type 1 requests must be approved by the Transportation Commission.

Type 2 requests consist of proposals for a new interchange not on the interstate or freeway system and all modifications or reconfigurations to existing interchanges. Type 2 requests must be approved by the Chief Engineer and may be elevated by the Chief Engineer to the Transportation Commission for consideration.



CDOT's 1601 process is always required when there is a request for an interchange or major improvements to an existing interchange. Of these 1601s, some also may require FHWA's Interchange Approval Request (IAR) process if they affect interstate travel. They are different processes but can be done at the same time.



The 1601 interchange approval pre-application meeting will identify the improvement type (Type 1, 2, or 2a), as well as the appropriate scope of the study and level of detail and effort.





Type 2a requests consist of minor interchange improvements that will have little or no impact to the state highway system or surrounding local transportation system, consistent with the definitions and guidance provided in the *FHWA Colorado Division Guidance on Minor Interchange Modification Requests* (FHWA, 2005). Type 2a approvals are delegated by the Chief Engineer to the CDOT Region Transportation Director.

The steps in the 1601 interchange approval process include:

- ▶ Step 1: 1601 Pre-Application Meeting(s)
- ▶ Step 2: Initial IGA Approval
- ▶ Step 3: System Level Study Preparation
- ▶ Step 4: System Level Study Approval
- ▶ Step 5: Metropolitan Planning Organization (MPO)/Transportation Planning Region (TPR) Board Approval
- ▶ Step 6: Design and NEPA Approval Process
- ▶ Step 7: Final IGA

A System Level Study is required for both Type 1 and Type 2 proposals and should provide enough information to support the FHWA IAR or Minor Interstate Modification Request. Type 2a proposals do not require a System Level Study but should have sufficient data to substantiate the determination of “no potential for significant impact” in accordance with the *FHWA Colorado Division Guidance on Minor Interchange Modification Requests* (FHWA, 2005).

The purpose of a System Level Study is to identify the short and long-term environmental, community, safety, and operations impacts of a proposed interchange or interchange modification to the degree necessary for the CDOT Chief Engineer, Transportation Commission, and FHWA to make an informed decision on whether the proposed interchange or interchange modification is in the public interest. A System Level Study includes:

- ▶ Draft Purpose and Need Statement
- ▶ Existing and Forecasted Conditions
- ▶ Alternatives
- ▶ Planning-level Evaluation of Alternatives
- ▶ Environmental Considerations
- ▶ Funding and Phasing

The Interstate Access Request approval is a two-step process that was developed to help the state manage risk and provide flexibility. The process





is intended to identify fatal flaws and to help ensure the investment in environmental documentation is not wasted. The first step is a finding of operational and engineering acceptability. The second step is the final approval. The FHWA approval constitutes a federal action and requires that NEPA procedures are followed. Compliance with the NEPA procedures need not precede the determination of engineering acceptability. However, final approval of access cannot precede the completion of NEPA. Once NEPA has been completed, approval of access is granted as long as no changes resulted to the accepted concept.

3.5 Funding and Fiscal Constraint in NEPA

The cost, size and complexity of transportation projects combined with limited available funding often results in transportation projects being funded and implemented over a lengthy period of time rather than all at once. This section describes the funding and timing of project implementation in relation to the NEPA process. This discussion includes:

- ▶ Fiscal constraint requirements for initiating and completing NEPA
- ▶ Phasing and timing of construction in relation to NEPA
- ▶ Interim construction requirements
- ▶ Timing of mitigation

FUNDING DEFINITIONS

In describing the requirements of fiscal constraint with respect to NEPA, the following FHWA definitions (FHWA, 2011) apply:

- ▶ **Fiscal constraint** means that the metropolitan RTP, TIP and the STIP have sufficient financial information to demonstrate that a project in the RTP, TIP and STIP can be implemented using committed, available, or reasonably available revenue resources.
- ▶ **Available funds** are funds derived from existing sources dedicated to or historically used for transportation purposes. For example, apportioned/authorized Federal-aid dollars or toll revenues for the next 2- 4 years. [23 CFR § 450.104]
- ▶ **Committed funds** are funds that have been dedicated or obligated for transportation purposes. For example, funds obligated for a Federal-aid project or toll revenues for the next 2 years. [23 CFR § 450.104]
- ▶ **Reasonably available funds** - Determining whether a future funding source is reasonably available requires a judgment decision. Two important considerations in determining whether an assumption is "reasonable" are (a) evidence of review and support





of the new revenue assumption by State and local officials and (b) documentation of the rationale and procedural steps to be taken with milestone dates for securing the funds.

3.5.1 Fiscal Constraint Requirements

FHWA and CDOT have specific requirements, based on statutes and regulations, for the demonstration of fiscal constraint for a project prior to final NEPA approval (Categorical Exclusion [CatEx], Finding of No Significant Impact [FONSI], or Record of Decision [ROD]). Fiscal constraint for a project is demonstrated by satisfying the requirements of specific transportation planning and air quality conformity regulations, as described in this section.

The Metropolitan Planning Regulations (23 CFR 450.322) and the Clean Air Act (CAA) Transportation Conformity Rule (40 CFR 93.104) work together to require that a project located in an MPO (the geographic area in which the metropolitan planning process is carried out) and/or in a CAA nonattainment or maintenance area, be contained in a conforming, fiscally-constrained long range RTP. The CAA requires air quality conformity to be demonstrated for major transportation projects in non-attainment and/or maintenance areas. The following fiscally-constrained transportation plans must identify all projects that are expected to receive federal funds or that will require FHWA or FTA approval:

- ▶ **RTP** – identifies projects anticipated to be constructed over the next twenty years (the RTP typically contains both an unconstrained vision plan and fiscally-constrained plan).
- ▶ **TIP** – identifies capital and non-capital surface transportation projects, as well as regionally significant projects within the metropolitan planning area to be constructed in the next six years.
- ▶ **STIP** – identifies capital and non-capital transportation projects (or phases of projects) proposed for funding under Titles 23 and 49 of the USC, as well as all regionally significant transportation projects regardless of funding source and/or requiring action by FHWA and FTA over a six year period.



State regulations (2 CCR 601-22) require fiscal constraint of the SWP (this is not a federal requirement, fiscal constraint is only required for MPO plans).



Conformity is required by Clean Air Act Section 176(c). This section requires that Federal agencies do not adopt, accept, approve or fund activities that are not consistent with State air quality goals.

TRANSPORTATION PLANNING PROCESS CONTEXT

In 1991, Colorado's General Assembly enacted legislation providing the basis for the transportation planning process in Colorado. The law requires the development of a comprehensive fiscally constrained, long range twenty year SWP that incorporate the priorities and needs of Colorado's 15 TPRs. CDOT carries out a continued, cooperative, and comprehensive statewide multimodal transportation planning process with its 15 TPRs. Of the 15 TPRs, ten are considered non-urban TPRs and the five located in urban





areas are considered MPOs. Each TPR is comprised of the municipalities and counties within its established boundaries.

The planning process includes the development of long range multimodal RTPs by each TPR, which are integrated into the SWP. The RTPs and SWP include fiscally-constrained and fiscally-unconstrained vision components and identify the needs, corridor visions and strategies, and/or projects anticipated to be constructed over the next twenty or more years. The SWP combines the individual corridor visions of the TPRs into a statewide vision that links transportation goals and strategies to investment decisions.

The SWP includes an environmental section that lists conservation and management plans for resource agencies in each TPR and MPO RTPs. The SWP is supported by environmental technical reports, transit technical reports, etc. Each of the 15 TPRs include corridor visions that integrate community values, land use decisions, and environmental concerns with transportation needs. The RTPs include an environmental overview that addresses expected environmental, social and economic impacts of the recommendations contained in the transportation plan. Colorado Revised Statute 43-1-1103 states that the RTPs shall include expected environmental, social, and economic impacts of the recommendations contained in the transportation plan. Approximately 350 corridor visions have been updated by the TPRs to identify current trends and conditions. Corridor visions increase the efficiency and accountability of the transportation system by aligning vision strategies and project priorities.

CDOT also develops a STIP that identifies the short-term project needs and priorities of the State of Colorado. In addition, under federal law, all of the MPOs are required to develop a short-term capital improvement program TIP consistent with the long range RTPs for each MPO. Similar to the STIP, the TIPs for each MPO are updated every four years and include a six-year planning horizon. TIPs approved by the MPOs and Governor are included in the STIP without modification. STIP projects must be consistent with the corridor visions identified in the SWP. All federally funded and regionally significant projects are identified in the RTP and SWP and corresponding TIP, if applicable.

FISCAL CONSTRAINT REQUIREMENTS FOR NEPA

FHWA has provided guidance regarding the relationship of transportation planning to NEPA approval, with particular emphasis on fiscal constraint, in two memorandums. As described in the memoranda, to demonstrate fiscal constraint, certain requirements of the transportation planning process must be completed prior to initiating and/or finishing the NEPA process. Constraint requirements must be indicated in the NEPA document in a project phasing and implementation section, or elsewhere as appropriate.



FHWA's memoranda on fiscal constraint are available at:

Transportation Planning Requirements and Their Relationship to NEPA Process Completion – January 28, 2008
<http://www.fhwa.dot.gov/planning/tprandnepamemo.htm>

Supplement to January 28, 2008
Transportation Planning Requirements and Their Relationship to NEPA Process Completion – February 9, 2011
<http://www.fhwa.dot.gov/planning/supplementmemo.htm>





In addition to the fiscal constraint requirements, it is incumbent on FHWA and CDOT to consider the broader context of fiscal stewardship when making NEPA decisions, including the decisions on whether to initiate the NEPA process. Fiscal stewardship is a critical role and responsibility for FHWA and CDOT and is engrained throughout the transportation decision-making process: from fiscal constraint requirements in the transportation planning process, to reasonable cost estimates of alternatives in project development and the NEPA process, to financial plans and major project requirements during design and construction. **Table 3-1** details the federal planning and NEPA requirements that must be met whether or not the environmental process is funded with federal-aid.

Table 3-1 Planning Requirements for NEPA*

	NEPA process can start:	Required actions before the Final NEPA Decision can be approved:
NEPA process funded with federal funds	<ul style="list-style-type: none"> Corridor/feasibility (Planning and Environment Linkages - PEL) studies: the study does not need to be in the fiscally constrained RTP or SWP and can start at any time, but the study must be in the Unified Planning Work Program (UPWP) or State Planning and Research (SPR) work program when funded with Metropolitan Planning (PL)/SPR funds. More guidance on the PEL process is provided in Chapter 3, Section 3.2. Tier I EIS can start prior to being in the fiscally constrained RTP or SWP if the scope is for corridor planning or feasibility study and will not include decisions directly resulting in project implementation activities of any kind (e.g., Right-of-Way purchase). More guidance on Tier 1 EISs is provided in Chapter 4, Section 4.20.1. 	
	<ul style="list-style-type: none"> NEPA study must be in the RTP or consistent with the SWP NEPA phase of the project must be in TIP or STIP 	<ul style="list-style-type: none"> One subsequent phase of project is in the STIP/TIP
	NEPA process can start:	Required actions before the Final NEPA Decision can be approved:
NEPA process not funded with federal funds	<ul style="list-style-type: none"> After the planning level purpose and need has been identified Project does not need to be in the fiscally constrained RTP Project does not need to be in the fiscally constrained STIP/TIP 	<ul style="list-style-type: none"> Project is in the fiscally constrained RTP NEPA phase of the project is amended into the TIP or STIP One subsequent phase of Project is in the STIP/TIP Project must meet all NEPA requirements

* In accordance with the *CDOT Environmental Stewardship Guide* (CDOT, 2005a), CDOT follows a NEPA-like process for all projects regardless of funding. This table deals specifically with those projects that require the NEPA process in accordance with 23 CFR 771.





Table 3-2 describes the fiscal constraint actions that must be in place before a final environmental decision is made.

Table 3-2 Fiscal Constraint Requirement before Approving the NEPA Decision

Before a Final Environmental Decision (CatEx, FONSI, ROD) is approved in:	Fiscal Constraint must be demonstrated by:
Metropolitan Areas (MPO)	<ul style="list-style-type: none"> ▪ Entire Project is in the RTP ▪ At least one subsequent phase of the project to be cleared in NEPA must be in the TIP (more if within TIP timeframe) or STIP ▪ Full funding is reasonably available for the completion of the entire project ▪ Project level conformity determination for all projects subject to transportation conformity
Non-Metropolitan Areas (Outside MPO)	<ul style="list-style-type: none"> ▪ Project is consistent with the SWP ▪ At least one future phase of the project is in the STIP (more if within STIP timeframe) ▪ Full funding is reasonably available for the completion of the entire project

3.5.2 Phasing/Timing of Construction

Transportation projects are often implemented in phases. This may be done for a number of reasons, the most obvious of which is the ability to physically construct the project. Another reason is funding limitations that may preclude the ability to construct the entire project at one time. Phased implementation is typically detailed during final design. However, the requirements of fiscal constraint must be satisfied for NEPA approval, as described above.

In cases where a project is implemented in more than one phase, each phase should have independent utility and logical termini to the extent that the phase provides a functional transportation system even in the absence of other phases (i.e. the phase to be implemented has the ability to operate on its own). Each phase must also meet the project purpose and need. In addition, any mitigation measures needed in response to project impacts must be implemented with the phase in which the impacts occur, rather than deferred to a later phase.

When project construction is anticipated to occur in one, two, or more phases separated by a period of time (rather than normal construction phasing), this situation should be described in the NEPA document and in the accompanying public involvement process. The discussion should include:





- ▶ Project funding status
- ▶ Project phasing
- ▶ Implementation schedule

Often funding limitations may make it difficult to predict the timing of future phases, and in these cases measures must be taken to ensure the independent utility of each phase. Additionally, it must be demonstrated that air quality conformity will not be jeopardized.

In establishing project phasing, FHWA, CDOT and local agencies may establish criteria to be used as guidelines in establishing logical project phases including:

- ▶ ***Independent utility/logical termini*** – each phase should have independent utility and logical termini to the extent that the phase provides a functional transportation system even in the absence of other phases
- ▶ ***Elements of purpose and need*** – each phase should contribute to meeting the purpose and need for the entire project
- ▶ ***Environmental impacts*** – individual phases should avoid the introduction of additional environmental impacts that cannot be mitigated
- ▶ ***Mitigation paired with impacts*** – each phase should include appropriate mitigation measures to match the environmental impacts of that phase
- ▶ ***Fiscal constraint*** – any phase selected must meet the requirements of fiscal constraint
- ▶ ***Air quality conformity*** – any phase selected must meet the requirements of air quality conformity

Using criteria such as these, a series of logical phases can be established. In addition to these criteria, logical sequencing of phases in terms of constructability and operation should be considered and a general priority of needs applied, with system reliability and safety often as the top priority.

3.5.3 Interim Conditions

When a project is constructed in phases, interim conditions will exist between project construction phases. In some cases, such as when phasing is done only for constructability and/or to maintain traffic on an existing facility, the interim conditions may be short term, lasting only until the next construction phase can begin. In other situations, such as limited funding, interim conditions may last for years.





In some cases where funding is limited, it may be desirable to phase the project to provide interim improvements and benefits earlier rather than waiting for funding for full construction. However, the decision to phase a project in this way should weigh the benefits with additional costs (for example, extra cost for throwaway construction that must be replaced in a future phase) and any additional impacts of phased construction for example. In general, throwaway costs should be minimized.

When interim conditions are expected to last a number of years, this should be described in the NEPA document. The effect on the transportation facility and any other impacts (such as access or environmental impacts) should be discussed. From a traffic operations standpoint, it is very important that the interim construction does not introduce safety problems. Additionally, any interim construction should provide transportation system benefits, and should not cause any portions of the transportation system to operate unacceptably or worse than it would without the interim construction. When interim conditions are expected to remain for a number of years, traffic and/or safety analyses may be needed to establish that the interim improvements will operate at an acceptable level of service in the future.

3.5.4 Timing of Mitigation

During the NEPA process, avoidance, minimization, and mitigation measures are developed to address project impacts. These considerations may need special attention when a project is to be constructed in more than one phase. When establishing a project phasing approach, impact avoidance and minimization may need to be re-examined to ensure that these can still be achieved with the anticipated phasing. Additionally, if any new impacts will be introduced by the phasing or interim conditions, such impacts may require additional mitigation measures.

Mitigation measures should generally be implemented in the same construction phase as the impacts will occur, or earlier. In some cases, it may be appropriate to include specific mitigation in an earlier phase or to bundle mitigation for impacts in multiple phases into one phase.

Mitigation should generally not be delayed to later phases. However, there may be some situations where this is appropriate when the impacts in the interim will not be severe and cost and/or disruption of implementing the mitigation would be substantially greater in the earlier phase. Any delay of mitigation to a later phase will be carefully considered by CDOT and FHWA, and should be described in the NEPA document, as appropriate.





CDOT and FHWA will ensure the mitigation commitments outlined in the NEPA document are implemented as part of the project design, construction, and post-construction monitoring. Identified commitments must be incorporated, as appropriate, into the construction plans and specifications for the project. CDOT and FHWA will ensure that the commitments are implemented through review of the project construction plans and specifications, as well as periodic inspections during construction. Inspections during construction could involve both a review of project construction documentation and observation of construction activities. The CDOT environmental commitment tracking process and tracking sheet will be used to track and document mitigation for each phase.

For projects with mitigation implemented over a period of time, CDOT and FHWA may monitor mitigation effectiveness and success through a combination of field reviews, pre-construction and post-construction inspections and post-construction monitoring, as appropriate. For projects with extensive mitigation, CDOT may elect to prepare annual reports reporting effectiveness of the mitigation measures, by agreement with some resource agencies. If mitigation is determined not successful or mitigation commitments are not met, CDOT will rectify as needed.



CDOT's Mitigation Tracking Spreadsheet can be located at:
http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view

3.6 Innovative Project Delivery and NEPA

Over the past several years, and more recently with the passage of Moving Ahead for Progress in the 21st Century Act (MAP-21), Congress has declared that it is in the nation's best interest to promote the use of innovative technologies and practices that accelerate the delivery of transportation projects. This section discusses common innovative project delivery activities and how they integrate with the NEPA process.

3.6.1 NEPA Requirements and Permissible Project Activities

NEPA review and approval is required for transportation projects being advanced using any project delivery method. For all delivery methods, the NEPA process must be completed and a final NEPA decision must be reached before the project can proceed to final design and construction. FHWA Order 6640.1, as implemented by CDOT's design bulletin revised December 22, 2011 regarding permissible activities during the NEPA process, defines an expanded definition of Preliminary Design and is discussed below (CDOT, 2011b).





For purposes of this section the definition of preliminary and final design are as follows (CDOT, 2011b):

- ▶ **Preliminary design** – includes but not limited to preliminary engineering and other activities and analyses, such as environmental assessments, topographic surveys, metes and bounds surveys, geotechnical investigations, hydrologic analysis, hydraulic analysis, utility engineering, traffic studies, financial plans, revenue estimates, hazardous materials assessments, general estimates of the types and quantities of materials, and other work needed to establish parameters for the final design.

Additional preliminary design activities include: design and engineering activities to be undertaken for the purposes of defining project alternatives; completing the NEPA alternatives analysis and review process; complying with other related environmental laws and regulations; environmental justice analyses; supporting agency coordination, public involvement, and permit applications; development of environmental mitigation plans; development of typical sections, grading plans, geometric alignment, noise wall justifications, bridge type/size/location studies, temporary structure requirements, staged bridge construction requirements, structural design (sub and super structure), retaining wall design, noise wall design, design exceptions, guardrail length/layout, existing property lines, title and deed research, soil borings, cross sections with flow line elevations, ditch designs, intersection design/configuration, pavement design, storm/sanitary sewer design (plan/profile), culvert design, identification of removal items, quantity estimates, pavement details/elevation tables, and preliminary traffic control plans to be maintained during construction.

- ▶ **Final design** – means any design activities following preliminary design and expressly includes the preparation of final construction plans and detailed specifications for the performance of construction work.

3.6.2 Project Delivery Methods

There are currently three project delivery methods that CDOT utilizes: design-bid-build, design-build, and construction manager/general contractor (CM/GC). These three project delivery methods are described in this section. Additional delivery methods may emerge as innovations continue.





DESIGN-BID-BUILD

This is the traditional project delivery method where design and construction are sequential steps in the project development process. With the design-bid-build method, CDOT may award a design contract to an engineering firm using a qualifications-based procurement process. Then, when the preliminary and final design phase is complete, and project certification approval indicating all environmental commitments are included in the final design is prepared and signed by the RPEM or their designee, a construction contract will be awarded to a contractor with the lowest responsive bid through a competitive process. Under this type of delivery, the NEPA decision is made after preliminary design is complete, prior to starting final design, and before the construction contract is awarded.

DESIGN-BUILD

Design-Build is a project delivery method where both the final design and construction phases of the project are combined into one contract and awarded to a single entity. With this delivery method, preliminary design is typically completed in conjunction with the NEPA process, and before the design-build contractor is selected. Pursuant to 23 CFR § 636.109(b)(6), the design-build contractor cannot be involved in the NEPA process or documentation. Specifically, subpart 636.109(b)(6) states: "the design-builder must not prepare the NEPA document or have any decision-making responsibility with respect to the NEPA process." CDOT (or an independent consultant under CDOT's direction) must prepare the NEPA document.

CDOT may award a design contract for preliminary design to an engineering firm using a qualifications-based procurement process, and that firm is then precluded from pursuing the design-build contract. With the design-build method, CDOT may award the design-build contract on a low-bid basis or best value basis through the evaluation of certain factors that are identified in a request for proposals. For design-build projects, the design-build contract may be awarded either after or prior to the NEPA decision. If the design-build contract is awarded before the NEPA decision, the design-build contract is divided into two notice-to-proceed phases. The notice to proceed Phase 1 scope is limited to preliminary design-related activities. The notice to proceed Phase 2 scope includes final design and construction. The contract should state that the range of alternatives will be considered, and that the issuance of notice to proceed Phase 2 is conditional upon the selection of an alternative in the NEPA decision during notice to proceed Phase 1 and that all environmental commitments in NEPA and associated permits will be adhered to. This by-passes the project certification approval by the RPEM and adds risk regarding proper application of impact assessment and mitigation. This process is typically heavy in post-contract award oversight by CDOT environmental staff.



Colorado Revised Statute 43-1-1401 authorizes CDOT to use the Design-Build method.



Other types of project delivery methods that CDOT can utilize include: Private Public Partnerships (PPP), and design, build, operate, maintain, and finance.





CONSTRUCTION MANAGER / GENERAL CONTRACTOR (CM/GC)

CM/GC is a project delivery method where a two phase contract is awarded to a construction manager/general contractor for preconstruction services and construction services. The CM/GC contractor works in conjunction with the design engineer, who is selected using a qualifications-based procurement process. For the CM/GC method CDOT may award the CM/GC contract based on competitive selection based on qualifications, experience, best value, or any other combination of factors. Under the preconstruction phase of the CM/GC contract preliminary design may occur so long as the design does not limit the reasonable range of alternatives. The CM/GC construction services phase of the project may not be awarded until completion of the environmental review process. However, regulations allow the contracting agency to proceed with design activities at any level of detail for a project before completion of the NEPA review process at the expense of the contracting agency. CM/GC is generally the preferred method for environmental compliance since the construction contractor is finalizing the environmental requirements of the contract during final design BEFORE beginning construction. Therefore, not only is the environmental project certification able to be completed by the RPEM or their designee prior to construction, but the contractor is more familiar with what is expected of them regarding environmental issues and commitments.

3.6.3 Approval to Proceed with Activities Beyond the Normal Scope of Preliminary Design

CDOT may request concurrence from FHWA to allow CDOT to go beyond the normal scope of preliminary design activities, as defined above. Subject to FHWA approval, activities may be permitted to advance as part of preliminary design when they meet one or more of the following:

1. The activities are necessary to identify impacts and mitigation in the NEPA process
2. The activities are beneficial to enhance the project schedule and do not affect the NEPA decision
3. The activities provide vital information for other projects or agencies and do not affect the NEPA decision
4. Other reasons as deemed appropriate

Prior to activities proceeding the CDOT RPEM and Program Engineer must write a letter to the FHWA Division Administrator and concurrence must be obtained.



CDOT's Design Bulletin 2011 Number 1 *Permissible Activities During the NEPA Process* provides additional guidance on innovative delivery methods and is available at:

http://www.coloradodot.info/business/designsupport/bulletins_manuals/design-bulletins/current/db-nepa-activities.doc/view





3.6.4 Design-Build and CM/GC Contracting Restrictions During the NEPA Process

As described above, there are specific regulations and rules regarding the award of contracts to consulting and construction firms for project activities at various points in the NEPA process. These include conflict of interest and two stage contracting requirements. There are both federal and state requirements. The following should be reviewed when anticipating contracting using these methods:

- ▶ 23 USC sec 112. Letting of Contracts
- ▶ 23 CFR sec 636. Design-Build Contracting
- ▶ 2 CCR 601-15. Rules to Establish Requirements for Procurement by the Colorado Department of Transportation for Design-Build Contracts for Transportation Projects

3.6.5 Other Measures to Accelerate Project Delivery

MAP-21 has identified other permissible actions, such as advanced acquisition of real property interests and accelerated decision-making, to accelerate project delivery. Procedures for applying these actions are being developed, and the CDOT RPEM should be consulted regarding the status and applicability of MAP-21 accelerated project delivery provisions for specific projects. An outline of MAP-21 is provided **Chapter 2, Section 2.6**.





3.7 References

- Council on Environmental Quality (CEQ). 1978. NEPA Regulations. 40 Code of Federal Regulations (CFR) § 1500 – 1508. Retrieved December 2012 from http://ceq.hss.doe.gov/nepa/regqs/ceq/toc_ceq.htm
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CHAPTER 4: ENVIRONMENTAL IMPACT STATEMENT (CLASS I)

	<u>Page</u>
4.0 ENVIRONMENTAL IMPACT STATEMENT (CLASS I)-----	4-1
4.1 EIS Initiation-----	4-1
4.2 Agency Involvement in an EIS -----	4-1
4.3 Preparation of the Notice of Intent-----	4-2
4.4 Early Project Scoping-----	4-3
4.4.1 Coordination Plan -----	4-3
4.4.2 Agency Scoping -----	4-4
4.4.3 Public Scoping -----	4-5
4.4.4 Focused EIS Scoping -----	4-5
4.5 EIS Documentation Content -----	4-5
4.5.1 Standardization of EIS Sections-----	4-5
4.5.2 EIS Cover and Consultant Information-----	4-7
4.5.3 Cover Sheet -----	4-7
4.5.4 Table of Contents -----	4-8
4.5.5 Executive Summary -----	4-8
4.5.6 Project Description-----	4-9
4.6 Purpose of and Need for the Project-----	4-10
4.6.1 Purpose of the Project -----	4-11
4.6.2 Need for the Project -----	4-12
4.6.3 Purpose and Need and the NEPA/404 Merger -----	4-14
4.7 Alternatives Analysis-----	4-14
4.7.1 Developing Reasonable Alternatives to the Proposed Action -----	4-15
4.7.2 Comparing Alternatives-----	4-20
4.7.3 Screening Alternatives -----	4-20
4.7.4 Screening and the NEPA/404 Merger-----	4-23





4.7.5 Selecting a Preferred Alternative----- 4-23

4.7.6 Preferred Alternative and the NEPA/404 Merger ----- 4-25

4.8 Environmental Consequences -----4-25

4.8.1 Affected Environment ----- 4-25

4.8.2 Environmental Consequences ----- 4-28

4.8.3 Types of Impacts ----- 4-30

4.8.4 Cumulative Impacts----- 4-35

4.9 Section 4(f) Evaluation -----4-35

4.10 Agency Coordination and Public Involvement-----4-35

4.11 List of Preparers -----4-35

4.12 List of Agencies, Organizations, and Persons To Whom Copies of the EIS are Sent -----4-36

4.12.1 Consultation and Coordination----- 4-36

4.13 References and Citations-----4-36

4.14 Appendices and Technical Reports-----4-37

4.15 Index -----4-38

4.16 Notice of Availability-----4-38

4.17 The Draft EIS -----4-38

4.17.1 Comments on the Draft EIS ----- 4-38

4.17.2 Circulation of the Draft EIS----- 4-39

4.18 The Final EIS -----4-39

4.18.1 Options for Preparing the Final EIS----- 4-39

4.18.2 EIS Approval Process----- 4-41

4.18.3 Compliance with Applicable Laws----- 4-41

4.18.4 Circulation of the Final EIS----- 4-42

4.19 Record of Decision -----4-42

4.20 Other Clearances (Tiered Analyses, Reevaluations, Supplemental EIS) -----4-43

4.20.1 Tiered NEPA Analyses----- 4-43

4.20.2 Reevaluations of an EIS----- 4-44





4.20.3	Reevaluation of a Tiered EIS and ROD	4-45
4.20.4	Documenting Reevaluations Using CDOT Form 1399	4-46
4.21	Supplemental EIS Analyses	4-48
4.22	Project Files and Administrative Records	4-49
4.22.1	Project File	4-49
4.22.2	Administrative Record	4-53
4.22.3	Project File Example	4-55
4.23	Statute of Limitations	4-59
4.24	References	4-60

LIST OF FIGURES

Figure 4-1	Example Alternatives Development Process	4-16
Figure 4-2	Example of an Approach to Narrowing Down Alternatives	4-22
Figure 4-3	Example Index File	4-58





4.0 ENVIRONMENTAL IMPACT STATEMENT (CLASS I)

An Environmental Impact Statement (EIS) is prepared when a proposed action may significantly affect the quality of the human environment. The purpose of an EIS is to “serve as an action-forcing device to ensure that the policies and goals defined in the National Environmental Policy Act (NEPA) are infused into the on-going programs and actions of the federal government” (Council on Environmental Quality ([CEQ] 40 Code of Federal Regulations [CFR] § 1502.1). An EIS is not merely a disclosure document; it is to be used by Colorado Department of Transportation (CDOT) in conjunction with other relevant information to plan actions and make informed project decisions.

An EIS details the process through which a transportation project is developed, including consideration of a range of reasonable alternatives and detailed analysis of the potential impacts resulting from each. It documents compliance with other applicable environmental laws, regulations, and executive orders. This chapter outlines the process of an EIS from initiation to completion.

Public and agency involvement are continuous throughout the process. Please refer to **Chapter 7** for more information on public involvement.

4.1 EIS Initiation

Section 6002.139 of the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU, 23 USC § 1001 - 11167) requires CDOT to initiate the environmental review process for an EIS by sending a notification letter to the Federal Highway Administration (FHWA) Division Administrator. The completed notification letter identifies the “type of work, termini, length and general location of the project.” It also should identify any federal approvals anticipated to be necessary for the proposed project. The timing of the notification is flexible and occurs either when the project is sufficiently defined, and/or the project sponsor is ready to proceed with the NEPA phase. The notification will normally occur prior to the publication of the Notice of Intent (NOI) in the Federal Register. After the notification has been received/approved by FHWA, the EIS process, as described below, can begin.

4.2 Agency Involvement in an EIS

At the beginning of the EIS process, the involved agencies will be identified, as defined below in accordance with Section 6002 of SAFETEA-LU:



CEQ § 1508.27 “Significantly” as used in NEPA requires considerations of both context and intensity.



A proposed action is what CDOT is thinking about doing when the EIS analysis begins. It may or may not be what is finally chosen to implement.





- ▶ The direct recipients of federal funds must serve as joint lead agencies. Typically this is FHWA and/or the Federal Transit Administration (FTA) and CDOT. In addition to the traditional responsibilities, the lead agencies must provide increased oversight in managing the NEPA process and resolving issues.
- ▶ Federal agencies, other than the lead agency, that may have jurisdiction by law or special expertise with regard to environmental impacts from the project (e.g., US Fish and Wildlife Service [USFWS], the US Army Corps of Engineers [USACE], and the Environmental Protection Agency [EPA]) serve as cooperating agencies. State or local agencies with special environmental expertise may also become a cooperating agency by agreement with the lead agencies (e.g., Colorado Parks and Wildlife [CPW] and the State Historic Preservation Office [SHPO]). These cooperating agencies have a similar but higher degree of authority, responsibility, and involvement in the environmental review process than the participating agencies.
- ▶ Federal, state, tribal, regional, and local government agencies that may have an interest in the project should be invited to serve as participating agencies. Non-governmental organizations and private entities cannot serve as participating agencies. Participating agencies participate in the scoping and NEPA process; identify, as early as practicable, issues of concern; and contribute to issue resolution.

4.3 Preparation of the Notice of Intent

Once the decision is made to prepare an EIS for a project, CDOT prepares a NOI for FHWA to publish in the Federal Register that informs the general public of the scope of the project. The NOI is a brief summary of the proposed action explaining who wants to do what, where, and why they want to do it. At this stage, it is uncertain what the outcome of the NEPA analysis will be. Therefore, the project must always be referred to as the proposed action. Any abbreviations used in the text must be minimal and, if used, must be clarified. The following information should be included in the NOI:

- ▶ **Agency** – Include lead and cooperating agencies. FHWA must always be listed first when other agencies (federal, state, or local) are listed as being involved in the preparation of the EIS
- ▶ **Action** – The title of the proposed action and a statement that the project is being evaluated through the EIS process
- ▶ **Summary** – A brief summary of the elements of the proposed action must be included, such as: any information relevant to the



CEQ § 1508.22 “Notice of Intent” means a notice that an EIS will be prepared and considered. The notice shall briefly:

- describe the proposed action and possible alternatives
- describe the agency’s proposed scoping process including whether, when, and where any scoping meeting will be held
- state the name and address of a person within the agency who can answer questions about the Proposed Action and the EIS.





project location, size, related actions, and area affected; a brief description of the scoping process for the particular action, including when and where the scoping meeting(s) will be held; and other information obtained from the scoping meeting or field view

- ▶ **Dates**
- ▶ **Addresses**
- ▶ **For Further Information Contact** – A point of contact, typically the FHWA Operations Engineer and the CDOT project manager, should be provided for the project in case there are any questions from the public or agencies. Information should include name, telephone number, e-mail address, mailing address, and fax number
- ▶ **Supplementary Information** – Include supplementary information or studies that are relevant to the project and available to the public

FHWA sends three (3) originals of the NOI, each signed in ink by the issuing officer, or one (1) original and two (2) certified copies to:

Federal Register (NF)
 National Archives and Records Administration
 700 Pennsylvania Avenue NW
 Washington, DC 20408-0001

If a single original and two certified copies are sent, the statement "CERTIFIED TO BE A TRUE COPY OF THE ORIGINAL" and the signature of a duly authorized certifying officer must appear on each certified copy.


A record must be kept of the date each notice is mailed to the Federal Register. A copy of the notice, once published, is sent to CDOT for inclusion in the administrative record further discussed in **Section 4.22**.

4.4 Early Project Scoping

Scoping is the process by which a lead agency solicits input from the public and other agencies regarding the breadth and depth of issues to be addressed as well as the minor issues related to a proposed action (CEQ, 40 CFR § 1501.7). The scoping process can begin after the lead agency has published the NOI.

4.4.1 Coordination Plan

The preparation of a Coordination Plan meets one of several requirements under Section 6002 of the SAFETEA-LU. The purpose of a Coordination Plan is to coordinate agency (FHWA, CDOT, cooperating and participating agencies) participation and comment during the environmental review



NOIs should be single-sided. For an example NOI and additional information on drafting a NOI, see <http://www.archives.gov/federal-register/write/handbook>





process associated with the preparation of an EIS. A Coordination Plan integrates the NEPA requirements with other environmental review and consultation requirements in order to reduce delay in the environmental review process.

An Agency Coordination Plan template can be found in **Appendix E**.

4.4.2 Agency Scoping

The lead agency is required to invite the participation of any interested agencies, Native American tribes, project proponents, and other interested persons, and to consult with and obtain the comments of any federal agency with jurisdiction by law or special expertise with respect to any environmental impact of the proposed action. NEPA encourages the use of scoping as early as reasonable in the project planning process and again at the initiation of the NEPA process.

Meetings and substantive contacts with government agencies regarding scoping must be documented. Correspondence with participating and cooperating agencies or the public becomes a part of the administrative record. Pertinent correspondence is also incorporated into the Draft and Final EIS, under "Summary of Public Involvement."

For an EIS, the project team should discuss the early environmental review logistics outlined in Section 6002 of SAFETEA-LU such as the topics discussed below:

- ▶ **Coordination Plan and Schedule** – As mentioned above, the planned approach for public involvement and agency participation should be established early in the process and documented in a Coordination Plan. The approach should coordinate with the project schedule. Topics and issues specific to the project should be identified in this plan and schedule.
- ▶ **Concurrent Reviews** – Determine the responsibility and schedules of each federal cooperating agency to carry out its obligations under applicable laws concurrently and in conjunction with the review required under NEPA in a timely, coordinated, and environmentally responsible manner, so long as this does not impede its statutory obligations. **Chapter 8** establishes a procedure for review of CDOT NEPA documents, including EISs.
- ▶ **Issues of Concern** – Determine how best to coordinate and handle informative and timely communication between lead and cooperating agencies so that potential issues of concern can be identified and resolved through the appropriate procedure.



Refer to SAFETEA-LU Environmental Review Process Final Guidance - Pub L 109-59, Nov. 15, 2006 for additional information including, however not limited to, Project Initiation Letter (Questions 11-13); Cooperating Agencies (Questions 30 and 31); and Participating Agencies (Questions 21-29). If unsure who should be invited to participate in the NEPA process, consult with the RPEM.



4.4.3 Public Scoping

It is helpful to maintain a brief summary of public involvement activities and the issues raised as they occur (e.g., dates of key meetings and correspondence), so it can be easily added to the EIS without having to reconstruct the information from the project file.

The project team should send correspondence to property owners who may be affected by a project, as well as to organizations and individuals who have previously expressed an interest in the project or requested notification. In every case, the CDOT project manager must coordinate with the CDOT Right-of-Way office, and in some cases the CDOT Public Relations office, to ensure that communications with property owners are handled appropriately and that a clear message is sent to the public.

Where there is a high level of public controversy, the formation of citizen committees and specialized efforts aimed at issue identification and resolution are encouraged.

4.4.4 Focused EIS Scoping

Results from the agency and public scoping can be utilized to better allow CDOT to focus on the topics and depth of analysis for the EIS.

4.5 EIS Documentation Content

CEQ regulations (CEQ, 40 CFR § 1500 – 1500) and FHWA's Technical Advisory T6640.8A Guidance for Preparing and Processing Environmental and Section 4(f) Documents (FHWA, 1987) specify several required sections for an EIS. Technical information and studies developed to analyze impacts are summarized in the EIS and/or incorporated by reference. Technical studies that support the EIS are a part of the project file and are public documents that must be available for review.

4.5.1 Standardization of EIS Sections

CDOT has a recommended standard EIS format to ensure consistency in EISs across CDOT Regions. The following guidelines provide direction on the scale of the EIS, formatting, and how to present any supporting documentation:

- ▶ **LENGTH** — The adequacy of an EIS is measured by its functional usefulness in decision-making, not by its size or level of detail. Level of detail should be commensurate with the scale of the proposed project and the related impact.



Use simple terms understandable to a lay person.



- ▶ **LAYOUT** — Text should be presented in the portrait page setup printing format. Landscape format may be used to present large graphics as necessary.
- ▶ **LINE SPACING** — Line spacing should be single-spaced and the document should be printed using both sides of the paper. Single-spaced, double-sided copies are suggested to save paper and reduce both EIS distribution and reproduction costs.
- ▶ **PAGE NUMBERING** — All pages in the EIS should be numbered and appear in a document footer at the bottom of each page. Page numbers should correspond to the appropriate chapter/appendix number of the EIS.
- ▶ **FONT** — Print type should be of adequate size and style to be easily read.
- ▶ **EXHIBITS** — Exhibits (figures, charts, tables, maps, and other graphics) are useful in reducing the amount of narrative required. Such exhibits should be technically accurate and of high quality. Avoid complex, busy figures, overly complex charts, and matrices when possible. EISs should be composed to convey to the reader, in understandable terms, the composition of the project and the extent of its impact on the human environment.
- ▶ **CROSS REFERENCING** — When referencing supporting technical documents, ensure the specific section number and section title are provided to assist the reader in accurately locating the reference. Cross referencing helps keep documents brief and concise.

The recommended CDOT outline for an EIS includes the following sections, which are discussed in detail in this chapter. However, Section 4(f) is discussed in detail in **Chapter 9** of this Manual, and Public Involvement is discussed in detail in **Chapter 7**.

- ▶ **EIS Cover and Consultant Information**
- ▶ **Cover Sheet**
- ▶ **Table of Contents**
- ▶ **Executive Summary**
- ▶ **Chapter 1 – Purpose of and Need for Action**
- ▶ **Chapter 2 – Alternatives Analysis**
- ▶ **Chapter 3 – Environmental Consequences (Including Mitigation Measures and Cumulative Impacts)**
- ▶ **Chapter 4 – Section 4(f) Evaluation, if required**





- ▶ Chapter 5 – Agency Coordination and Public Involvement
- ▶ Chapter 6 – List of Preparers
- ▶ Chapter 7 – List of Agencies, Organizations, and Persons to Whom Copies of the EIS are Sent
- ▶ References and Citations
- ▶ Index
- ▶ Appendices

4.5.2 EIS Cover and Consultant Information

At the Region's discretion, an EIS cover may be an illustration of a project; however, consultant logos and information are not to be used on the cover of any EIS.

It is important for users of the EIS to know who prepared the document in case they have questions or comments. Consultant information may be shown on any supporting documentation for the EIS (i.e., Noise Impact Assessment, Air Quality Report, Preliminary Engineering Report). All consultant contributions should be documented in the list of preparers for an EIS. Consultant information may also be displayed on an interior copy of the EIS cover. Information can be incorporated on the interior cover sheet under "the following company may be contacted for additional information concerning this document".

4.5.3 Cover Sheet

The cover sheet is a mandatory component of an EIS (CEQ, 40 CFR § 1502.11). It should not exceed one page and must include the following components:

- ▶ Project name and CDOT project number
- ▶ Type of document (i.e., EA, Programmatic or Supplemental EIS, or Record of Decision [ROD])
- ▶ Title and location of the project; identify route number, local name, project limits, and county in which project is located
- ▶ Responsible agencies, including the lead agency, co-lead agency, and any cooperating agencies
- ▶ Cite the federal authority for which the EIS is being prepared (i.e., Submitted pursuant to 42 USC 4332 (2)(c))
- ▶ Provide date and signature block for the CDOT Region Transportation Director, CDOT Chief Engineer and FHWA



Chapter 8 *Document Review Procedures* of this Manual has a signature format checklist for the cover sheet.



FHWA Technical Advisory T 6640.8A. 1987. Guidance for Preparing and Processing Environmental and Section 4(f) Documents. October 30.

AASHTO, ACEC, and FHWA. 2006. Improving the Quality of Environmental Documents. May.

http://environment.transportation.org/pdf/IQED-1_for_CEE.pdf





Colorado Division Administrator (RODS only have the FHWA Colorado Division Administrator's signature)

- ▶ An abstract or brief project description limited to one paragraph, which includes the length, number of lanes, and major structures involved (bridges, interchanges, park-n-Ride lots, ramps, etc.). For a ROD, the brief abstract should include significant impacts that would result from the preferred alternative.

An example of a cover sheet is provided in **Appendix C Style Guide for NEPA Documents**.

4.5.4 Table of Contents

The table of contents must include the major EIS components (as discussed in this section) as well as a list of figures, tables, and appendices. It should be of sufficient detail to provide adequate direction to users reading the EIS and allow the reader to easily navigate the document.

4.5.5 Executive Summary

An executive summary is a mandatory component of an EIS (CEQ, 40 CFR § 1502.12). The summary forms a reader's first and lasting impression of the EIS and should include sufficient information to allow the reader to gain a complete understanding of the issues addressed in the body of the EIS. It should list all reasonable alternatives considered, major environmental resource impacts, and proposed mitigation measures in a comparative form. The executive summary should be succinct (usually not exceeding 15 pages), but of sufficient detail to serve as a stand-alone document. The use of a matrix or table(s) is encouraged to present information concisely.

The executive summary in a Final EIS is more conclusive than in the Draft EIS. In the Final EIS, the executive summary should document specific findings, results of consultations, recommendations, commitments, and identify major changes from the Draft to Final document. For an EIS, the executive summary should provide the components that will be used in final decision-making and later be documented in the ROD.

In general, the executive summary should serve to highlight for the reader the major findings and conclusions of the environmental analyses and should include the following:

- ▶ Purpose of and need for the project.
- ▶ Identification of project issues and impacts (and areas of controversy and unresolved issues if applicable) in proportion to their importance.



CEQ § 1501.12 "Summary"
 Each EIS shall contain a summary which adequately and accurately summarizes the statement. The summary shall stress the major conclusions, areas of controversy (including issues raised by agencies and the public), and the issues to be resolved (including the choice among alternatives). The summary will normally not exceed 15 pages.





- ▶ A reasonable range of alternatives considered (and identification of the preferred alternative if applicable).
- ▶ Identification of principal environmental issues and key differences among alternatives (highlight any significant impacts, impacts that cannot be avoided, impacts that can be mitigated, and additional review or permits required before taking action).
- ▶ Any recommendations, commitments, mitigation or interagency agreements that may have been reached over the course of the study (if applicable).
- ▶ Appropriate findings reached and concluding statement of findings to comply with Executive Orders 11990 (Wetlands) and 11988 (Floodplains). A statement of no findings is required if there are no wetlands or floodplains involved in the project.
- ▶ Appropriate findings reached and concluding statement of findings where there is involvement with Section 4(f) or Section 106 resources. Discussion must state that no feasible and prudent alternative exists and that all practicable measures to minimize harm have been taken. A statement of no findings is required if there are no Section 4(f) or Section 106 resources involved in the project.
- ▶ An effects determination for threatened and endangered species or their critical habitat and coordination with the USFWS. A statement of no findings is required if there are no threatened and endangered species or their critical habitat involved in the project.
- ▶ Appropriate findings reached and concluding statement of findings where there is involvement with prime or unique farmlands and coordination with the Natural Resources Conservation Service (NRCS).

4.5.6 Project Description

A detailed project description is included in the EIS for a proposed transportation project. The following information is required, but not limited to:

- ▶ A brief description of the existing transportation system
- ▶ A location map that shows the project limits and displays key landmarks
- ▶ A description of the limits of the proposed project, including its length and logical termini
- ▶ The name of the city and county where the project is to be located





- ▶ A description of the proposed improvements, including the number of lanes, type of median, and any major structures

4.6 Purpose of and Need for the Project

The purpose and need chapter, typically Chapter 1 in an EIS, provides a brief but important overview of information that must be considered in defining a purpose and need statement for the project. It is essentially the foundation of the EIS and decision-making process.

The purpose and need chapter in the EIS takes the goals and objectives, and corridor visions developed in a transportation plan to the next logical step—implementing those goals and objectives through on-the-ground project development. The planning level goals and objectives describe the transportation problem(s) that need to be addressed. This chapter also looks into the future an average of 20 years (based on planning horizons), to determine the needs of the project area in that future. **Chapter 3** of this Manual discusses CDOT’s planning and project development process.

A NEPA purpose and need statement within the chapter provides the details about the transportation-related needs and describes the what and why of the project. The purpose and need statement defines the criteria under which transportation alternatives are initially evaluated. Build alternatives should fully address the stated purpose and need. Those alternatives that do not fully address the purpose and need can be eliminated from further consideration. A proposed project should have clearly identified objectives for improving transportation conditions, such as:

- ▶ Achieving a transportation objective identified in an applicable statewide or metropolitan transportation plan
- ▶ Serving national defense, national security, or other national objectives, as established in federal laws, plans, or policies
- ▶ Consistent with approved planned land use, or growth objectives established in applicable federal, state, local, or tribal plans

A proposed project’s purpose and need should be well defined and help refine the reasonable alternatives that should be analyzed to address the transportation problem.

Transportation planning data developed for regional, sub-area, and corridor planning can be an excellent primary source of information to assist in establishing a purpose and need statement. The purpose and need should briefly describe the project context including actions taken to date, other agencies and governmental units involved, actions pending, schedules etc.



CEO § 1501.13 “Purpose and Need” The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the Proposed Action.



The preferred alternative is not discussed in the purpose and need.



The resulting purpose and need chapter should be succinct, yet include enough information to clearly identify a problem and a need to fix it that may require the expenditure of funds. It should be narrowly defined enough to serve as an effective means to screen/evaluate alternatives but not so narrow as to preclude reasonable alternatives. The initial purpose and need statement may change during the NEPA process if new information or needs are discovered or public input provides suggestions for improving the purpose and need statement. If the initial purpose and need statement changes substantially during the process, the lead agency will need to be cognizant of the impacts that will have on the selection of alternatives or the criteria used to evaluate and screen alternatives.

The purpose and need statement is vital to meeting the requirements of Section 4(f) of the Department of Transportation Act (49 USC 303); Executive Orders 11990 (Wetlands) and 11988 (Floodplains); and Clean Water Act Section 404(b)(1) Guidelines. The Section 404(b)(1) Guidelines are the only regulations other than NEPA that require a purpose statement. In addition, under the NEPA/404 Merger Process, the USACE in consultation with the USEPA and USFWS must concur on the purpose and need statement for projects that require an individual Section 404 permit. This will enable USACE approvals under the Clean Water Act to move forward in parallel with the NEPA process. In accordance with SAFETEA-LU, the lead agency should develop the purpose and need statement and should provide opportunities for participating agencies and the public to provide input.

The project's need may be considered as the transportation problem, while the purpose may be thought of as the intention to solve the problem. Further guidance regarding the development of a purpose and need statement can be found in CDOT's Purpose and Need Guidance, FHWA Technical Advisory T6640.8A (FHWA, 1987) and FHWA Memorandum *The Importance of Purpose and Need* (FHWA, 1990). For an EIS, purpose and need statements are required to be made available for public review.

4.6.1 Purpose of the Project

The project purpose statement guides the range of alternatives that will be considered in response to the established need. As such, the statement of purpose should be broad enough to encompass a reasonable range of alternatives, but it need not be so broad that it encompasses every possible alternative. Conversely, it should not be so narrow as to preclude a range of alternatives that could reasonably meet the defined objectives or restrict decision-makers' flexibility in resolving conflicting interests.



The purpose and need statement should be an honest, full explanation of why the agency is considering the action and what the agency objectives are.



FHWA Technical Advisory T 6640.8A, and FHWA Memorandum, *The Importance of Purpose and Need* (September 18, 1990)



The following bullets are examples of possible project purposes:

- ▶ Improve traffic flow
- ▶ Accommodate high traffic volumes
- ▶ Increase multi-modal travel options
- ▶ Provide lane continuity and balance
- ▶ Optimize highway system operations
- ▶ Improve connectivity between transportation modes
- ▶ Improve pedestrian/bicycle mobility
- ▶ Increase safety for motorists, pedestrians, and bicyclists
- ▶ Correct roadway deficiencies
- ▶ Reduce congestion and delays

4.6.2 Need for the Project

The need for the project should provide the rationale for how the project addresses the problems, issues, and concerns identified. This section must outline and discuss any established community goals and objectives that pertain to the project. This section serves as the foundation for the proposed project and provides the principal information upon which the No Action alternative discussion is based. This section establishes the rationale for pursuing the action and explains how the actions proposed are consistent with local transportation planning, local comprehensive planning, land use planning, and growth management efforts.

The following bullets are examples of possible project needs:

- ▶ **System Linkage** – Describe how the project fits into the existing transportation system
- ▶ **Transportation Demand** – Describe relationships to any statewide plan or other transportation plan together with an explanation of the project's traffic forecasts
- ▶ **Capacity** – Describe how the capacity of the existing transportation system is inadequate for the present or projected system load. Clearly define what level(s) of service are required for existing and proposed facilities
- ▶ **Legislation** – State the federal, state, or local governmental mandates that must be met by the project
- ▶ **Social Demands or Economic Development** – Clearly identify all projected economic development/land use changes driving the



need for the project. These include new employment, schools, land use plans, and recreation

- ▶ **Modal Interrelationships** – Describe how the proposed project evaluates modes of transportation as an alternative to highway travel and how the project interfaces with and serves to complement other transportation features existing in the corridor, including existing highways, airports, rail and inter-modal facilities, and mass transit services
- ▶ **Safety** – Describe the existing or potential safety hazards within the project area, including data related to existing accident rates as well as other plans or projects designed to improve the situation
- ▶ **Roadway Deficiencies** – Describe any existing deficiencies associated with the project area roadways (e.g., substandard or outdated geometrics, load limits on structures, inadequate cross section, or high maintenance costs)

The statement of need should consist of a factual, objective description of the specific transportation problem with a summary of the data and analysis that supports the conclusion that there is a problem requiring action. Quantified data, such as vehicle miles of travel, travel speeds, time of day characteristics, current and projected levels of service, accident rates, and/or road condition assessments, should be utilized where applicable. Full documentation, such as reports and studies that were developed in the project planning process, should be referenced in the need statement and must be available upon request of reviewing agencies and the public.

There are often multiple deficiencies or desires that establish the project need, and therefore are often multiple needs. These needs can be separated into two categories: area-wide needs and project corridor needs. Area-wide needs relate to system deficiencies and local government or community desires. Project corridor needs relate to route deficiencies and specific community desires within the corridor. Examples of each are provided below.

Area-Wide Needs:

- ▶ Federal, State, or Local Government Authority Desires or Requirements

Project Corridor Needs:

- ▶ System Linkage
- ▶ Capacity
- ▶ Structural Sufficiency





4.6.3 Purpose and Need and the NEPA/404 Merger

A merger agreement has been developed between CDOT and the USACE for projects that must comply with NEPA and that also require a Clean Water Act Section 404 permit. The merger process serves to facilitate early and ongoing integration and coordination of Clean Water Act and NEPA requirements. For these types of projects, two or more agencies (CDOT and USACE) would have a decision to make for the same proposed action and responsibility to comply with NEPA or a similar statute. During the purpose and need development for the project, the statement should be jointly developed by those agencies. The most current version of the NEPA/404 Merger Agreement between CDOT and USACE can be found on CDOT's main website.

One of the main steps in the NEPA/404 Merger process is for the project team to present the draft purpose and need, goals and objectives, and evaluation criteria to the USACE for concurrence. The project team will then identify any alternatives screened out during preliminary screening based on practicability or significant impacts to the natural environment.

4.7 Alternatives Analysis

The alternatives analysis chapter in the EIS gives a clear indication of why the particular range of alternatives was developed, the process used, and a summary of public and agency input. Alternatives analysis generally occurs in Chapter 2 of an EIS. NEPA and its related regulations require that a range of reasonable alternatives and a No Action alternative be presented and evaluated in detail in an EIS. The language of NEPA has been interpreted to require that FHWA take a hard look at alternatives that result in avoidance or minimization of impacts to the environment, to the community, or to the economy. Alternatives analysis can be the single most costly aspect of developing the EIS and will require close management by the CDOT project manager.

CEQ's regulations identify the alternatives chapter as the heart of the EIS. The alternatives chapter requires an agency to "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated" (CEQ, 40 CFR § 1502.14). It is not required that all possible alternatives be considered, rather that a reasonable range of alternatives be presented.



The CDOT NEPA/404 Merger Agreement can be found on CDOT's main website at:

<http://www.coloradodot.info/programs/environmental/resources/agreements/027MOA0808.pdf/view>





There is a logical way to step through the alternatives process that makes their analysis and screening easier to obtain. Typically an alternatives process occurs in the following steps:

- ▶ Development and description of all reasonable alternatives for the proposed action
- ▶ Comparison and screening of all reasonable alternatives to eliminate unreasonable alternatives
- ▶ Comparison of alternatives to determine differences in impacts and achievement of meeting purpose and need
- ▶ Identification of the preferred alternative
- ▶ Issuance of a ROD selecting an alternative for implementation

4.7.1 Developing Reasonable Alternatives to the Proposed Action

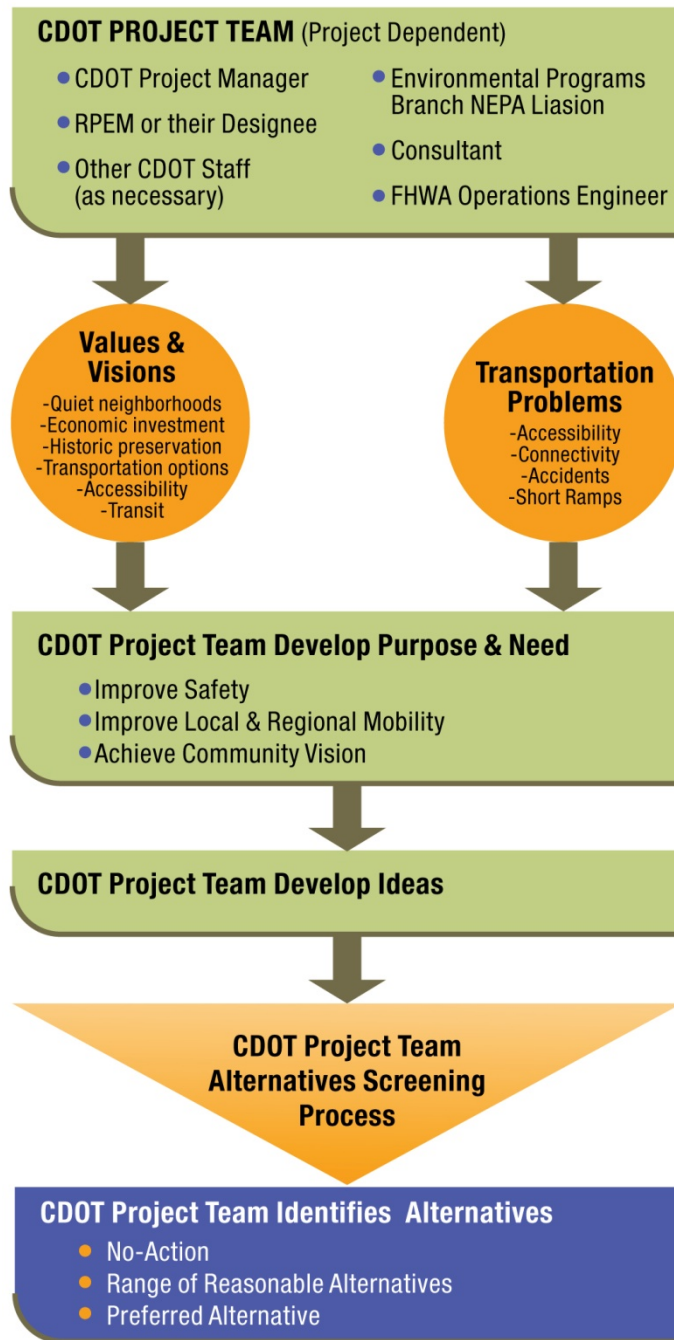
The term “reasonable” is defined by the CEQ as those alternatives that are “practical and feasible from a technical and economic standpoint using common sense” (CEQ NEPA’s 40 Most Frequently Asked Questions, Guidance, Question 2A). For complete text of the NEPA language regarding reasonable alternatives, see CEQ, 40 CFR § 1502.14. The key to a successful project is the exercise of professional judgment in determining the reasonableness of an alternative. This judgment is informed by experience and case law. Reasonable alternatives are to be evaluated and decisions made in the overall public interest taking into consideration the need for safe and efficient transportation, social, economic, and environmental impacts of the proposed transportation improvements, and national, state, and local environmental protection goals (FHWA and FTA, 23 CFR § 771.105). Please refer to **Figure 4-1** for an example of an alternatives development process.

For an EIS, a reasonable range could include:

- ▶ A variety of modes (even those the lead agency cannot pursue)
- ▶ A reasonable number (representative examples)
- ▶ Avoidance alternatives (these usually get developed in accordance with other parallel regulations under the NEPA umbrella [such as Section 404, Section 4(f), Section 7, etc.]



Figure 4-1 Example Alternatives Development Process





Alternatives should be developed that achieve the purpose of and need for the project while providing a reasonable range of alternatives for equivalent evaluation with the No Action alternative. The advantages and disadvantages of each alternative will be compared in the EIS and assessed to determine how each alternative addresses the transportation issues identified in the purpose and need, as well as potential impacts to resources identified in the Affected Environment.


CEQ requires that agencies:

- ▶ Devote substantial treatment to each alternative considered in detail so that reviewers may evaluate their comparative merits
- ▶ Include reasonable alternatives not within the jurisdiction of the lead agency
- ▶ Include the No Action alternative and carry it through screening
- ▶ Identify the agency's preferred alternative or alternatives, if one or more exists, in the Draft EIS and identify such alternative in the Final EIS unless another law prohibits the expression of such a preference
- ▶ Include appropriate mitigation measures not already included in the alternatives
- ▶ Identify those aspects of the preferred alternative that were designed to be mitigation measures

As alternatives are defined, it is important that the scope of the alternative be comprehensive enough to address the project's purpose and need. FHWA regulations state that in order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, the proposed action evaluated in the EIS must (FHWA and FTA, 23 CFR § 771.111(f) and CEQ, 40 CFR § 1508.25):

- ▶ Have logical termini and be of sufficient length to address environmental matters on a broad scope
- ▶ Have independent utility or independent significance; that is, be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made
- ▶ Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements

The federal courts have considered a fourth factor: whether or not the proposed project "irretrievably commit[s] federal funds for closely related projects" (Piedmont Heights Civic Club v. Moreland, 637 F2d 430 [5th Cir. 1981]).



Further information on logical termini and independent utility can be found at FHWA and FTA, 23 CFR § 771.111(f).





Therefore, for a transportation corridor where the improvements are so related to one another that they should be considered one project, the project scope should not be selected solely on the basis of what is programmed in a short-range improvement program. Instead the several related construction projects should be evaluated as one project. Construction can be programmed for shorter sections or finite construction elements as funding permits. If a project is not funded and funding cannot be reasonably expected within the planning horizon for the project, a determination of whether a project-specific EIS, Tiered EIS, or PEL document is applicable for the corridor should occur in consultation with FHWA and CDOT. Tiered documents and RODs are further discussed in **Section 4.19** and **Section 4.20**. PEL documents are further discussed in **Chapter 3, Section 3.2**.

With the proper project scope determined, decision-makers and the public will have a clearer picture of the transportation requirements in the project area and a better understanding of how the proposed project will meet the purpose and need.

A comparative table of all alternatives and associated impacts can be presented in common terms that will be easily understood by the public. This comparison follows the resource-specific Affected Environment presentation and alternative impact evaluation, and provides a comparison among all evaluated alternatives at a logical place in the document.

What constitutes a reasonable range of alternatives depends on the nature of the proposal and the facts in each case. The number of alternatives, within a reasonable range, is directly related to the purpose and need statement. A well defined purpose and need section will assist in limiting the number of alternatives that will achieve the project goals, and provide the basis for a legally defensible alternatives discussion. FHWA Technical Advisory T 6640.8A provides a detailed discussion of the factors that might be considered in determining what constitutes a reasonable range of transportation alternatives.

TRANSPORTATION SYSTEM MANAGEMENT (TSM) AND TRANSPORTATION DEMAND MANAGEMENT (TDM) ALTERNATIVES

While each component of the TSM programs may not be used exclusively as an alternative, components may be used in conjunction with broader alternatives to provide a complete package of transportation services to the public. These programs emphasize getting the most capacity out of existing or proposed transportation facilities.

Consider TSM alternatives to maximize the efficiency of the present system. These limited construction alternatives are generally relevant only for major





projects in urban areas with a population greater than 200,000 residents. TSM alternatives include options such as fringe parking, ridesharing, mass transit (bus, rail), high-occupancy vehicle (HOV) lanes, and traffic signal timing. HOV lanes should be considered as an alternative for all major urban projects. For rural areas, an alternative that considers reconstruction and rehabilitation of the existing system should be included before selecting an alternative on a new alignment.

TDM strategies are implemented to make transportation systems more efficient, safe, or convenient. TDM strategies focus on changing or reducing travel demand, particularly at peak commute hours, instead of increasing roadway capacity, to make more efficient use of the current roadway system. TDM strategies include carpooling, vanpooling, guaranteed ride home programs, walking, bicycling, alternative working arrangements (e.g., telecommuting, flex-place, and flextime), and congestion pricing (such as variable toll fees).

FHWA guidance indicates that TSM/TDM alternatives should be considered even though they may not be within the existing FHWA funding authority (FHWA Technical Advisory T 6640.8A). Their evaluation and consideration may require coordination with entities outside CDOT, such as regional transportation authorities, major employers, or major destinations (such as sports venues, ski areas, or other entertainment venues). Agreements must be secured with these entities before considering TSM/TDM alternatives to be viable.

NO ACTION ALTERNATIVE

The No Action alternative is included as one of the alternatives evaluated. CEQ regulations (CEQ, 40 CFR § 1502.14) require the consideration of the existing situation without the proposed action. This is called the No Action alternative and includes other programmed activities already in the STIP, approved through the NEPA process, or longer-term maintenance activities that would occur even if none of the build alternatives is selected.

The No Action alternative is fully assessed in the same manner as the other alternatives as an alternative and is used as a baseline comparison for environmental analysis against which to compare the impacts of all other alternatives.

The No Action alternative can have two meanings: 1) continue present management activities, but do not do the proposed project and 2) do not take any action. It is important to indicate to readers which meaning of No Action the EIS is using. The No Action alternative also includes other projects already approved. The No Action alternative should always be fully analyzed and discussed for comparison.





The EIS should present a thorough description of the current transportation need and paint a picture of a future in which the proposed project is not implemented. For purposes of travel demand forecasting and identifying resource impacts that are directly related to traffic volume, such as air quality and noise, transportation projects currently planned in the project vicinity should be included along with the No Action alternative. Transportation projects that may occur independent of the No Action alternative can be located in the Transportation Improvement Plan (TIP) and Statewide Transportation Improvement Plan (STIP). These other transportation projects have committed or identified funds for construction and will be made regardless of whether or not any other improvements are made as part of the proposed action. Travel demand forecasting predicts traffic conditions that are expected to occur on the transportation system in the design year.

4.7.2 Comparing Alternatives

All reasonable alternatives under consideration need to be rigorously explored and evaluated objectively. These alternatives should each provide equivalent detail, allowing the reader to evaluate their comparative merits. This does not dictate an amount of information to be provided for each alternative; rather, it prescribes a level of treatment that may in turn require varying amounts of information to enable a reader to evaluate and compare alternatives. Each alternative should be described briefly utilizing maps, plans or other visual tools. At a minimum, the discussion of each alternative should include a clear, non-technical description of the project concept, location, termini, costs, status of right-of-way needs, and any features of the project that help to clarify differences among alternatives. The Alternatives chapter of the EIS should be devoted to description and comparison of the alternatives, with impact discussion limited to a concise summary in a comparative form. The Environmental Consequences chapter of the EIS is the appropriate place for a discussion of detailed scientific analysis of the direct and indirect environmental impacts of each of the alternatives. However, redundancy between these sections should be avoided.

4.7.3 Screening Alternatives

For EISs, the evaluation may consider many alternatives and screen them down several times before a preferred alternative is identified. The CDOT project manager and project team should take special note that the No Action alternative is always included as an alternative.

The rationale for screening out alternatives that are impractical or unfeasible from a technical, environmental, or economic standpoint must be included in the EIS. It is important to be consistent when using the developed rationale for screening of alternatives. In some cases, technical memoranda that



The current TIP/STIP can be found at:

<http://www.coloradodot.info/programs/statewide-planning/statewide-planning-1.html>





provided additional details about the alternative screening process are helpful. This documentation should be summarized in the EIS and should be made part of the project file.

Just as important as analyzing alternatives is explaining why alternatives have been eliminated from consideration during the NEPA process (the criteria used, the point in the process where alternatives were eliminated, and disclosure of the parties involved in establishing the criteria for assessing alternatives and measures of effectiveness). The alternatives documentation should also define the role of other applicable regulations such as Clean Water Act Section 404, Section 4(f) of the Department of Transportation Act, and Section 106 of the National Historic Preservation Act in avoidance and minimization. Care should be taken in the screening process not to be arbitrary or capricious and to ensure that the form and extent of screening is within the discretion of the lead agency, typically FHWA for an EIS.

Screening may be simple and straightforward, depending on the complexity of the project, or may involve several levels of analysis before the list of alternatives can be narrowed to a reasonable set for final evaluation. **Figure 4-2** provides an example alternatives screening approach. Although depicted in **Figure 4-2** as three levels of screening, screening may consist of more or less screening levels depending on the project.

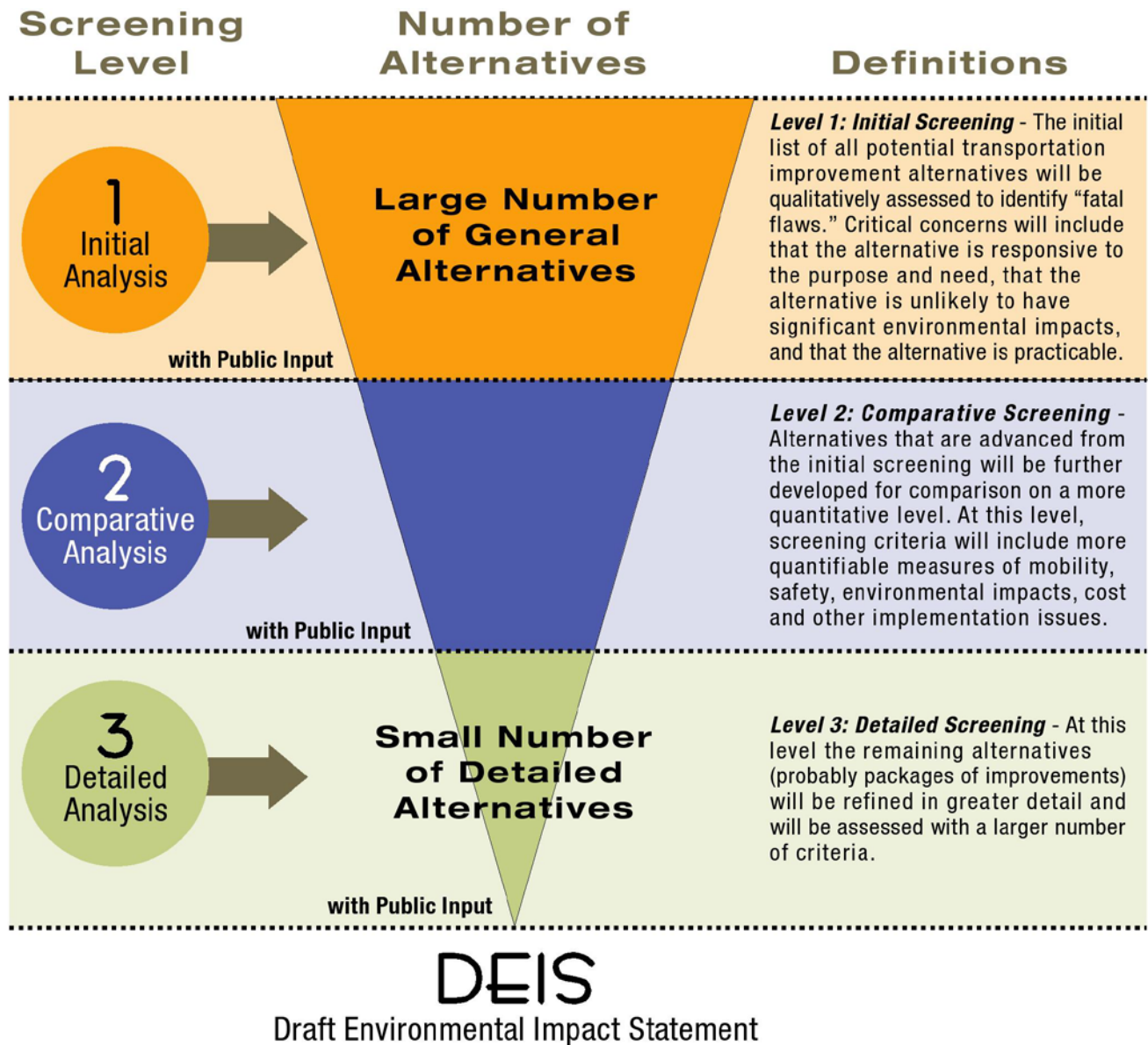
In preparing an EIS, it is important to be explicit about the rationale for generating, evaluating, and eliminating alternatives. Being as specific as possible is also essential—if an alternative is eliminated from further consideration because it “does not meet the purpose and need,” there should be adequate explanation of why this is true.

Requirements under SAFETEA-LU must be reviewed to determine how to include agencies and the public in the development and screening of alternatives, as the approach may vary between projects. Public and agencies must have an opportunity to provide input/comments on the range of alternatives developed for the project. See **Chapter 2** for the SAFETEA-LU discussion.





Figure 4-2 Example of an Approach to Narrowing Down Alternatives





CEQ requires that alternatives that were considered in the planning process and subsequently rejected be briefly described and the reasons for their elimination discussed (CEQ, 40 CFR § 1502.14[a]). Alternatives suggested by cooperating and participating agencies or the public during scoping that are eliminated without detailed study should be adequately documented and discussed as to why they were eliminated. Include sufficient detail in the EIS to ensure legal requirements have been met and well documented.

4.7.4 Screening and the NEPA/404 Merger

Projects being conducted under the NEPA/404 merger, should document the reasons why none of the eliminated alternatives could be considered the Least Environmentally Damaging Practical Alternative (LEDPA) and therefore require full USACE evaluation under their guidance. The project team should present results of the alternatives screening (provide documentation supporting screening of alternatives based on quantitative objectives where data is available) to USACE for concurrence. The project team will then identify primary pros/cons of remaining alternatives with respect to aquatic ecosystems and other potentially significant effects.



The USACE guidance for documenting the LEDPA can be retrieved at:

<http://www.coloradodot.info/programs/environmental/wetlands/guidance.html>

4.7.5 Selecting a Preferred Alternative

The preferred alternative is generally the one that the lead agency, typically FHWA, believes would best fulfill CDOT's mission and responsibilities while meeting project purpose and need, minimizing impacts to the environment (natural, cultural, and socioeconomic), and is supported by the public and resource agencies. Typically, alternatives are adjusted throughout the NEPA process to minimize harm to the environment and communities. The preferred alternative is typically the alternative that has incorporated these changes and achieves the best balance between needs, impacts, costs, etc.

Evaluation of alternatives should present the preferred alternative and all of the alternatives in comparative form in order to best define the issues and provide a clear basis for choice among the options.

When a preferred alternative is clear based on the analyses developed during the Draft EIS process, CDOT is required to disclose the preferred alternative at that time. Where the preferred alternative is not clear, it is not essential that the preferred alternative be identified at the draft level. However, the Draft EIS should state that:

- ▶ A preferred alternative has not been identified
- ▶ Reasonable alternatives are under consideration
- ▶ The final selection of an alternative will not be made until after any new proposed reasonable alternatives and public comments on the Final EIS have been fully evaluated



It is not necessary to identify a preferred alternative in the Draft EIS. However, it can be preliminarily identified in the Draft EIS. The Final EIS must identify and describe the preferred alternative and the basis for that decision. An alternative is selected for implementation in the ROD (and it may not be the preferred alternative).



If a preferred alternative has been preliminarily identified in the Draft EIS, it is acceptable to collect additional information relevant to that alternative to more fully develop it and better understand its impacts. However, such information should not be used in comparing and deciding among the full range of alternatives being evaluated. If the preferred alternative is modified after the Draft EIS, the Final EIS must clearly identify the changes and discuss the reasons why any new impacts are not of major concern.

The Final EIS must identify the preferred alternative and discuss the basis for its identification (FHWA and FTA, 23 CFR § 771.125[a][1]). The discussion must provide relevant information and rationale for the identification. The identification of a preferred alternative does not lessen the responsibility to give all alternatives a similar degree of analysis and evaluation during the EIS process.

It is important to note that the analysis presented must be neutral and objective in regard to all alternatives and cannot be slanted to support a preferred alternative over other reasonable and feasible alternatives. Once the preferred alternative has been identified, it may be developed to a higher level of detail than other alternatives to facilitate development of mitigation measures or concurrence compliance with other laws, if the lead agency so directs and determines that this would not prevent an impartial decision (SAFETEA-LU § 6002 [f][4][D]).

The term environmentally preferable alternative, is slightly different from the term preferred alternative in that the environmentally preferable alternative promotes the national environmental policy, which ordinarily means it is the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources. For EIS projects, the ROD must identify the environmentally preferable alternative. If it is not the selected alternative, the ROD must explain why a different alternative was selected.

Therefore, the concept of an agency's preferred alternative may be different from the environmentally preferable alternative, though in many cases one alternative may be both. Identifying the environmentally preferable alternative during EIS preparation may help other agencies and the public to address the question of which alternative is environmentally preferable. However, the agency is not required to specify an environmentally preferable alternative until the preparation of the ROD.



FHWA Environmental Review Toolkit:

<http://www.environment.fhwa.dot.gov/index.asp>





4.7.6 Preferred Alternative and the NEPA/404 Merger

Prior to the issuance of the Final EIS (or Draft EIS if a preferred alternative has been identified), CDOT will provide to USACE, for concurrence, the results of detailed analysis and recommendation for the preferred alternative/LEDPA (which may be different than the environmentally preferable alternative).

4.8 Environmental Consequences

The Environmental Consequences chapter, typically Chapter 3 in an EIS, combines the Affected Environment and the Environmental Consequences of a project.

4.8.1 Affected Environment

The Affected Environment discussion provides a brief overview of early considerations when establishing the existing conditions information on the project study area — typically referred to in NEPA as describing the Affected Environment. The Affected Environment section sets the context for developing alternatives and assessing impacts.

The FHWA *Environmental Review Toolkit* website, as well as the FHWA Technical Advisory T6640.8A on NEPA, provide excellent guidance for gathering data and setting up the EIS.

At this stage, the project team may also be able to identify potential environmental impacts resulting from the project. It is best to develop a good definition of the project's Affected Environment before proceeding with project design or alternatives analysis. A complete baseline encourages more accurate project budgeting and provides a better basis for determining the appropriate level of NEPA documentation, project schedule, and funding.

Preliminary environmental analysis varies with the complexity of the project. For example, for smaller projects, the initial site visit to the project area by the project engineer and key environmental specialists may be sufficient to gather the information necessary to form existing conditions within the project area and identify potential impacts. For more complex projects, multiple site visits with a multidisciplinary team may be necessary to collect relevant existing condition information, identify potential impacts that need to be considered, and identify future data needs including supplemental field studies. For more complex projects, it is often useful at this stage to consider the potential geographic area(s) in which indirect and cumulative impacts will be assessed, as data will often need to be gathered in a broader area than the project study area for direct impacts. The project manager should use



EISs must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail (40 CFR § 1500.1(b))



early field visits and discussions to feed information into the overall project schedule and budget, allowing time for longer-term monitoring requirements and other environmental issues.

The description of the Affected Environment associated with the project area provides the context for evaluating environmental impacts. The existing conditions should rely heavily on information already available from known, reliable sources, including agencies responsible for environmental resources. In all cases the context and complexity of the project as they relate to the surrounding area should be taken into consideration. This data set should address all of the resources, ecosystems, and human communities potentially affected by the project. Data gaps should be identified and noted, since supplemental field studies may be required to provide the missing information depending on scoping conclusions and overall project need. The initial Affected Environment description should contain the following information to the extent that it is readily available and not considered confidential (i.e. specific locations of cultural artifacts):

- ▶ The status and location of important natural, cultural, social, or economic resources and systems
- ▶ Important environmental or social stress factors and constraints
- ▶ Pertinent development plans, local regulations and local administrative standards
- ▶ Environmental and socioeconomic trends

The description of the project's Affected Environment should not only provide the existing conditions required for evaluating potential Environmental Consequences of transportation strategies, it should also be a strong resource for developing alternatives that will avoid or minimize impacts associated with the project. The more complete the description, the more accurately potential impacts can be predicted.

The Affected Environment discussion should succinctly describe the environment of the area(s) to be affected by the alternatives under consideration. The descriptions should be no longer than is necessary to understand the impacts of the alternatives. Data and analyses in a statement must be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies are urged to avoid useless bulk during the EIS process and concentrate efforts and attention on important issues. Verbose descriptions of the Affected Environment are themselves no measure of the adequacy of an EIS (CEQ, 40 CFR § 1502.15). Refer to American Association of State Highway and Transportation Officials' 2006 (AASHTO's) *Improving the Quality of Environmental Documents* for suggestions on preparing good,

CEQ § 1502.15 "Affected Environment". The EIS shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration.





concise, readable, and legally sufficient EISs. **Appendix C** of this Manual provides a recommended style guide for preparation of EIS.

Early descriptions should be limited to readily available information because the Affected Environment and Environmental Consequences will be further refined during preparation of the EIS. Resource-specific impact analysis and mitigation measures are discussed in **Chapter 9**.

ENVIRONMENTAL BACKGROUND

Environmental background information is usually collected early in the project planning process or may be generated by statewide planning processes, or the metropolitan or non-metropolitan transportation planning region and can be utilized to support the Affected Environment discussion. **Chapter 3** discusses CDOT's planning and project development process. Such information can also be obtained during the initial site visits.

Some background data may need to be researched before the site visit, including a review of area maps or GIS information, relevant environmental or transportation reports, previous surveys, and consultation with resource experts including external agency personnel. Specific certifications may be required to legally conduct some of the supporting studies that require collection of field data. For example, a field survey of archaeological properties is performed by personnel who are listed in the Directory of Cultural Resource Management Agencies, Consultants and Personnel for Colorado, as holding a state permit to do fieldwork in archaeology on state, county, city, and some private lands in Colorado (but not on federal or tribal lands). This is because there are minimum qualifications for state permits (Office of Archaeology and Historic Preservation, History Colorado, Publication #1308b, 8CCR 1504-7 Rules and Procedures Historical, Prehistorical, and Archaeological Resources Act (revised 09/11)) that help to ensure that the permit holder will collect reliable and legally compliant data.

In addition, field surveys of fish and wildlife species that require handling to be surveyed may require a permit from CPW and/or the USFWS. The population status of the species to be studied frequently determines whether a permit is required. Field surveys that rely solely on observation seldom require permits.

Verify that consultants hired to perform supplemental field studies have or can readily obtain the required permits in time to perform the needed field work in the appropriate season(s). Additional information on resource-specific methodologies are included in **Chapter 9**.





SUPPLEMENTAL FIELD STUDIES

If gaps exist in the information required to characterize specific resources or identify potential project impacts, the project team may need to conduct supplemental field studies to fill these gaps.

Supplemental field studies should begin early in the process to avoid affecting the project schedule and budget. These studies are frequently restricted to specific seasons, may take a long time to complete, or need to be coordinated with other agencies.

Use the information gained from field studies to evaluate alternatives; this information should clearly support the analysis of impacts. Having the appropriate detailed information from these studies will avoid project delays and cost increases. The results of existing conditions data collection and supplemental field studies may require additional budget for data collection and additional environmental analyses. Project budgets may need to increase or could be decreased depending on the findings. Similar impacts on the project schedule should also be anticipated. Further detail on supplemental field studies is provided by resource in **Section 9**.

The timeline for determining how field studies fit into the overall project schedule should be discussed during early site visits and adjusted as necessary throughout the project. The schedule could be developed during the official project scoping at the onset of the NEPA process.

4.8.2 Environmental Consequences

The analysis of Environmental Consequences and associated mitigation measures forms the basis for comparing alternatives. This section of the EIS addresses the impacts of the project alternatives on the quality of the human environment, and describes the measures proposed to mitigate potential adverse impacts of the project. NEPA defines the human environment broadly to include many aspects of the natural and built environments. The analysis presented in the EIS should be of sufficient detail to establish the reasonableness of a conclusion that an impact will or will not occur and whether the impacts are substantial. The description and analysis of impacts must be supported by the information and data presented in each of the specific resource sections and need to estimate both impact and the significance to the human environment.

The allocation of environmental study resources should be in proportion to the importance of the potential impacts identified in the scoping process with the resource agencies and the public. Information developed in the project planning process and studies conducted by environmental specialists should provide the basis for determining what areas of the environment may be impacted and therefore require specific analysis in the EIS.





A summary of the results of studies undertaken should be included, but not all information resulting from specialist studies and reports needs to be incorporated. All special studies referenced are a part of the public record and must be available with the EIS at the CDOT regional office and/or local agency and public reading rooms for public inspection. Where quantitative data support conclusions, they should be included. FHWA encourages the use of charts, tables, matrices, and other graphics as a means of comparing the impacts of the different project alternatives. It should be noted that quantitative data does not always show the whole picture. Qualitative data is sometimes needed to get a clearer picture.

The key to managing the considerable amounts of data required to conduct a full NEPA analysis is to determine what is important in terms of disclosing environmental impacts. For example, if the project is in an urban setting with no farmlands, then farmland impacts are not discussed. If the project is a highway widening in an area inhabited by an endangered mammal, the wildlife surveys, background data, Biological Assessment and Biological Opinion, and a thorough discussion of avoidance and mitigation measures may all be appropriate for inclusion in the main body of the document, in an appendix, and in associated technical reports.

To aid readers in understanding the logical progression of the EIS, the structure of the Environmental Consequences section should parallel the Affected Environment section. The organization of the Environmental Consequences should be relatively consistent between technical sections. Statements that describe impacts for a particular alternative should not be repeated for another alternative if this sort of redundancy can be avoided with a better organization of the analysis. Reader understanding and simplicity should overrule format consistency.

When preparing the decision document, the impacts and mitigation measures of the alternatives, particularly the preferred alternative, may need to be discussed in more detail to elaborate on information, firm-up commitments, or address issues raised during the public comment period.

The decision document should also identify any new impacts (and their implications) that may have resulted from modification or identification of substantive new circumstances or information regarding the preferred alternative following the EIS circulation. Where new major impacts are identified between preparation of the Draft and Final EIS, a supplemental EIS may be required (CEQ, 40 CFR § 1502.9[c]). See **Section 4.21** for more details.





4.8.3 Types of Impacts

NEPA uses the terms “impact,” “effect,” and “consequence” synonymously. This Manual utilizes “impact”. For an action to impact (positively or negatively) the environment, it must have a causal relationship with the environment. NEPA distinguishes three types of causal impacts: direct, indirect, and cumulative.

- ▶ **Direct impacts** are caused by the action and occur at the same time and place (CEQ, 40 CFR § 1508.8). For example, highway construction that occurs within a wetland would completely remove the wetland or modify the structure and function of the wetland. This would therefore be a direct impact on wetlands.
- ▶ **Indirect impacts** are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect impacts may include those related to induced changes in patterns of land use, population density or growth rate, and related impacts on air and water and other natural systems, including ecosystems (CEQ, 40 CFR § 1508.8). For example, highway construction that alters the hydrology of an area could increase or decrease overland water flow to nearby wetlands and streams, which would have an indirect effect on the structure and function of these water resources. Additional indirect impacts could occur to plant and animal species that inhabit the affected wetlands and streams.
- ▶ **Cumulative impacts** result from the incremental impact of the action when it is added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts could result from individually minor, but collectively significant, actions that take place over time (CEQ, 40 CFR § 1508.7). Cumulative impacts are further discussed in **Section 4.8.4**.

Impacts may be ecological, aesthetic, historical, cultural, economic, or social, or may be either beneficial or adverse. Beneficial impacts may occur when a proposed action improves a situation (e.g., lessens serious traffic congestion). However, even when the impact of an action will be generally environmentally beneficial, adverse environmental impacts may still occur in other resource areas.

FHWA’s Technical Advisory T6640.8A notes that the level of impacts should not be described using the term significant (FHWA, 1987). However, when conclusions regarding the significance of an impact have received concurrence from consulting or jurisdictional agencies, this information



Impacts discussions and associated findings should reflect realistic impact potentials rather than what might be possible if well known requirements, mandates and commitments to avoid, minimize and mitigate impacts did not exist.



should be included (for instance, there may be concurrence on a Finding of Adverse Effect under Section 106 of the Historic Preservation Act). Furthermore, if the term significant is used, it should be consistent with the CEQ definition and supported by factual information. (CEQ, 40 CFR § 1508.27).

To help the project team completely understand how a resource will be impacted, context, intensity, duration, and timing must be considered. Context is defined as the setting of the proposed action and is established in the description of the Affected Environment (are the impacts site-specific, local, or regional). Intensity is considered the severity of the impact (are the impacts negligible, minor, moderate, or major).

As required by CEQ regulations, the severity of an impact requires consideration of a number of the following factors:

- ▶ Degree of effect on public health or safety
- ▶ Presence of unique characteristics of the project area such as proximity to resources or protected areas
- ▶ Degree of controversy
- ▶ Degree to which possible effects are uncertain or involve unique or unknown risks
- ▶ Degree to which the action would set a precedent for future actions with significant effects
- ▶ Contribution to cumulatively significant effects
- ▶ Degree to which there may be adverse effects to scientific, cultural or historical resources
- ▶ Degree to which there may be adverse effects on an endangered or threatened species or its critical habitat
- ▶ Conflict with federal, state or local laws for the protection of the environment

Impacts should also be characterized as temporary or permanent. Temporary impacts are generally those that result from demolition, site preparation, and construction activities, and will not persist once project construction is completed. Common examples of possible temporary impacts include dust generation, erosion, construction noise, stream diversion, or traffic congestion. When analyzing temporary impacts, all aspects of project construction should be considered within the project footprint such as use of areas to store equipment and materials or set up a construction office, construction of roads to gain access to the site, or use of areas for borrow of fill or disposal of excavated material.



Clearly state all assumptions and methods so that it is obvious how results and conclusions were formed. Anyone with the appropriate skills should be able to duplicate the work.



Permanent impacts are those that persist after a project has been completed. Common examples of permanent impacts include creating cut-and-fill areas or right-of-way acquisition. Some impacts, such as changes in noise levels or changes in access to local businesses or residences, may be temporary or permanent or both, depending on project specifics.

MITIGATION AND MONITORING COMMITMENTS

Prior to mitigation, CDOT always makes best efforts to:

- ▶ Avoid the impact altogether by not taking a certain action or parts of an action
- ▶ Minimize impacts by limiting the degree or magnitude of the action and its implementation

However, if avoidance or minimization is not feasible then mitigation measures may be implemented including:

- ▶ Rectifying the impact by repairing, rehabilitating, or restoring the Affected Environment
- ▶ Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- ▶ Compensating for the impact by replacing or providing substitute resources or environments (CEQ, 40 CFR § 1508.20)

FHWA regulations require that mitigation measures presented as commitments in the final EIS be incorporated into a project (FHWA and FTA, 23 CFR § 771.109[b] and 23 CFR § 771.125[a][1]). Monitoring conducted during project construction and operation is the means to ensure mitigation measures are implemented effectively. If monitoring identifies any deficiencies in mitigating the impact, adjustments to the level, timing, and/or procedure of mitigation must be made accordingly.

Mitigation commitments are specific and include information regarding responsibility, monitoring, performance standards, and schedules for implementation. The NEPA decision document makes commitments about implementing and monitoring the proposed mitigation measures, and the commitments are documented in a summary of impacts and mitigation table. The first seven columns of CDOT's standardized Mitigation Tracking Spreadsheet

[http://www.coloradodot.info/programs/environmental/resources/forms/CDO T%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view](http://www.coloradodot.info/programs/environmental/resources/forms/CDO%20T%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view)

should be used as the summary of impacts and mitigation table in NEPA documents. This summary is formatted to allow its use as a stand-alone document that can be added into the main Mitigation Tracking Spreadsheet, which will follow the project through the design, construction, and





maintenance phases. CDOT maintenance staff should be informed and consulted as early as possible in the process of determining mitigation measures.

It is important for the project team to note that long-term mitigation measures may include multi-year environmental monitoring and other components that have an effect on project schedule, budget, and long-term maintenance and operation.

MITIGATION AND THE NEPA/404 MERGER

Prior to the issuance of the Final EIS (or Draft EIS if a preferred alternative has been preliminarily identified), CDOT will provide to USACE, for concurrence, estimated unavoidable impacts of the preferred alternative to wetlands and other waters of the US and a conceptual compensatory mitigation plan.

In **Section 4.8**, a summary of mitigation and monitoring commitments by project phase is discussed. This summary is a key component of a EIS because it highlights commitments on which project approval is based and makes them readily available to those responsible for implementation. Consequently, this summary should include project design components that are mandatory. Such components are in essence mitigation or monitoring commitments that have been incorporated into the project before its impacts were formally assessed under NEPA, rather than as a result of that assessment.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

42 USC § 4332 102(C)(v) requires a discussion of any irreversible or irretrievable commitments of resources that would be involved in the proposal should it be implemented. An irretrievable commitment of a resource is one in which the resource or its use is lost for a period of time (e.g., land used in the construction of the proposed project). An irreversible commitment of a resource is one that cannot be reversed (e.g., fossil fuels, labor, and materials used during the construction of the proposed project).

SHORT-TERM USES VERSUS LONG-TERM PRODUCTIVITY

42 USC 4332 102(C)(iv) requires discussion of the relationship between local, short-term uses of man's environment and the maintenance and enhancement of long-term productivity of resources. This section compares short-term gains with the long-term expense that may result from a loss of future productivity. While it is assumed that there will be benefits resulting from the proposed project, all projects involve costs, side effects and potential loss of natural resources that have long-term productive value. This





section should point out that transportation improvements are based on state and/or local comprehensive planning that consider(s) the need for present and future traffic requirements within the context of present and future land use development.

INCOMPLETE OR UNAVAILABLE INFORMATION

When evaluating reasonably foreseeable significant adverse impacts on the human environment in an EIS, and when there is incomplete or unavailable information, it is important for the document to indicate that such information is lacking.

CEQ, 40 CFR §1502.22 states:

- (a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the EIS.
- (b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the EIS:
 - 1. A statement that such information is incomplete or unavailable.
 - 2. A statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment.
 - 3. A summary of existing credible scientific evidence that is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment.
 - 4. The agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, reasonably foreseeable includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.





4.8.4 Cumulative Impacts

Cumulative impacts are typically discussed in Chapter 4 of an EIS. In mandating cumulative impacts analysis, CEQ seeks to ensure that EISs consider not only the project and its alternatives, but the other actions that could contribute to long-term environmental degradation. For example, a CDOT highway project may be just one piece of the bigger growth picture in a county. Other pieces of this picture include new retail (a new mall), new business parks (such as Interlocken or the Denver Tech Center in the Denver Metro Area, or Centerra in Loveland), new housing developments (occurring all around Colorado), and the competing demands of new residents for open space, parks, hospitals, and schools. In this example, land use is the resource being evaluated in a cumulative impact context; the growth in the area would supply information about the existing conditions and future conditions. Methodology for a cumulative impact section is further discussed in **Chapter 9**.

4.9 Section 4(f) Evaluation

Section 4(f) guidance for publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites is discussed in detail in **Chapter 9** of this Manual. Section 4(f) findings are typically Chapter 5 in an EIS, if required.

4.10 Agency Coordination and Public Involvement

Agency coordination and public involvement guidance is discussed in **Chapter 7** of this Manual. Agency coordination and public involvement is typically discussed in Chapter 6 in an EIS.

4.11 List of Preparers

CEQ regulations require the inclusion of the names and brief qualifications (expertise, experience, professional disciplines) of persons primarily responsible for preparing the EIS or conducting environmental studies (CEQ, 40 CFR § 1502.17). This should include state (and/or local) agency staff, FHWA staff, and consultants preparing all or part of the document, even if the consultant's contribution was modified by the agency. Technical editors and graphic support personnel are included. FHWA's Technical Advisory T6640.8A calls for listing the FHWA personnel primarily responsible for preparing or reviewing the EIS, and their qualifications. The list should also indicate the portion of the EIS that the individual prepared. This information can be presented in tables. To obtain accurate information for the list of preparers, each person should be contacted to verify educational and professional experience and the number of years employed.





4.12 List of Agencies, Organizations, and Persons To Whom Copies of the EIS are Sent

The distribution list should name all federal, state, and local agencies and persons to whom copies of the EIS are sent (CEQ, 40 CFR § 1502.10). FHWA's Technical Advisory T6640.8A notes that the EIS should list all entities from which comments are requested. This should include local agencies and organizations likely to have an interest in all or part of the proposed project.

4.12.1 Consultation and Coordination

Public involvement, consultation, and coordination efforts are summarized in the EIS. CDOT has specific policies regarding public involvement that are discussed in **Chapter 7**. In addition to the information listed above, the consultation and coordination chapter should:

- ▶ Provide a chronology of key public and stakeholder meetings and events that have occurred on the project, including the early coordination and scoping processes
- ▶ Document all meetings with government leaders, government agencies (including Cooperating and Participating Agencies), Native American interests, community and advisory groups, and individual citizens
- ▶ Summarize all issues raised by agencies and the public

The EIS (both Draft and Final) document should contain copies of pertinent interagency correspondence in an appendix including, consultation with USFWS, Section 106 coordination with the SHPO, and important communications with similar agencies.

4.13 References and Citations

The EIS must cite the references used in preparing the document. The citations should include the technical studies used to substantiate the analyses and conclusions in the document. They may also cite other relevant sources, such as local or regional planning documents, pertinent scientific studies, or other relevant materials. Materials prepared by other agencies in compliance with other regulatory processes (e.g., a Biological Opinion) should also be referenced. There are specific CEQ regulations for references and citations.





4.14 Appendices and Technical Reports

NEPA guidance emphasizes that EISs should be succinct statements of the information on environmental impacts and alternatives that the decision-maker and the public need in order to make decisions and to ascertain that significant factors have been examined. The appendices should only include material that is directly relevant to the EIS and that substantiates data that is important to the analysis and supports the conclusions.

Lengthy technical discussions should be contained in separate technical reports. Technical reports are not treated as appendices to the EIS. They are bound as separate documents and referenced. While separate technical reports are not circulated with the EIS during public review, they are public documents and must be available for review. They must also be submitted along with copies of the preliminary draft for CDOT headquarters (Environmental Programs Branch [EPB] and others) review and FHWA review and approval. During the public comment period the EIS and the technical reports are placed in convenient locations for public review and copying (typically libraries or other easily accessible public buildings).

Relevant appended information may include listings (e.g., wildlife species common to the project area), letters of agreement, Memoranda of Understanding, or Referendums. The appendices to an EIS must contain all correspondence received from government agencies and private interest groups concerning the project. However, they do not include any letters between CDOT and FHWA or internal CDOT memos or letters.

Appendices contain detailed information that is not essential to a basic understanding of the document and the results obtained but may be helpful to readers. Appendices help to streamline the content of the document. They should not contain unnecessary information; be very discriminating about what information is included. The Draft EIS is expected to contain the following appendices:

- ▶ Agency Coordination
- ▶ Public Involvement and Coordination

Other appendices may be added if appropriate. All appendices must be called out in the body of the document. They are lettered sequentially (i.e., Appendix A, Appendix B, etc.) at the end of the document in the order in which they are called out.



CEQ § 1502.18 "Appendix". If any agency prepares an appendix to an EIS the appendix shall:

- (a) consist of material prepared in connection with an EIS
- (b) normally consist of material which substantiates any analysis fundamental to the EIS
- (c) Normally be analytic and relevant to the decision to be made
- (d) Be circulated with the EIS or be readily available on request



4.15 Index

The index of an EIS should include important subjects and areas of major impacts so that a reviewer need not read the entire document to obtain information on a specific subject or impact. It should have a level of detail sufficient to focus on areas of the document of reasonable interest to any reader. However, it need not identify every conceivable term or phrase.

4.16 Notice of Availability

FHWA sends the Notice of Availability (NOA) to EPA, and EPA files the NOA. FHWA can also file their own NOA, but FHWA relies on the EPA filing. The EPA's notice in the Federal Register is the official NOA that the document is available. EPA publishes the notice on Friday, unless a holiday falls on Friday and then it is posted on Thursday. The designated FHWA Colorado Division Office staff will submit the electronic EIS to e-NEPA.

In preparing the NOA a certain format must be followed. *The Federal Register Drafting Handbook* is available on the Internet to assist with preparing the NOA as well as other types of notices.

Agencies should also make diligent efforts to involve the public in the NEPA process by providing public notice of NEPA-related hearings, public meetings and the availability of environmental documents (CEQ, 40 CFR § Regulations 1506.6). Publication in local newspapers (in papers of general circulation rather than legal papers) is one way to send notice to the public in addition to the Federal Register. Other means are other local media, newsletters, direct mailings, posting of notices, press release and through community organizations. CDOT has specific policies for public involvement that are discussed in **Chapter 7**. These additional advertisements should be done at the time of the NOA and at least 15 days prior to the public hearing.

4.17 The Draft EIS

4.17.1 Comments on the Draft EIS

Specific direction on document review procedures is provided in **Chapter 8**. The Final EIS should include a copy of substantive comments from the cooperating agencies, participating agencies, and other stakeholders who commented on the Draft EIS during the public comment period. Where the response from these parties is exceptionally voluminous, the comments may be summarized. An appropriate response should be provided in the Final EIS to each substantive comment. If the final NEPA text is revised as a result of the comments received, a copy of the comments should contain references indicating where revisions were made. The response should address the issue or concern raised by the commenter adequately or, where



CEQ § 1502.10 "Index". The CEQ Regulations require that an index be prepared for all EISs. However, the Regulations do not state how the index should be written.



substantive comments do not warrant further response, explain why they do not, and provide sufficient information to support that position. The Final EIS should:

- ▶ Summarize the substantive comments on social, economic, environmental, and engineering issues made at the public hearing, if one is held, or the public involvement activities
- ▶ Discuss the consideration given to any substantive issue raised and provide sufficient information to support that position

4.17.2 Circulation of the Draft EIS

After approval by FHWA and placement of the NOA, copies of all Draft EISs must be made available to the public and circulated for comments by CDOT (CEQ, 40 CFR § 1502.19 and 1503.1) to the following parties:

- ▶ All public officials, private interest groups, and members of the public known to have an interest in the proposed action or the Draft EIS
- ▶ All federal, state, and local government agencies expected to have jurisdiction, responsibility, interest, or expertise in the proposed action
- ▶ States and federal land management entities that may be affected by the proposed action or any of the alternatives.


Distribution must be made no later than the time the document is filed with EPA for Federal Register publication and must allow for a minimum 30-day review period, or 45-day if the document contains a Section 4(f) evaluation (CEQ, 40 CFR § 1506.9 and 1506.10).

The document should include adequate information for FHWA and CDOT to ascertain the disposition of the comment(s). Further details regarding EIS distribution are located in **Chapter 8**.

4.18 The Final EIS

4.18.1 Options for Preparing the Final EIS

The CEQ regulations place heavy emphasis on reducing paperwork, avoiding unnecessary work, and producing documents that are useful to decision-makers and to the public. With these objectives in mind, three different approaches, traditional, condensed, and abbreviated, to preparing the Final EIS are presented below. The first two approaches can be employed on any project. The third approach is restricted to the conditions specified by CEQ (CEQ, 40 CFR § 1503.4(c)). The CDOT project team makes an initial recommendation to FHWA for which approach seems



CDOT follows the FHWA directives in 23 CFR § 223 771.123 (Draft EIS), 771.125 (Final EIS), and 771.127 (ROD). Available at: <http://www.fhwa.dot.gov/legsregs/directives/fapg/cfr/0771.htm>





applicable for the project. FHWA will make the final determination as to which approach will be utilized.

Traditional – The Final EIS incorporates the Draft EIS (essentially in its entirety) with changes made as appropriate throughout the document to reflect the identification of a preferred alternative, modifications to the project, updated information on the Affected Environment, changes in the assessment of impacts, the selection of mitigation measures, wetland and floodplain findings, the results of coordination, and comments received on the Draft EIS and responses to these comments. Because a large amount of information is carried over from the Draft EIS to the Final EIS, important changes are sometimes difficult for the reader to identify. Nevertheless, this is the approach most familiar to participants in the NEPA process.

Condensed – This approach avoids repetition of material from the Draft EIS by incorporating, by reference, the Draft EIS. The Final EIS is, thus, a much shorter document than under the traditional approach; however, it should afford the reader a complete overview of the project and its impacts on the human environment.

The purpose of the condensed approach is to briefly reference and summarize information from the Draft EIS that has not changed and to focus the Final EIS discussion on changes in the project, its setting, impacts, technical analysis, and mitigation that have occurred since the Draft EIS was circulated. In addition, the condensed Final EIS must identify the preferred alternative, explain the basis for its identification, describe coordination efforts, and include agency and public comments, responses to these comments, and any required findings or determinations (CEQ, 40 CFR § 1502.14(e) and FHWA and FTA, 23 CFR § 771.125(a)).

The format of the Final EIS should parallel the Draft EIS. Each major section of the Final EIS should briefly summarize the important information contained in the corresponding section of the Draft EIS, reference the section of the Draft EIS that provides more detailed information, and discuss any noteworthy changes that have occurred since the Draft EIS was circulated.

At the time that the Final EIS is circulated, an additional copy of the Draft EIS need not be provided to those parties that received a copy of the Draft EIS when it was circulated. Nevertheless, if due to the passage of time or other reasons it is likely that they will have disposed of their original copy of the Draft EIS, then a copy of the Draft EIS should be provided with the Final EIS (CEQ, 40 CFR (a) § 1503.4(c)). In any case, sufficient copies of the Draft EIS should be on hand to satisfy requests for additional copies. Both the Draft EIS and the condensed Final EIS should be filed with EPA under a single Final EIS cover sheet (CEQ, 40 CFR § 1503.4(c)).





Abbreviated—The CEQ regulation (CEQ, 40 CFR § 1503.4(c)) provides the opportunity to expedite the Final EIS preparation where the only changes needed in the document are minor and consist of factual corrections and/or an explanation of why the comments received on the Draft EIS do not warrant further response. In using this approach, care should be exercised to assure that the Draft EIS contains sufficient information to make the findings, and that the number of errata sheets used to make required changes is small and that these errata sheets, together with the Draft EIS, constitute a readable, understandable, full disclosure document. The Final EIS should consist of the Draft EIS and an attachment containing the following:

- ▶ Errata sheets making any necessary corrections to the Draft EIS
- ▶ A section identifying the preferred alternative and discussion of the reasons it was identified as the preferred alternative. The following should also be included in this section where applicable:
 - Final Section 4(f) evaluations
 - Wetland finding(s)
 - Floodplain finding(s)
 - A list of commitments for mitigation measures for the preferred alternative; and copies (or summaries) of comments received from circulation of the Draft EIS and public hearing and responses thereto.

4.18.2 EIS Approval Process

Specific details regarding the NEPA review process for Final EISs are discussed in **Chapter 8**.

4.18.3 Compliance with Applicable Laws

The Final EIS should demonstrate compliance with requirements of all applicable environmental laws, executive orders, and other related requirements, such as Title VI of the Civil Rights Act of 1964. To the extent possible, all environmental issues should be resolved prior to the submission of the Final EIS. When disagreement on project issues exists with another agency, coordination with the agency should be undertaken to resolve the issues before issuing the Final EIS. Where the issues cannot be resolved, the Final EIS should identify any remaining unresolved issues, the steps taken to resolve the issues, and the positions of the respective parties. Where issues are resolved through this effort, the Final EIS should demonstrate resolution of the concerns. For a list of NEPA-related





regulations that are often considered during a CDOT NEPA effort, refer to Figure 2-1 in Chapter 2 of this Manual.

4.18.4 Circulation of the Final EIS

The Final EIS shall be transmitted to any persons, organizations, or agencies that made substantive comments on the Draft EIS or requested a copy, no later than the time the document is filed with EPA. In the case of lengthy documents, the CDOT may provide alternative circulation processes in accordance with CEQ, 40 CFR § 1502.19. CDOT shall also publish a notice in local newspapers. When the document is filed with EPA, the Final EIS shall be available for public review at the CDOT offices and at appropriate Region offices. A copy should also be made available for public review at institutions such as local government offices, libraries, and schools, as appropriate.

4.19 Record of Decision

The ROD typically follows a Final EIS and selects an alternative (it may or may not be the preferred alternative from the Final EIS) for implementation. In addition, the ROD explains the reasons for the project decision, summarizes any mitigation measures that will be incorporated in the project, and documents any required Section 4(f) approval. While cross-referencing and incorporating the Final EIS (and other documents) as appropriate, the ROD must explain the basis for the project decision as completely as possible, based on the information contained in the EIS (CEQ, 40 CFR § 1502.2). It is important to note that only FHWA has approval/issuing authority for a ROD, whether or not the NEPA process has been merged with, for example, USACE 404 (b)1. The ROD may not be issued sooner than 30 days after the approved Final EIS is distributed.

The following key items are addressed in the ROD:

- ▶ **Decision** – Describe the selected alternative for implementation and the basis for its selection
- ▶ **Alternatives Considered** – Briefly describe each alternative and explain the balancing of values that formed the basis for the decision. Identify the environmentally preferable alternative(s) and, if the alternative selected is not the environmentally preferable alternative, clearly state the reasons for not selecting it. Also identify the LEDPA, if applicable
- ▶ **Section 4(f)** – Summarize the basis for any Section 4(f) approval, when applicable (FHWA and FTA, 23 CFR § 771.127[a])
- ▶ **Measures to Minimize Harm** – Describe the specific measures adopted to minimize environmental harm and identify those





standard measures. State whether all practicable measures to minimize environmental harm have been incorporated into the decision and, if not, why they were not (CEQ, 40 CFR § 1505.2[c]). Identify any impacts that cannot be mitigated. The CDOT Mitigation Tracking Spreadsheet must also be included in the ROD.

- ▶ **Monitoring or Enforcement Program** – Describe any monitoring or enforcement program adopted for specific mitigation measures, as outlined in the Final EIS. The Mitigation Tracking Spreadsheet from the Final EIS must also be included in the ROD.
- ▶ **Comments on Final EIS** – Include substantive comments received on the Final EIS as well as the given appropriate responses. Summarize other comments and responses where appropriate

4.20 Other Clearances (Tiered Analyses, Reevaluations, Supplemental EIS)

4.20.1 Tiered NEPA Analyses

Agencies are allowed by CEQ regulations to tier their EISs to eliminate repetitive discussions of the same issues and to focus on the actual issues needing decision at each level of environmental review. FHWA regulations (FHWA and FTA, 23 CFR § 711.111[g]) state that “for major transportation actions, the tiering of EISs as discussed in the CEQ regulation (40 CFR § 1502.20) may be appropriate.” The CDOT project team makes an initial recommendation to FHWA regarding whether a project should use a tiered approach. FHWA makes the final determination for utilizing tiering.

There are two tiers that can be used for the tiered approach. Tier 1 is equivalent to programmatic (i.e., big picture) documents. These documents focus on broad policy decisions such as general location, mode choice, and area-wide air quality and land use implications of major alternatives. Tier 2 is equivalent to project-specific documents. These documents address site-specific details on project impacts, costs, and mitigation measures. By following a tiered process and focusing the Tier 1 document on strategies for an entire corridor, the goal is to expedite the Tier 2 evaluation since overall corridor issues have been addressed up front, and detailed environmental studies have been reserved for specific project locations. Tier 2 documents allow FHWA and CDOT to focus on analyzing project-specific impacts and issues in the second tier.

With the availability of PEL (further discussed in **Chapter 3, Section 3.2**) CDOT may not conduct Tier 1 studies as they have in the past.



Note that the term “tiering” is also used in a general sense to mean dependence on information from previously published documents, which are referenced, without repeating their information in the current document. The phrase “to tier to” another document means to incorporate by reference without repeating.





4.20.2 Reevaluations of an EIS

Before implementation of a project that received NEPA approval, CDOT must consult with FHWA before requesting any major approvals to establish whether the approved EIS remains valid. If circumstances have changed, FHWA may require a Reevaluation. A Reevaluation is prepared to determine what changes have occurred and whether new documentation or a supplemental EIS is necessary.

The Reevaluation is for the entire document or project (i.e., same limits as the original environmental document). The Reevaluation should consider the entire project, but be focused on the validity of the EIS and/or project decision as related to the current phase or work, major approval, or action to be taken by FHWA to advance the project. If documentation of the Reevaluation is necessary, the previous phases would be referenced as a previous action and summarized as background information. The current phase would be discussed in more detail, but only to the extent that there have been changes to the project or Affected Environment. Future phases could be mentioned and discussed, but the detail could be delayed until approval is needed to proceed with the future phase. There is no requirement to modify phases already built or reconsider previous designs when the next phase is being built.

If the project decision, Affected Environment, mitigation or other environmental commitments, or environmental requirements have not changed or if the changes examined do not result in the determination by FHWA that the environmental document is no longer valid, the Reevaluation process is completed. If the Reevaluation process determines that the approved environmental document is no longer adequate, then supplemental environmental documentation is needed to fully analyze the changes that have occurred. (FHWA and FTA, 23 CFR § 771.129)

The question of whether the design year and traffic numbers need updating for the final segment or the entire project under a Reevaluation should be examined on a case-by-case basis and may be commensurate with the time lapse between the original environmental document and decision and the current FHWA approval action. For example, if the project is so old that the design would not be appropriate, it should probably be changed. There is no requirement to change the design year (and associated traffic numbers) of a project during Reevaluation of the environmental document.

23 USC 109 provides that the project must adequately serve the existing and planned future traffic of the highway in a manner that is conducive to safety, durability and economy of maintenance. In accordance with AASHTO's *A Policy on Design Standards – Interstate System*, "In all but extraordinary circumstances, the design year for new construction and



A Reevaluation is prepared with the purpose to determine whether or not a supplement to the EIS is needed.



complete reconstruction is to be at least 20 years beyond that which the plans, specifications, and estimate for construction for the section are approved." FHWA does not have a requirement for design year on non-interstate facilities.

A Reevaluation is required under the following conditions:

- ▶ If an acceptable Final EIS is not received by FHWA within three years from the date of the Draft EIS circulation, to determine whether there have been changes in the project or its surroundings or new information (i.e. new environmental impact not previously discussed or new regulations or laws) that would require a supplement to the Draft EIS or a new Draft EIS (FHWA and FTA, 23 CFR § 771.129(a)).
- ▶ If CDOT has not taken additional major steps to advance the project within any three year time period of the Final EIS, the final supplemental EIS, or the last major FHWA approval action (FHWA and FTA, 23 CFR § 771.129(b)).
- ▶ After approval of the EIS, CDOT shall consult with FHWA prior to requesting any major approvals for major production phases (preliminary engineering, right-of-way acquisition, and construction advertisement) or grants to establish whether or not the approved EIS remains valid for the requested action (FHWA and FTA, 23 CFR § 771.129(c)). Consultations between CDOT and FHWA should be documented when determined necessary by FHWA.
- ▶ Any time during the project development process when a major change in the project's concept has occurred.
- ▶ For a ROD, if more than three years elapsed since approval of the Final EIS.

4.20.3 Reevaluation of a Tiered EIS and ROD

This section discusses the Reevaluation of a Tiered EIS. Tiered EISs are further discussed in **Section 4.20.2**. Once a Tier 1 document is approved by FHWA it is assumed that the actions evaluated in the Tier 1 document will not cause significant impacts and the actions move into Tier 2 analysis. However, between completion of the Tier 1 and start of the Tier 2 document, new information or circumstances may result in needing to adjust what was approved in the Tier 1 document (i.e. a new component to an alternative such as consideration of tolling). Under FHWA regulations, a Reevaluation can be prepared to determine whether the new information or changes in a project require supplementation of a previously issued Tier 1 document. If it is determined in the Reevaluation that the changes cause additional significant impacts at the Tier 1 level of analysis then completion of a Tier 1





Supplemental EIS would be required. However, if it is determined that the new information or circumstances do not cause additional significant impacts at the Tier 1 level of analysis then the Reevaluation suffices for changing the findings in the Tier 1, and the change in analysis from the Reevaluation can move forward into the Tier 2 document.

4.20.4 Documenting Reevaluations Using CDOT Form 1399

CDOT Form 1399 is to be used when completing a Reevaluation. Below are the sections of the Reevaluation form with a discussion for how to fill out each section.

SECTION I. DOCUMENT TYPE

Section I indicates specifically what type of document is being reevaluated. Identify the type of document by checking the appropriate box on the form.

SECTION II. REASON FOR REEVALUATION

There are three primary reasons that CDOT completes a Reevaluation:

1. Project is proceeding to the next major approval or action (23 CFR 771.129(c))
2. Project changes such as laws, policies, guidelines, design, environmental setting, impacts, or mitigation have occurred – Sometimes the design that was originally approved changes in final design, resulting in newly discovered or otherwise unaccounted for impacts to resources not initially evaluated in the NEPA document. Reevaluations may also be completed to serve as field verifications to ensure that impacts documented in the initial NEPA clearance are still correct and that the same mitigation measures apply.
3. Greater than three years have elapsed since approval of the DEIS, (23 CFR 771.129(a)) or FHWA's last major approval action for the FEIS (23 CFR 771.129(b)) - Sometimes after a preferred alternative is identified in an EA or EIS it is not constructed due to funding limitations or other constraints. CDOT utilizes Reevaluations to 'refresh' project information that may have exceeded its shelf life. The passing of time following the approval of a NEPA document to the point of the alternative being implemented is referred to as the shelf-life.

SECTION III. CONCLUSION AND RECOMMENDATION

Section III determines whether or not the environmental document reviewed is still valid. Should it be determined that no substantial changes have





occurred, the project can advance to the next phase of project development. However, should it be determined that the NEPA document is no longer valid and more information is needed then additional work will be required.

The Regional Planning Environmental Manager (RPEM), or designee, and the FHWA Division Administrator or Designee are responsible for signing Section III.

SECTION IV. EVALUATION

This section of the form documents the level of Reevaluation, which should be determined in coordination with the RPEM. Level 1 and Level 2 Reevaluations do not need to be reviewed by EPB. Check with the Environmental Policy & Biological Resources Section Manager to determine if EPB review is necessary for Level 3 Reevaluations. Level 4 Reevaluations must be sent to EPB for review. FHWA concurrence is required for Level 2, Level 3, and Level 4 Reevaluations.

This section also documents if there have been changes in the Affected Environment or in impacts to each resource. Design alterations, regulatory changes, an assessment of impacts for resources that have changes in impacts, and mitigation are also included in this section. The first seven columns of CDOT's standardized Mitigation Tracking Spreadsheet should be attached to the Reevaluation.

SECTION V. PUBLIC/AGENCY INVOLVEMENT

Section V of the Reevaluation form deals with documentation of public and/or agency involvement activities. Some projects may not have any public involvement requirements; however, those that do should be documented. Public involvement may also include outreach to other interested parties, such as business districts, or other stakeholders or entities. Agency involvement may be as simple as meetings or correspondence.

SECTION VI. ADDITIONAL STUDIES REQUIRED FOR PROPOSED ACTION

This section should list studies that might be needed in addition to the original documentation, or to supplement the Reevaluation. Such studies might include: resource technical reports or memorandums, traffic analysis or design components.

SECTION VII. ADDITIONAL REQUIREMENTS FOR PROPOSED ACTION

If it is determined within Section III that the environmental document or CatEx designation is no longer valid, then Section VII indicates the next level of appropriate analysis. The required analysis ranges from:

- ▶ Supplemental EIS





- ▶ Revised ROD
- ▶ Appropriate environmental study
- ▶ EA
- ▶ Revised FONSI
- ▶ No additional studies

SECTION VIII. PERMITS UPDATED (OPTIONAL)

This section of the Reevaluation form only needs to be completed when the next stage of a project is going to construction. Required permits should be listed in this section.

SECTION IX. ATTACHMENTS LISTED

This final section of the Reevaluation form should include all attachments that support the conclusion of the form. These attachments, referenced in previous sections, could include permits, studies, background data, public/agency involvement materials, etc.

PROJECT CERTIFICATION CLEARANCE FORM

Signature of the Reevaluation form completes the NEPA requirement for the project; however, it is not the final step in the process. The CDOT Form 128 must also be completed for all Reevaluations. Section C of the CDOT Form 128 includes information regarding Permits and Additional Requirements and Section E includes the Environmental Project Certification. Completion of these two sections is required in order for the project to move into construction.

4.21 Supplemental EIS Analyses

Whenever there are changes, new information, or further developments on a project that may result in significant environmental impacts not identified in the most recently distributed version of the Draft or Final EIS, a supplemental EIS is necessary (FHWA and FTA, 23 CFR § 771.130). These changes occur following the last approval (Draft EIS, Final EIS, or ROD). Supplemental EISs normally do not require reinitiating the entire environmental process. Instead, the supplemental EIS is for the last approval. If a ROD has been granted, only the Final EIS will need to be supplemented.

If the changes are of such magnitude to require a reassessment of the entire action, or more than a limited portion of the overall action, FHWA/CDOT will suspend any activities that would have adverse environmental impacts or limit the choice of alternatives until the supplemental EIS is complete.





A supplemental EIS is needed in the following cases:

- ▶ Changes have occurred in the purpose of or need for the project requiring analysis of completely new alternatives
- ▶ Schedule changes that would require the evaluation of previously unexplored options
- ▶ Changes have been made to the design or scope of the project
- ▶ Significant changes to the Environmental Consequences of the project (determined following completion of the environmental approval process) may require supplemental documentation to determine whether the conclusions in the EIS are valid
- ▶ FHWA or CDOT determines that new information or circumstances would result in substantial environmental impacts not evaluated in the EIS

In some cases, supplemental information may be required to address issues of limited scope such as the extent of proposed mitigation, the evaluation of location, or design variations for a limited portion of the overall project. When this is the case, preparation of the supplemental EIS will not prevent granting new approvals, require the withdrawal of previous approvals, or require suspension of project activities for any activity not directly affected by the supplement.

A supplemental EIS will be reviewed and distributed in the same manner as its previous Draft and Final versions (FHWA and FTA, 23 CFR § 771.130[d]) to ensure that the public and interested agencies understand the changes in status of the project.

4.22 Project Files and Administrative Records

This section establishes what should be maintained in a project file and provides information for compiling the administrative record should a lawsuit be filed.

4.22.1 Project File

Throughout the life of a NEPA project, project materials are generated by the entire project team. All of the materials maintained by the project team are considered the project file. The size of the project file may depend on the type of project; a CatEx for an intersection improvement may have a small file whereas an EIS for an interstate widening will have a larger file.

Items that comprise the project file may include:

- ▶ Email messages and any attachments
- ▶ Letters/Memoranda and any attachments



CDOT PMs are responsible for establishing electronic naming conventions for emails at the beginning of a project. A standard indicator should be used throughout the project in the subject line to easily track project related emails.





- ▶ Meeting materials (agenda, sign-in, handouts, minutes)
- ▶ GIS information and data layers
- ▶ Modeling results
- ▶ Maps, drawings, and displays
- ▶ Project documents in original formats (for example, Word or CAD)
- ▶ Policies, guidelines, directives and manuals, or easy references to these materials as long as they are readily available
- ▶ Articles and books. Be sensitive to copyright laws governing duplication.
- ▶ Factual information or data.
- ▶ Communications received from other agencies and from the public, and any responses to those communications
- ▶ Documents and materials that contain information that support or oppose the challenged agency decision
- ▶ All draft documents that were circulated for comment either outside the agency or outside the author's immediate office, if changes in these documents reflect significant input into the decision-making process
- ▶ Technical information, sampling results, survey information, and engineering reports or studies. Certain technical information, such as threatened/endangered species, historic, and archaeological resource survey reports, should be kept in the files but labeled "SENSITIVE – NOT FOR PUBLIC RELEASE" due to their sensitive nature.
- ▶ Decision documents
- ▶ Documentation of telephone conversations and meetings, such as memoranda or handwritten notes, unless they are personal notes
- ▶ Alternatives screening and development information
- ▶ Public comment correspondence
- ▶ Documentation of public involvement efforts

As a general rule, do not include internal working drafts of documents that may be superseded by a later, more complete, edited version of the same document.

All written documentation should contain a date, indicate to/from (or attendees for meetings), location (for meetings), and be clear on subject





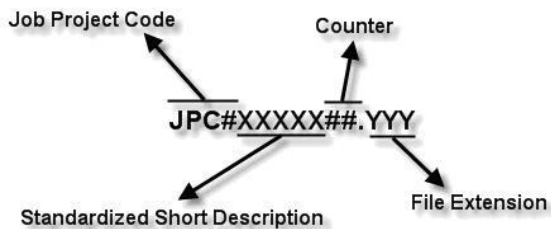
matter. The project team may want to consider establishing a template for internal communications, memos, e-mails (e.g., always using the project number in the subject line of an e-mail) early in the NEPA process.

At the beginning of the project it is important to determine several things to ensure an adequate project file:

- ▶ Who is responsible for maintaining the project file (i.e. project manager, project coordinator)
- ▶ Whether or not a database will be used to manage files, such as was used for the I-70 Mountain Corridor Programmatic EIS (PEIS)
- ▶ Where files will be housed during the project
- ▶ How electronic and hard copy information will be filed
- ▶ If a project email will be established where all email correspondence will be sent or copied to assist with record keeping



CDOT has a naming standard that uses a formula that restricts the character placement, ensures unique file names, and identifies the information contained in the file. All CDOT projects now must follow these file naming conventions. The naming standard creates consistency between projects being completed by different firms and in different Regions. Standardizing file names is necessary for effective management of the large numbers of files needed to produce project deliverables. CDOT files are named in a standard format that identifies the file's project, the data contained within it, and product used for its creation. The naming convention is illustrated as follows:



Job Project Code (JPC) is the CDOT project code, formerly known as the project subaccount number. **Example – 16602**

Standardized Short Description of data may contain as many characters within reason to describe the contents and purpose of the file. **Example – Aerial**

Counter indicates more than one file of a specific type. **Example – Aerial_02**

File Extensions define the product used for its creation. **Example – .doc**

Full Example of a file naming convention 16602_Aerial.doc or 16602_Aerial_02.doc

The project file may be kept at a central location at a consulting firm where project files are maintained throughout the project. However, a decision must be made on how the files will be provided to CDOT at the close of the project. Given that some projects have numerous consulting firms involved it is necessary to obtain all the appropriate files from each of the firms, organize into logical folders (hardcopy and electronic) and provide to CDOT. In cases where the majority of files have been maintained electronically, a final deliverable to CDOT must include an electronic deliverable.





The CDOT Generic Scope of Work Section 2. G. Administrative Record task is a place to include the effort for maintaining the project file (CDOT, 2011). Although the task is labeled administrative record, it can be changed in the project specific scope to include the project file, as well. Regardless, hours and effort need to be allocated for this task in the project budget, regardless of the project size.

There is no general NEPA guidance on how long a project file should be kept and federal agencies are free to establish their own guidelines on retention of files. However, once a project has been completed, prudence dictates that the following types of data should be permanently retained:

- ▶ Design and as-built drawings and specifications in both hard copy and electronic format
- ▶ Deeds and titles
- ▶ All information considered under NEPA in selecting the alternative that was implemented

Such information may be useful in assessing and resolving future problems with project structures, ownership, or choices associated with implementation.

4.22.2 Administrative Record

Should the NEPA decision be challenged in court, the project file provides a starting point for preparing the administrative record. When a project faces litigation, the administrative record must be prepared, which includes all materials that are submitted to the court.

Under the Administrative Procedure Act, a court reviews an agency's action to determine if it was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" (5 USC § 706[2][A]). In making this determination, a court evaluates the agency's administrative record. The administrative record is the paper trail that documents the agency's decision-making process and the basis for the agency's decision.

The administrative record for each project will be drawn from the project file as needed. Not all material in the project file will necessarily become part of the administrative record; however, any information that supports the final decision should be part of it. As established by case law, the general rule is that the administrative record should contain "all documents and materials directly or indirectly considered by the agency" in making its decision.



A well organized project file is the foundation for putting together the administrative record.





An administrative record will most likely include:

- ▶ Pre-decision documents, such as final versions of memoranda, final versions of reports, manuals and guidance documents, and meeting minutes
- ▶ Field notes
- ▶ Correspondence, both paper and electronic
- ▶ Email, including attachments
- ▶ Technical files, which could include items such as Section 106 reports

An administrative record may include, depending on the type of lawsuit:

- ▶ Engineering plans and
- ▶ Raw data and information

An administrative record most likely will not include:

- ▶ Documents created after the decision document is signed
- ▶ Detailed mapping of sensitive archaeological, tribal, or Endangered Species Act resources
- ▶ Materials related to national security
- ▶ Privileged materials
- ▶ Duplicates, such as emails with chains
- ▶ Non-substantive comments or emails

An administrative record can be in electronic, hard copy, or a combination format. It is ultimately up to the court to decide which format is preferred. It is important to note that if electronic documents are converted to PDF format, the original source files must also be available.

Some general guidance for organizing an administrative record includes ensuring all items have a date, that items are organized in a logical and accessible way (for example, chronological or by topic), and an index completed. The index should list documents in chronological order, assign unique page numbers to documents, include brief descriptions of each document, and include the author of each document.

FHWA is ultimately responsible for the administrative record as the decision-maker. Therefore, it is important to work closely with FHWA staff when preparing an administrative record to ensure that it contains the appropriate information and is in the appropriate format(s).



CDOT has adopted the *AASHTO Practitioner's Handbook Maintaining a Project File and Preparing an Administrative Record for a NEPA Study* (July 2006) for further guidance on the administrative record documentation.

<http://environment.transportation.org/pdf/programs/PG01.pdf>





4.22.3 Project File Example

PROJECT FILE EXAMPLE

The I-70 Mountain Corridor PEIS project spanned 11 years, beginning in late 1999/early 2000 and ending in June 2011 with the signing of the Record of Decision (ROD). Over those 11 years, the project involved producing a Draft PEIS; changing directions with a new administration; establishing a Project Leadership Team with stakeholder involvement; engaging in a collaborative effort process to arrive at a preferred alternative; performing an evaluation of the Draft PEIS; and producing a Revised Draft PEIS, a Final PEIS, and a ROD within a tight timeframe. With all of the project changes it was very important to maintain a project file that could easily transition into an administrative record if needed.

One key component was setting up a file structure that stood the test of time through technological and user changes. For the I-70 Mountain Corridor PEIS, this filing structure was set up so that hard copies and electronic files would be mirrored so that what was placed in the hard copy file was also placed in the electronic file. Also, it was important that items were placed in the file immediately upon their receipt to ensure no documentation was missed.

When the I-70 project began in late 1999, most project documentation was in hard copy format. It consisted of correspondence from agencies, stakeholders, and the public; reference reports; data sharing agreements; meeting documentation; and open house materials, among others. The consultant used a filing cabinet to house hard copies of the early project documentation.

Agency, stakeholder, and public meetings and open houses played a key role in developing the I-70 Mountain Corridor PEIS. The consultant set up a meeting log to track each meeting that occurred for the project. This meeting log identified meeting attendees, meeting dates and times, and topics to be discussed, among other information. The consultant also set up monthly calendars noting days with meetings to ensure that all meetings were accounted for.

Up through the production of the Draft PEIS in December 2004, the consultant compiled all meeting documentation in hard copy format and placed this information in three-ring binders. Included were sign-in sheets, agendas, meeting notes, handouts, and transcripts. Anything associated with a particular meeting was kept in one place. The consultant did not create PDFs of meeting materials prior to 2005, but the source files were kept on a network server. The consultant began creating PDFs of all meeting materials in 2005. The consultant would later scan all the meeting



Lesson Learned:
Assemblage of the I-70 PEIS Adobe Acrobat project file began towards the end of the project, which took more time and money to complete. It is recommended that decisions on how files will be maintained happen at the start of a project.



materials in the three-ring binders into PDF files so that the electronic record mirrored the hard copy binder information.

Given the expected controversy on the project, FHWA and CDOT directed the consultant to compile a project file that would allow for an administrative record to be easily created if needed. CDOT, FHWA (as the lead agency), and the consultant worked together to decide on the format for the project file. CDOT and FHWA decided that a searchable project file would be most fitting, but it needed to be easily accessed, not use proprietary software, and be cost effective. Adobe Acrobat was chosen because it is universal software that everyone has access to and is compatible through versions and software updates as well. This searchable file would serve several purposes. This file could span the life of the project serving as a database of sorts and it could be used as a resource for future corridor (Tier 2) studies moving forward. It could also be used as an effective search tool if the public or agencies request project information. Also, if someone legally challenged the project, CDOT and FHWA could then take the project file and easily compile an administrative record. CDOT and FHWA also decided that all files would be available in an electronic format with only important hardcopies being retained, such as those with original signatures, licensure stamps etc.

The consultant scanned all of the hard copies files into an electronic format using Adobe Acrobat PDF. Housing the documentation in a filing cabinet and using three-ring binders for meeting materials made it easier for the consultant to locate and scan the earlier project documentation that was not available in any other form but hard copy.

Another key to compiling the I-70 Mountain Corridor PEIS project file was having a file naming convention system in place. Using AASHTO's *Practitioner's Handbook, Maintaining a Project File and Preparing a Project Record for a NEPA Study* (AASHTO, 2006), FHWA, CDOT, and the consultant decided to set up the project record chronologically by date (yyyy-mm-dd). The file name was also to include the topic or subject of the documentation, followed by sender-recipient, then a brief description of the documentation, and finally type of documentation (such as letter, meeting documentation, reports).

The following demonstrates the naming convention that was used:

2005-10-17 106 CDOT-Breckenridge His-Prop-Inv L.pdf

The example represents a letter sent on October 17, 2005, regarding Section 106, from CDOT to the Town of Breckenridge about the historic properties inventory. If no date was provided on a piece of documentation, 0000-00-00 was used for the date.





In this electronic age, email communication plays a key role in project management. Because project guidance was often communicated in email correspondence, especially in the more recent years of the project, emails became an important part of the I-70 PEIS project file. The consultant set up a filing system for emails, created PDFs of any emails providing direction, along with their attachments, saved emails as they were received, and used the same file naming conventions as were used for other files. Sometimes email conversations included much back and forth communication between agencies or individuals. In those cases, the consultant created a PDF of the last incoming email on the topic with all the in-between communication included in the PDF.

Something that would benefit many projects would be to set up a project email account so that any emails related to the project would be carbon copied to that email address. One person could be designated to manage that email account on a weekly basis to ensure that PDFs of emails and their attachments are created early on. Having to go back through emails of all project team members after the fact can be time consuming and create duplication.

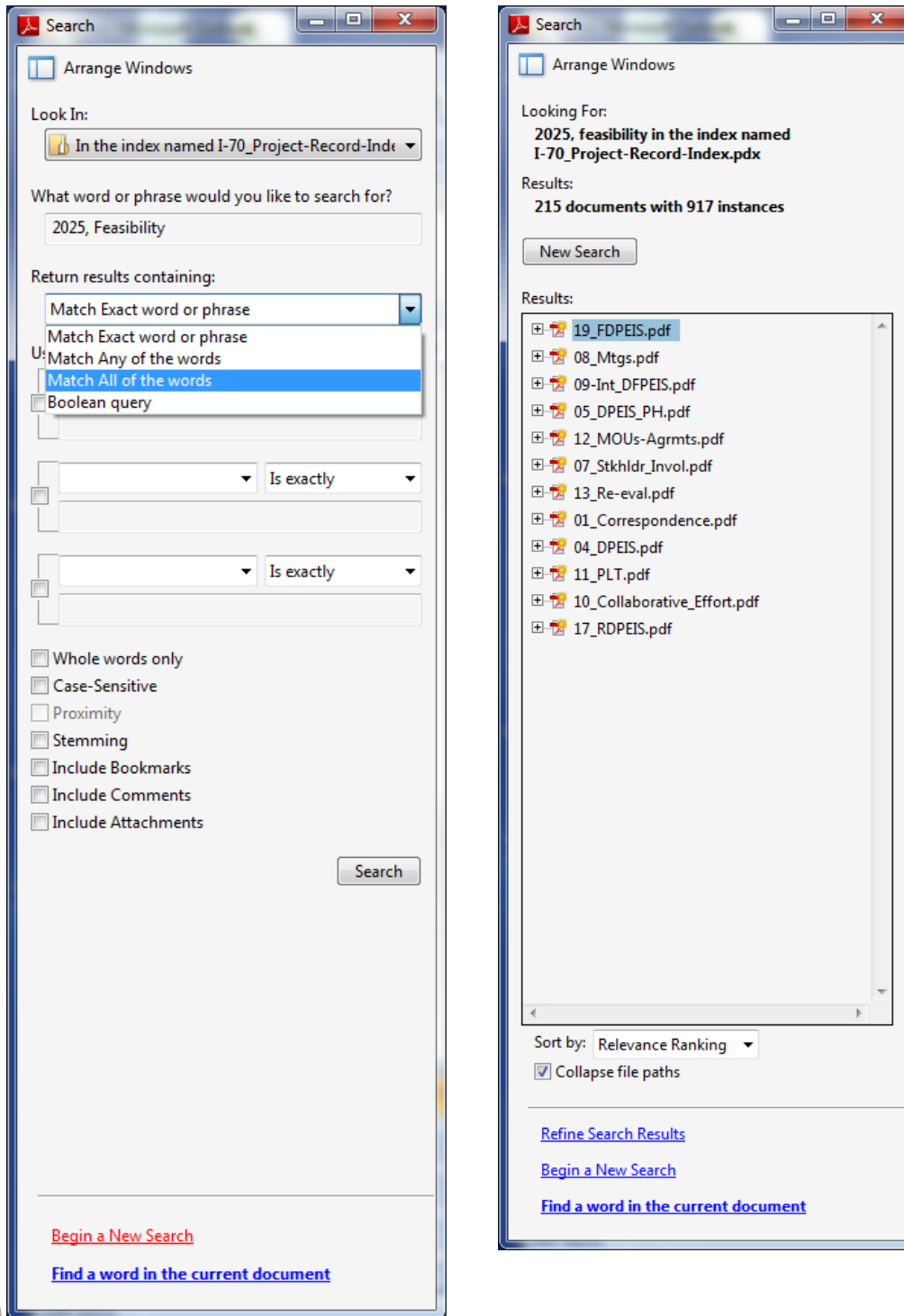
Finally, comments received from document reviews were another key part of the I-70 Mountain Corridor PEIS project file. In their reviews, CDOT and FHWA used a spreadsheet where comments and responses were entered. These spreadsheets can be used to track controversial topics and provide a history of how the document was finalized.

Once all the files were named correctly and converted to PDFs, a searchable project file using Adobe Acrobat was created. The consultant set up searchable indexes once the folder structure was determined. PDFs that were created from files that were not already PDFs were then added to the indexes. The consultant learned that it worked best if this process was done concurrently as the project progressed. Once PDF files are saved in their respective portfolios, the user can run searches on individual indexes. Two example screenshots follow.

The consultant also built an index file (**Figure 4-3**). An index file allows searches on the entire project file. Having this capability enables CDOT or FHWA to compile an administrative record if the project is legally challenged and goes to litigation or to compile information for Tier 2 studies or public/agency requests.



Figure 4-3 Example Index File





The index file allows the user to search independently of Adobe Reader or Adobe Acrobat. The user can choose the words or phrases for the search. The search results will display as a drop-down list in the Search dialog box with the file names and the number of instances where the key word is found within the searchable record. The user can then select the file/files that he/she wants to open. The original source files (i.e. Word document, Xcel spreadsheets) for each PDF file are also saved as part of the project file.

4.23 Statute of Limitations

Section 1308 of MAP-21 established a 150-day limitation on claims on litigation for projects being implemented. The 150-day clock starts with Federal Register publication of a notice that a permit, license, or approval action is final. It should be noted that for projects conducted under the NEPA/404 merger agreement, the notice of final action will be placed in the Federal Register after both the NEPA and 404 approvals are complete.

The following language is standard language that should be included in all documents (typically on the reverse side of the signature page). This language is also presented in **Appendix F**.

The Federal Highway Administration may publish a notice in the Federal Register, pursuant to 23 United States Code (USC) § 139(1), once the Record of Decision (or Finding of No Significant Impact) is approved. If such notice is published, a claim arising under Federal law seeking judicial review of a permit, license, or approval issued by a Federal agency for a highway or public transportation capital project shall be barred unless it is filed within 150 days after publication of a notice in the Federal Register announcing that the permit, license, or approval is final pursuant to the law under which judicial review is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.





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CHAPTER 5: CATEGORICAL EXCLUSIONS (CLASS II)

	<u>Page</u>
5.0 CATEGORICAL EXCLUSIONS (CLASS II)-----	5-1
5.1 Introduction-----	5-1
5.2 Programmatic CatEx Projects-----	5-3
5.2.1 Programmatic CatEx - Actions-----	5-3
5.2.2 Programmatic CatEx - Process-----	5-9
5.2.3 Programmatic CatEx - Documentation-----	5-16
5.2.4 Programmatic CatEx - Approval-----	5-20
5.3 Non-Programmatic CatEx-----	5-21
5.3.1 Non-Programmatic CatEx - Actions-----	5-21
5.3.2 Non-Programmatic CatEx - Process-----	5-22
5.3.3 Non-Programmatic CatEx - Documentation-----	5-32
5.3.4 Non-Programmatic CatEx - Approval-----	5-34
5.4 References-----	5-35

ATTACHMENT – HOW TO FILL OUT FORM 128 IN SAP

LIST OF FIGURES

Figure 5-1	CDOT Categorical Exclusion Determination Parts A & B-----	5-11
Figure 5-2	CDOT Categorical Exclusion Determination Parts C, D, and E-----	5-13



5.0 CATEGORICAL EXCLUSIONS (CLASS II)

This chapter discusses the Colorado Department of Transportation (CDOT) process and procedures for the Categorical Exclusion (CatEx) class of action (Class II). The other classes of action, Class I - Environmental Impact Statement (EIS) and Class III – Environmental Assessment (EA), are discussed in **Chapters 4 and 6** respectively. Most of this chapter is referring to the Federal Highway Administration's (FHWA) process for CatExs. The Federal Transit Administration's (FTA) process is somewhat different and will be covered in a subsequent section in the next version of the NEPA Manual (not ready for this printing). The section will include clarifications regarding items that address both FHWA and FTA.

5.1 Introduction

CatExs are the most common National Environmental Policy Act (NEPA) documents and are actions that do not individually or cumulatively have a significant environmental impact and are excluded from the requirement to prepare an EA or an EIS. The FHWA/ FTA regulations describe activities that are CatExs (FHWA, 23 CFR § 771.101 – 771.131). The regulations also describe unusual circumstances that would preclude an action from being classified as a CatEx. As identified in 23 CFR § 771.117 Part A, CatExs are actions that:

- ▶ Do not induce significant impacts to planned growth or land use for the area
- ▶ Do not require the relocation of significant numbers of people
- ▶ Do not have a significant impact on any natural, cultural, recreational, historic or other resource
- ▶ Do not involve significant air, noise or water quality impacts
- ▶ Do not have significant impacts on travel patterns
- ▶ Do not otherwise, either individually or cumulatively, have any significant environmental impacts, and are, therefore, excluded from the requirement to prepare an EA or EIS

CatEx projects require no major federal action and have impacts that are generally well-understood. Since CatEx projects have no significant impacts on the environment, NEPA requirements are significantly less stringent than those for an EA or EIS. For example, public involvement and alternatives analysis are not explicitly required, and the level of documentation for FHWA approval is greatly reduced. Although public involvement is not explicitly



FHWA/FTA. 1987 as amended in 2005.
Environmental Impact and Related Procedures. 23 Code of Federal Regulations (CFR) 771 § 771.101 – 771.131





required for a Programmatic or Non-Programmatic CatEx, it is still a good idea to have some sort of public involvement at least for those CatExs that include some right-of-way acquisition, construction impacts, road closures or detours, etc. Although a project may not have significant impacts, a large amount of public controversy can require preparation of an EA or EIS as appropriate.

Classifying a project as a CatEx does not exempt it from other federal or state environmental requirements. All applicable environmental requirements including, but not limited to consultation pursuant to Section 7 of the Endangered Species Act or Section 106 of the National Historic Preservation Act, must be completed before FHWA or CDOT make the CatEx determination. FTA has not delegated this role to CDOT, as FHWA has in some instances. The FTA process as it differs from FHWA will be covered in a subsequent section in the next version of the NEPA Manual. Documentation is required to record the rationale for decision-making on projects that are categorically excluded from further consideration under the NEPA process. **Section 2.2.3** of this Manual discusses when NEPA applies to a project.

FHWA/FTA regulations (FHWA/FTA, 23 CFR § 771.117) contain two lists of CatExs:

- ▶ **Programmatic CatEx Projects** – These projects are identified in Part C of the regulation and do not normally require any further NEPA approvals from FHWA or FTA. CDOT also has been granted specific “Programmatic Categorical Exclusions” by FHWA. FTA has its own expanded list, which will be identified in the next NEPA Manual update and as documented in the *FTA Region 8 Categorical Exclusion Worksheet*. (CDOT, 2011).
- ▶ **Non-Programmatic CatEx Projects** – These projects are identified in Part D of the regulation and contain a representative list of actions that require CDOT and FHWA or FTA approval. This list has been amended by the expanded Programmatic list by FHWA that now includes actions that were non-programmatic, and now are accepted as programmatic. These project types must meet the criteria for a CatEx in the Council on Environmental Quality (CEQ) regulations (CEQ, 40 CFR § 1508.4) and the evaluation criteria specified in Part A of the regulation (FHWA, 23 CFR § 771.117).



Types of CatExs

- Programmatic CatEx
- Non-Programmatic CatEx
- Expanded Non-Programmatic CatEx





5.2 Programmatic CatEx Projects

The rest of Chapter 5 describes FHWA's CatEx process as implemented by CDOT. Based on the actions identified in 23 CFR § 771.117 Part C and through agreement with FHWA (CDOT, 2011), activities may be approved programmatically by CDOT. The following sections discuss:

- ▶ Actions that may be approved as Programmatic CatExs
- ▶ Programmatic CatEx process
- ▶ Documentation required
- ▶ Approval procedures

5.2.1 Programmatic CatEx - Actions

The types of projects listed in this section are considered to be programmatic CatExs. The following actions from 23 CFR § 771.117 Part C meet the criteria for CatExs in the CEQ regulation (CEQ, 40 CFR § 1508.4) and 23 CFR § 771.117 Part D. These FHWA actions normally do not require any further NEPA approvals by FHWA. For these actions, a Form 128 must be prepared and the numbering below should be used for project tracking. FTA completes their own CatEx form using information from their worksheet. If more than one programmatic CatEx category applies, the main category will be listed in the CatEx number field on CDOT Form 128 and the remaining categories will be listed in the comment box on the lower half of the form. If both non-programmatic and programmatic categories apply, the project will be processed as a non-programmatic CatEx.

- C1. Activities which do not involve or lead directly to construction, such as planning and research activities; grants for training engineering to define the elements of a proposed action or alternatives so that social, economic, and environmental effects can be assessed; and Federal-aid system revisions which establish classes of highways on the Federal-aid highway system.
- C2. Approval of utility installations along or across a transportation facility
- C3. Construction of bicycle and pedestrian lanes, paths, and facilities
- C4. Activities included in the State's highway safety plan under 23 USC 402
- C5. Transfer of Federal lands pursuant to 23 USC 317 107(d) and/or 23 USC 317 when the land transfer is in support of an action that is not otherwise subject to FHWA review under NEPA



Forty-nine (49) activities may be approved programmatically by CDOT without further NEPA approvals by FHWA.





- C6. The installation of noise barriers or alterations to existing publicly owned buildings to provide for noise reduction
- C7. Landscaping
- C8. Installation of fencing, signs, pavement markings, small passenger shelters, traffic signals, and railroad warning devices where no substantial land acquisition or traffic disruption will occur
- C9. Emergency repairs under 23 USC 125
- C10. Acquisition of scenic easements
- C11. Determination of payback under 23 USC 156 for property previously acquired with Federal-aid participation
- C12. Improvements to existing rest areas and truck weigh stations
- C13. Ridesharing activities
- C14. Bus and rail car rehabilitation
- C15. Alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons
- C16. Program administration, technical assistance activities, and operating assistance to transit authorities to continue existing service or increase service to meet routine changes in demand
- C17. The purchase of vehicles by the applicant where the use of these vehicles can be accommodated by existing facilities or by new facilities which themselves are within a CatEx
- C18. Track and rail bed maintenance and improvements when carried out within the existing right-of-way
- C19. Purchase and installation of operating or maintenance equipment to be located within the transit facility and with no significant impacts off the site
- C20. Promulgation of rules, regulations, and directives
- C21. Deployment of electronics, photonics, communications, or information processing used singly or in combination, or as components of a fully integrated system, to improve the efficiency or safety of a surface transportation system or to enhance security or passenger convenience. Examples include, but are not limited to, traffic control and detector devices, lane management systems, electronic payment equipment, automatic vehicle locaters, automated passenger counters, computer-aided dispatching systems, radio communications systems, radio



On August 4, 2011, the Programmatic Agreement for the Review and Approval of Certain NEPA Categorically Excluded Transportation Projects between the FHWA Colorado Division, and CDOT was implemented.



communications systems, dynamic message signs, and security equipment including surveillance and detection cameras on roadways and in transit facilities and on buses.

In addition to the 21 actions identified in 23 CFR § 771.117 Part C, FHWA has approved an expanded list of actions for programmatic delegation of authority from FHWA to CDOT (CDOT, 2011). The expanded list of additional project and maintenance activities that may be approved programmatically includes:

- P1. Adding or lengthening turning lanes (including continuous turning lanes), intersection improvements, channelization of traffic, or dualizing lanes at intersections and interchanges, or adding or lengthening bus queue-jumps
- P2. Flattening slopes; improving vertical and horizontal alignments
- P3. Installation of ramp metering control devices, freeway traffic surveillance and control systems, motorist aid systems, highway information systems, computerized traffic signalization systems or roadway lighting including purchase and installation of equipment for Traffic Operations Centers
- P4. Restoring, replacing, or rehabilitation of culverts, inlets, drainage pipes and drainage systems, including safety treatments to improve these features
- P5. Preventive maintenance activities, such as joint repair, pavement patching, crack sealing, skid hazard treatments, striping, and shoulder repair
- P6. Restoration, rehabilitation or resurfacing of existing pavement; the removal and replacement of old pavement structure; or changes to the pavement such as installation of rumble strips
- P7. Upgrading, removal or addition of guardrail, median barrier or impact attenuators
- P8. Railroad crossing elimination by closure and railroad overpass removal within existing right-of-way
- P9. Clear zone safety improvements, such as fixed object removal or relocation
- P10. Screening unsightly areas
- P11. Restoration and rehabilitation of existing bridge structures, including painting, crack sealing, joint repair, scour repair, scour counter measures, bridge rail or bearing pad placement, seismic retrofit, deck rehabilitation or replacement, or upgrade of bridge





end approaches and guardrail transitions or other minor modifications

- P12. Widening of substandard bridge structures to provide shoulders
 - P13. Acquisition of scenic or historic sites
 - P14. Preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails)
 - P15. Historic preservation, rehabilitation and operation of historic transportation buildings, structures, or facilities (including railroad facilities and canals)
 - P16. Control and removal of outdoor advertising
 - P17. Aesthetic treatments and other scenic beautification
 - P18. Mitigation of water pollution due to highway runoff
 - P19. Maintenance and/or replacement of existing noise barrier panels and/or posts
 - P20. Perfection of title for right-of-way when the subsequent action is in support of an action that is not otherwise subject to FHWA review under NEPA (note: for Federal land transfers, use C5-Transfer of Federal lands pursuant to 23 USC 317 when the subsequent action is not an FHWA action [23 CFR 771.117(c)(5)])
 - P21. Restoration, rehabilitation or replacement of retaining walls or slope protection
 - P22. Restoration, rehabilitation or modification of truck escape ramps
 - P23. Installation, restoration, rehabilitation or replacement of rockfall mitigation measures
 - P24. Geotechnical and other subsurface investigation
 - P25. Installation of communication lines or other quasi-utilities structures along or across a transportation facility
- In addition to the CatEx list above, the following "D" list items from 23 CFR 771.117(d) that may be approved programmatically includes:
- D6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts (Non-Interstate).
 - D7. Approvals for changes in access control (Non-Interstate)



Approvals for change in Interstate Access Control (D7), as compared with non-interstate highways, may not be conducted by CDOT. This activity is a non-programmatic action and requires further NEPA approval by FHWA.





- D9. Rehabilitation or reconstruction of existing rail and bus buildings and ancillary buildings where only minor amounts of additional land are required, and there is not a substantial increase in the number of users.
- D10. Construction of bus transfer facilities (an open area consisting of passenger shelters, boarding areas, kiosks, and related street improvements) when located in a commercial area or other high activity center in which there is adequate street capacity for projected bus traffic.

The above listed project types qualify as programmatic FHWA CatExs only if each of the following criteria are met or as individually granted through consultation by FHWA if the following criteria are **not** met:

1. The action does not have any significant environmental impacts as described in 23 CFR 771.117(a)
2. The action does not involve unusual circumstances as described in 23 CFR 771.117(b)
3. The action does not involve the following:
 - a) The addition of through lanes
 - b) Adverse impacts (other than construction impacts) to local traffic patterns or property access
 - c) Adverse impacts to community cohesion, planned community growth, or land use patterns
 - d) The acquisition of more than minor amounts of permanent right-of-way; as defined by not more than 5 acres per linear mile or more than 20% of the project land area for transportation related facilities (e.g. rest areas, intersections, maintenance yards) (note: this requirement does not apply to "perfection of title for right-of-way" projects under scopes of action C5 or P20)
 - e) Any commercial or residential displacement
 - f) A determination of adverse effect by the State Historic Preservation Officer (SHPO)
 - g) A disproportionately high and adverse impact on minority or low-income populations
 - h) A noise impact as defined by meeting or exceeding the Noise Abatement Criteria, or an increase of 10 or more decibels (A-weighted)



If a project does not meet these criteria, it will require additional NEPA approval by FHWA.





- i) An Individual Evaluation for Section 4(f) of the Department of Transportation Act of 1966
- j) The use of properties protected by Section 6(f) of the Land and Water Conservation Act
- k) A US Army Corps of Engineers (USACE) Individual Section 404 permit
- l) Discharge to a protected water, or adversely affecting a waterway that is impaired by criteria related to roadways or road construction
- m) An adverse effect on a federally-listed threatened or endangered species or critical habitat
- n) An adverse impact on a regulatory floodway or the base floodplain (100-year flood) elevations of a water course or water body
- o) Work within or adjacent to a known Superfund site listed on US Environmental Protection Agency (EPA) website
- p) Changes in access control on the Interstate
- q) A regionally significant project for air quality purposes as defined in 40 CFR 93.101
- r) Tribal lands or impacts to tribal traditional cultural properties
- s) The use of a temporary road, detour or ramp closure unless the use of such facilities satisfy the following conditions:
 - Provisions are made for access by local traffic and so posted
 - Through-traffic dependent business will not be adversely affected
 - The detour or ramp closure, to the extent possible, will not interfere with any local special event or festival
 - The temporary road, detour or ramp closure does not substantially change the environmental consequences of the action
 - There is no substantial controversy associated with the temporary road, detour, or ramp closure
- t) Substantial public opposition

Failure of any project to meet the conditions listed above will require FHWA approval of a Form 128 before the project may be designated as a



CDOT Form 128 requires two signatures, one for the top portion and one for the bottom portion of the Form 128:

- Top portion (Parts A and B) entails investigating whether there are environmental areas of concern with regard to the project
- Top portion (Parts A and B) usually needed for right-of-way plan authorization and obligation of funds for right-of-way acquisition unless these areas do not have important environmental impacts and if the right-of-way is being purchased with non-federal funds
- Bottom portion (Parts C, D, and E) for environmental permits and for ensuring environmental commitments are in the final plans and specifications
- Bottom portion (Parts C, D, and E) needed for project advertisement and obligation of funds for construction





categorically excluded project. If any of the above criteria are not met FHWA approval of Form 128 is required; provide the relevant criteria number in the comment box of Form 128.

5.2.2 Programmatic CatEx - Process

CDOT staff, typically the CDOT Regional Planning and Environmental Manager (RPEM), decides the appropriate class of NEPA documentation needed for a project, in consultation with FHWA, although FHWA makes the final determination on class of action. These projects originate either through the CDOT planning process, which is further discussed in **Chapter 3**, or as a local agency project with CDOT oversight. The following sections discuss the processes for a CDOT Project Programmatic CatEx and a Local Agency Project with CDOT Oversight Programmatic CatEx. Conducting actions documented by the Form 128 will require information input by CDOT into the CDOT SAP computer tracking system. **Attachment 1** includes the step-by-step process to input information into the CDOT SAP computer tracking system. The CDOT SAP computer tracking system is only accessible to CDOT personnel.



Form 128 is currently completed in the CDOT SAP computer tracking system, which is only accessible to CDOT personnel. Information on the SAP process is included as **Attachment 1** to this Chapter.

CDOT PROJECT

The following is the step-by-step process for approval of a programmatic CatEx project:

1. **Internal Scoping:** The CDOT project manager (typically an engineer) initiates Form 463 – Design Data and coordinates with all design and specialty disciplines, including Environmental, Right-of-Way, Utilities, Hydraulics, Traffic, Bridge Materials and Maintenance to get consensus on the scope of the project and to identify the multi-disciplinary project development team. Form 463 establishes the project within the CDOT tracking system. Environmental impact avoidance and minimization alternatives are discussed. The RPEM, or a designee, makes preliminary determinations regarding the anticipated environmental clearances and permits, and associated responsibilities for each. The RPEM, or a designee, schedules and coordinates with the CDOT Environmental Programs Branch (EPB) as necessary to initiate environmental clearance processes required on Part B of Form 128.
2. The CDOT project manager drafts a preliminary detailed project schedule that is circulated to the multi-disciplinary project development team for comments. With input from the team, the project schedule is adopted and shared with the multi-disciplinary project development team.





3. **Environmental Clearances:** The RPEM, or a designee, coordinates with the Region or EPB resource specialists for initiation of the anticipated environmental clearances required for the top portion (Parts A and B) of Form 128 (Figure 5-1). The documentation required is further discussed in Section 5.2.3, and these environmental clearances could include:
 - a. Air Quality (hot spot analysis)
 - b. Noise
 - c. Hazardous Materials (Initial Site Assessment [ISA] Checklist or Modified Environmental Site Assessment [MESA] or Phase I Environmental Site Assessment)
 - d. Threatened or Endangered Species
 - e. Wetland Delineation (Survey)
 - f. Paleontology
 - g. Archaeology
 - h. History
 - i. Historic Bridge
 - j. Section 4(f)
 - k. Section 6(f)
 - l. Other (Potentially may include Environmental Justice, Noxious Weeds, Migratory Birds, Water Resources, Visual/Aesthetics, etc.)



Example CDOT CatEx schedules are located in Section 3 of CDOT's Project Development Manual, which can be found here:

http://www.coloradodot.info/business/designsupport/bulletins_manuals/project-development-manual/2013-project-development-manual/section-3-environmental/view

CDOT has standardized the way that the Top Part of the Form 128 should be completed in order to streamline FHWA's review and approval process as such:

- ▶ The check box to the left of the resources (listed in Part B) should be checked if there is an impact or anticipated impact to that resource. If the box is checked, then there should also be a date on the date line documenting when the clearance for that resource was completed.
- ▶ If there is no impact, or no impacts are anticipated, to a specific resource, the check box should not be checked. However, there should be a date on the line to document when the resource was evaluated and clearance was completed for that resource. This means that there are no impacts to that resource or that the resource is not present in the study area.





- ▶ If a resource is clearly not present in the project area or if the project scope would clearly not impact a certain resource and therefore no verification would be necessary, the check box and date line can be left blank.

The appropriate clearance documentation must be in the project file for any resource with a check in the check box or a date on the date line. It is also good practice to keep in the project file why certain resources were not considered necessary for verification. The documentation could be as simple as a paragraph memo to the file stating that the resource is not present in the study area and the memo could cover several resources as necessary.

Figure 5-1 CDOT Categorical Exclusion Determination Parts A & B

COLORADO DEPARTMENT OF TRANSPORTATION CATEGORICAL EXCLUSION DETERMINATION		Date: _____	Revision Date: _____	Project Code #: _____
		Project #: _____		
Project Name: _____				
Project Description: _____				
A. Categorical Exclusion Project Determination				
1. This project has a Federal nexus (yes or no) _____.				
2. This project fits Categorical Exclusion or Programmatic CE number _____.				
3. CDOT _____ design plans dated _____ were referenced in selecting the Clearance Actions required in Block B of this form.				
B. Clearance Actions				
REQUIRED <small>If not checked is Not Applicable</small>	DATE COMPLETED	REQUIRED <small>If not checked is Not Applicable</small>	DATE COMPLETED	
<input type="checkbox"/> Air Quality (hot spot analysis)	_____	<input type="checkbox"/> Paleontology	_____	
<input type="checkbox"/> Noise	_____	<input type="checkbox"/> Archaeology	_____	
<input type="checkbox"/> Hazardous Waste		<input type="checkbox"/> History	_____	
<input type="checkbox"/> - ISA Checklist	_____	<input type="checkbox"/> Historic Bridge	_____	
<input type="checkbox"/> - MESA (or Phase I)	_____	<input type="checkbox"/> 4(f)	_____	
<input type="checkbox"/> Threatened or Endangered Species	_____	<input type="checkbox"/> 6(f) Agreements	_____	
<input type="checkbox"/> Wetland Delineation (survey)	_____	<input type="checkbox"/> Other	_____	
All required clearance actions indicated have been completed for the work described in the design plans referenced above. No significant environmental impacts will result from this project. All Permits and Additional Requirements indicated in Part C below will be obtained before project advertisement/construction. Implementation of project shall include required mitigation commitments.				
RPEM Signature _____		Date _____	Region # _____	
I concur in the above category designation and the scope of environmental clearance/permits indicated.				
FHWA Division Administrator Signature (when required) _____		(Please return form to RPEM) _____		

- Field Inspection Review (FIR):** The engineering project team prepares and provides the FIR engineering design plan set, which is approximately 30 percent design, for review and comment. Based on the environmental clearances documentation, the RPEM, or a designee, coordinates with the CDOT project manager and project team to further identify environmental impact avoidance and minimization opportunities. The RPEM, or a designee, communicates information requirements and anticipated timelines for necessary clearances and permits to the CDOT project manager.





5. Based on the environmental clearances documentation, the RPEM, or a designee, prepares a Summary of Mitigation Measures and provides this summary to the CDOT project manager for inclusion in the Final Office Review (FOR) plans and specifications, which is approximately 90 percent design.
6. **Form 128 (Parts A and B):** Once all resources have been inspected that could be impacted, and impacts have been assessed, the RPEM approves the top portion of Form 128. Upon completion of Parts A and B of Form 128, funds for right-of-way acquisition can be obligated and negotiations for right-of-way acquisition can proceed.
7. The RPEM, or a designee, initiates coordination with the permitting agencies for Part C of Form 128.
8. **FOR:** Environmental impacts are definitively quantified for environmental permit applications and to ensure adequate representation in the project plans and specifications. Form 463 is completed.
9. The RPEM, or a designee, satisfies the requirements identified in Part C of Form 128. Permit requirements or other mitigation measures are communicated to the CDOT project manager for inclusion in the final plans and specifications.
10. **Final Check:** The final plans and specifications containing all mitigation measures are provided to the RPEM, or a designee, ideally a minimum of three weeks prior to when final clearance is required. The RPEM, or a designee, verifies that the relevant information presented in the Summary of Mitigation Measures is included in the Final Check plan set. Changes required to the Final Check plan set are explained/summarized by the environmental staff. The RPEM, or a designee, reviews and compiles the clearances and permits.
11. **Environmental Project Certification:** The RPEM approves the Environmental Project Certification in Part E of Form 128 (Figure 5-2). This signature means that all environmental commitments are included or being otherwise handled that were identified during the environmental clearance efforts. A copy of the version of the plan set that was approved needs to be kept in the file to document changes that may be made under advertisement of the project for construction that will need subsequent clearance tracking in the file.
12. The CDOT Resident Engineer (in some cases, the CDOT project manager) signs and submits the final Form 463 and as applicable,



submits the completed and signed Form 128, and the signed Form 1180 by the CDOT Business Manager – Plans, Specifications, and Estimates (PS&E), to FHWA and OFMB. Form 1180 approves the plans, specifications, and cost estimates for the project and requests funds be obligated for the project. If changes to the project design data have been made, a revised Form 463 would be submitted along with the coinciding Form 128.

13. A pre-construction meeting is held with all specialty disciplines to outline permit conditions and mitigation commitments, etc.

Figure 5-2 CDOT Categorical Exclusion Determination Parts C, D, and E

C. Permits and Additional Requirements			
REQUIRED <small>If not checked is Not Applicable</small>	DATE COMPLETED	REQUIRED <small>If not checked is Not Applicable</small>	DATE COMPLETED
<input type="checkbox"/> 404 Permit	____	<input type="checkbox"/> CO Parks & Wildlife SB 40	____
<input type="checkbox"/> 401 Certification	____	<input type="checkbox"/> Wetland Finding	____
<input type="checkbox"/> 402 Certification	____	<input type="checkbox"/> APCD Bridge/Structure Demo Permit	____
<input type="checkbox"/> Const Dewatering Permit	____	<input type="checkbox"/> Hazardous Materials (Phase II)	____
<input type="checkbox"/> Const Stormwater Permit	____	<input type="checkbox"/> 6(f) Completion	____
<input type="checkbox"/> Floodplains Development Permit	____	<input type="checkbox"/> Other	____
D. Comments			
E. Environmental Project Certification			
All clearance and permit requirements for this project have been completed and mitigation included in the ____ set of plans and specifications dated _____. The appropriate documentation is on file in the Region office.			
RPEM Signature		Date	
_____		_____	
Note to Project Manager: Any changes to the plans and specifications after the date of the RPEM signature in Part B that affect environmental impacts or mitigation must be approved by the RPEM.			
Distribution: RPEM (original); copies to: Project Manager, Region Right of Way (if ROW required), Central Files		Previous editions are obsolete and may not be used CDOT Form #128a 3/13	

14. **Construction:** The Construction Project Engineer and the RPEM, or a designee, begins mitigation monitoring during construction to ensure compliance with permit requirements and mitigation commitments. Note: Long term monitoring of mitigation may be required to successfully complete some mitigation obligations and permit requirements.
15. The project is closed once construction is final and accepted by CDOT and most of the conditions of environmental permits have been satisfied. CDOT will prepare a Form 950 for project closure once all environmental commitments have been completed for the whole project. Project documentation and records should be maintained in accordance with CDOT Procedural Directive 51.1.





LOCAL AGENCY PROJECT WITH CDOT OVERSIGHT

There are some differences in process when the project is championed by a Local Agency. The step-wise process is described below.

1. **Preliminary Agency Scoping:** The Local Agency project manager, typically an engineer, coordinates with the CDOT Resident Engineer and RPEM to prepare a scope of work for the local agency project.
2. **Project Scoping:** The Local Agency project manager and the project team hold a scoping meeting with all CDOT design and specialty disciplines, including Environmental, Right-of-Way, Utilities, Hydraulics, Traffic, Bridge Materials and Maintenance to get consensus on the scope of the project and to identify the multi-disciplinary project development team. Form 463 is initiated. Environmental impact avoidance and minimization alternatives are discussed. The RPEM, or a designee, makes preliminary determinations regarding the anticipated environmental clearances and permits, and associated responsibilities for each.
3. **Environmental Clearances:** The Local Agency project manager, or a designee, coordinates with the project team for initiation of the anticipated environmental clearances required for the top portion (Parts A and B) of Form 128. The project team is typically an environmental consultant hired by the Local Agency with CDOT possibly helping as agreement and time allows. The documentation required is further discussed in **Section 5.2.3**.
4. **FIR:** The engineering project team prepares and provides the FIR engineering design plan set for review and comment. Based on the environmental clearances documentation, the Local Agency project manager, or a designee, coordinates with the RPEM and CDOT project manager to further identify environmental impact avoidance and minimization opportunities.
5. The project team prepares the environmental documentation necessary for the environmental clearances required for the top portion (Parts A and B) of Form 128. This documentation is provided to CDOT for their review and comment. A brief technical memorandum summarizing the environmental clearances completed is prepared and submitted to the RPEM.
6. Based on the environmental clearances documentation, the Local Agency project manager, or a designee, prepares a Summary of Mitigation Measures and provides this summary to the project team



The term “Local Agency” refers to a public agency, local public agency, established publicly owned organization, or private interest that can legally enter into an agreement with CDOT for a transportation project (CDOT, 2006).





for inclusion in the FOR plans and specifications. A copy of the Summary of Mitigation Measures is provided to the RPEM.

7. **Form 128 (Parts A and B):** The RPEM approves the top portion of Form 128. Upon completion of Parts A and B of Form 128, usually funds for right-of-way acquisition can be obligated and negotiations for right-of-way acquisition can proceed.
8. The Local Agency project manager, or a designee, initiates coordination with the permitting agencies for Part C of Form 128.
9. **FOR:** Environmental impacts are definitively quantified for environmental permit applications and to ensure adequate representation in the project plans and specifications.
10. The Local Agency project manager, or a designee, coordinates with the RPEM, or a designee, to verify the requirements identified in Part C of Form 128 have been completed. Permit mitigation measures are communicated to the Local Agency project manager for inclusion in the final plans and specifications.
11. **Final Check:** The final plans and specifications containing all mitigation measures are provided to the RPEM, or a designee, ideally a minimum of three weeks prior to when final clearance is required. The RPEM, or a designee, verifies that the relevant information presented in the Summary of Mitigation Measures is included in the Final Check plan set. Changes made to the plans subsequent to the Final Check plan set are explained/summarized. The RPEM, or a designee, reviews and compiles the clearances and permits. A copy of the version of the plan set that was approved needs to be kept in the file to document changes that may be made under advertisement of the project for construction that will need subsequent clearance tracking in the file.
12. **Environmental Project Certification:** The RPEM approves the Environmental Project Certification in Part E of the Form 128. This signature means that all environmental commitments are included or being otherwise handled that were identified during the environmental clearance efforts.
13. The Resident Engineer (in some cases the project manager) signs and submits the final Form 463, and as applicable, the completed and signed Form 128, and the signed CDOT Business Manager Form 1180 - PS&E, to FHWA and OFMB. If changes to the project design data have been made, a Revised Form 463 would be submitted instead along with the coinciding Form 128. OFMB then initiates the Form 418 with FHWA. Form 418 is initiated whenever federal aid or oversight is involved for approval.



CDOT Forms available at
<http://www.dot.state.co.us/FormsMgmt/>





14. FHWA receives copies of Forms 463, 128 1180 and 418. FHWA approves Form 418 when federal funds are involved.
15. FHWA approves Form 418; funds are obligated and authorized for the construction phase. The project is sent to advertisement.
16. A pre-construction meeting is held with all specialty disciplines to outline permit conditions and mitigation commitments, etc.
17. **Construction:** The CDOT Construction Project Engineer and the local agency team begin mitigation monitoring during construction to ensure compliance with permit requirements and mitigation commitments. Note: Long term monitoring of mitigation may be required to successfully complete mitigation obligations and permit requirements.
18. The project is closed once construction is final and accepted by CDOT and most of the conditions of environmental permits have been satisfied. Project closure is further detailed in the CDOT *Local Agency Manual* (CDOT, 2006).

5.2.3 Programmatic CatEx - Documentation

CDOT policy requires that documentation (Form 128) must be provided for all CatEx projects, regardless of whether they are Programmatic or Non-Programmatic projects. This ensures that CDOT is not only complying with NEPA, but systematically ensuring project and program compliance with Colorado Transportation Commission policies, the CDOT Environmental Ethic, and the numerous environmental regulations that may be required for a project. The documentation for a Programmatic CatEx is the same regardless of whether the project is a CDOT project or a Local Agency project with CDOT oversight.

The top portion (Parts A and B) of Form 128 provide a list of environmental clearances to be completed as part of the Programmatic CatEx process. These environmental clearances include:

- ▶ **Air Quality:** Air quality is most relevant to projects within nonattainment or maintenance areas. Projects within these areas must comply with the Transportation Conformity Rule associated with the Clean Air Act. A project that includes a facility that may be a hot spot for carbon monoxide or particulate matter may require a hot spot analysis. Each analysis should be documented in the required technical report. Additional information on conducting an air quality hot spot analysis is included in **Section 9.1**. For projects outside of nonattainment and maintenance areas, no formal documentation is typically needed. If a hot spot analysis is not required for a project within a nonattainment or maintenance area,





a brief technical memorandum or similar documentation to the project file should be prepared to identify the reasons why the analysis is not necessary.

- ▶ **Noise:** Type 1 projects require an examination of traffic noise. A Type 1 project generally involves construction of a roadway in a new location, physically alters the vertical or horizontal alignment of an existing roadway, or increases the number of through traffic lanes. Additional information on conducting a noise analysis is included in **Section 9.22**. Results from a detailed noise analysis should be documented in the required technical report. If a project is Type 1 but does not require a detailed noise analysis (i.e. modeling), a brief technical memorandum or similar documentation to the project file should be prepared documenting the reasons why modeling is not required. If the project is not Type 1, no formal documentation is typically needed.
- ▶ **Hazardous Materials:** Every project requires an ISA Checklist (Form 881), a MESA, or a Phase I Environmental Site Assessment. **Section 9.25** provides additional information on when an ISA, MESA, or a Phase I is applicable depending on the size and type of project.
- ▶ **Threatened and Endangered Species:** As a first step, it is recommended that a Biological Resources Report or memo is prepared for the project as a time and cost saving measure. The purpose of this report is to give an overview of the biological resources that are present in the project area and should cover most biological issues on the site, including threatened and endangered species, wetlands, migratory birds, species of special concern (e.g. prairie dogs), and noxious weeds. If there are potential impacts to a threatened and endangered species, the process outlined in **Section 9.9** should be followed. Otherwise, the Biological Resources Report serves as documentation for the absence of threatened and endangered species in the project area.
- ▶ **Wetlands:** Wetland identification should be conducted. It is recommended that the wetland identification be conducted as part of the Biological Resources Report or memo. If wetlands are identified that would be impacted, a Wetland Delineation should be conducted for submittal to the USACE for a jurisdictional determination as outlined in **Section 9.6**. Since FHWA requires that CDOT mitigate for jurisdictional and non-jurisdictional wetlands, the jurisdictional determination step can be skipped if the project team would like to consider any wetland as jurisdictional and mitigate accordingly. Otherwise, the Biological Resources Report or memo



serves as documentation for the absence of wetlands in the project area.

- ▶ **Paleontology:** If the project requires any type of excavation (six inches or greater in ground that is not on fill or will affect substrate that is not fill), a Paleontological Survey is required. **Section 9.11** provides additional information on the process for the survey of paleontological resources.
- ▶ **Archaeology:** If the project requires any type of excavation (six inches or greater in ground that is not fill or substrate that is not fill), an Archaeological Survey and coordination with the SHPO in accordance with Section 106 of the National Historic Preservation Act must be conducted. **Section 9.10** provides additional information on the process for the survey of archaeological resources.
- ▶ **History/Historic Bridges:** According to the Programmatic Agreement between FHWA, the Advisory Council on Historic Preservation, the State Historic Preservation Officer, and CDOT, a Section 106 review is required for all projects, whether or not it is affecting bridges and properties adjacent to bridges, and for bridges located within or near eligible historic districts. **Section 9.10** provides additional information on the process for the survey of historic resources. CDOT's May 2010 Section 106 Programmatic Agreement includes a section regarding Section 106 consultation requirements for non-eligible, eligible, and listed bridges identified in previous statewide historic bridge inventories or newly- documented as part of individual projects. Coordination with a CDOT Historian is required.
- ▶ **Section 4(f):** Once any Section 4(f) properties are defined, FHWA and CDOT must determine the potential impacts and "uses" of those properties in relation to the project. Commonly affected Section 4(f) impacts include parks, trails, or historic properties. **Section 9.19** discusses the Section 4(f) process.
- ▶ **Section 6(f):** For conversions of property purchased utilizing Land and Water Conservation Funds (Section 6(f)), replacement with fair market value equivalence is required. Fair Market Value equivalence is determined using CDOT's standard right-of-way appraisal process. Fair market value replacement of land is preferred, but other options may be negotiated with Colorado Parks and Wildlife and the National Parks Service. **Section 9.20** provides additional guidance on Section 6(f).



- ▶ **Other:** Based on the preliminary determinations made by the RPEM, or a designee, regarding the anticipated environmental clearances for a project, additional environmental clearances may be required. The additional environmental clearances could include Environmental Justice, Water Resources, Visual/Aesthetics, Socioeconomic regarding business access changes, etc. **Chapter 9** further discusses the methodologies and processes for these resources.

The bottom portion (Parts C, D, and E) of Form 128 provide a list of permits and additional requirements to be completed as part of the environmental project certification for the Programmatic CatEx. These permits and additional requirements include:

- ▶ **404 Permit (Clean Water Act):** Impacts to streams and related jurisdictional wetlands could require a USACE 404 nationwide permit. An Individual permit is required for projects with larger impacts to wetlands (typically greater than 0.5 acres in size). Additional information on the permitting process is included in **Section 9.4**.
- ▶ **401 Certification (Clean Water Act):** A Colorado Department of Public Health and Environmental (CDPHE) Section 401 water quality certification is required if an Individual 404 permit is required. Additional information on the permitting process is included in **Section 9.5**.
- ▶ **402 Certification - Construction Dewatering Certification:** If groundwater is encountered, a CDPHE dewatering permit may be required. Additional information on the permitting process is included in **Section 9.4**.
- ▶ **Construction Stormwater Certification (Colorado Discharge Permit System [CDPS]):** Projects that disturb one acre or greater require a CDPS construction storm-water permit from the CDPHE Water Quality Control Division (WQCD) and a Storm Water Management Plan (SWMP) in CDOT's approved format. Additional information on the permitting process is included in **Section 9.4**.
- ▶ **Floodplains Development Permit:** This permit is required by counties that participate in FEMA's National Flood Insurance Program and to entities that are proposing to perform work in a floodplain. Additional information on the permitting process is included in **Section 9.5**.
- ▶ **Colorado Parks and Wildlife (CPW) Senate Bill 40 (SB40):** For impacts to stream banks, stream channels, and riparian areas,



SB40 certification from CPW is required. Additional information on the certification process is included in **Section 9.8**.

- ▶ **Wetland Finding:** For impacts to jurisdictional and non-jurisdictional wetlands and Waters of the US, a Wetland Finding is required for approval by CDOT and FHWA if a particular threshold is reached. Additional information on preparing a Wetland Finding is included in **Section 9.6**.
- ▶ **APCD Bridge/Structure Demo Permit:** Prior to demolition of bridges or other structures, a permit must be obtained from the APCD. The notification of demolition form should be submitted to CDPHE at least 10 days prior to demolition.
- ▶ **Hazardous Materials (Phase II):** If recommended by the ISA, MESA, or Phase 1 Environmental Site Assessment, a Phase II subsurface soil and groundwater investigation for potential hazardous materials that present a liability issue during right-of-way acquisition, or require management during construction to protect worker health and safety and the environment, or to properly dispose of the hazardous material is required. **Section 9.25** provides additional information on when a Phase II is applicable depending on the size and type of project.
- ▶ **6(f) Completion:** Support for the conversion and mitigation by the agency operating the Section 6(f) encumbered properties is required. Final approval of the conversion and mitigation must be obtained from CPW and the National Park Service. **Section 9.20** provides more information on completing the Section 6(f) process.
- ▶ **Other:** Based on the preliminary determinations made by the RPEM, or a designee, regarding the anticipated permits for a project, additional permits may be required. "Other" can also document that the stormwater management plan has been approved and accepted by the Water Pollution Control Manager (WPCM).



The CDOT Mitigation Tracking Spreadsheet is available at:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/vie w

Documentation that supports the CatEx determination becomes part of the project file and provides evidence that CDOT's decision was based on factual information and sound judgment. The level of documentation should be commensurate with the action's potential for adverse impacts.

5.2.4 Programmatic CatEx - Approval

All Programmatic CatExs require the review and approval of CDOT. CDOT may coordinate with FHWA depending upon the project and type of action. The CDOT RPEM, or a designee, will sign Part B of Form 128 after environmental clearances have been obtained. Once the RPEM signs Part B





of Form 128, the project can then be obligated for final design and typically right-of-way negotiations can then proceed. The RPEM will not sign Part E of Form 128 until all clearances and permits for the project have been obtained and mitigation requirements are included in the plans and specifications. The CDOT Mitigation Tracking Spreadsheet should be filled out and made available and circulated with the plans and specifications. The approval process for Programmatic CatExs is the same for CDOT projects and local agency projects with CDOT oversight.

5.3 Non-Programmatic CatEx

Non-programmatic CatEx are actions that meet the criteria for a CatEx in the CEQ regulations (CEQ, 40 CFR § 1508.4) if they are appropriately analyzed, documented, and approved by FHWA. The applicant must submit documentation that demonstrates that the specific conditions or criteria for these CatExs are satisfied and that significant environmental effects will not result.

5.3.1 Non-Programmatic CatEx - Actions

Examples of such actions, as presented in 23 CFR § 771.117 Part D, as modified by the PA with FHWA that makes some of these non-programmatic categories into programmatic CatExs as listed below and include but are not limited to:

- D1. Modernization of a highway by resurfacing, restoration, rehabilitation, reconstruction, adding shoulders, or adding auxiliary lanes (including parking, weaving, turning, and climbing)
- D2. Highway safety or traffic operations improvement projects, including the installation of ramp metering control devices and lighting
- D3. Bridge rehabilitation, reconstruction, or replacement or the construction of grade separation to replace existing at-grade railroad crossings
- D4. Transportation corridor fringe parking facilities
- D5. Construction of new truck weigh stations or rest areas
- D6. Approvals for disposal of excess right-of-way or for joint or limited use of right-of-way, where the proposed use does not have significant adverse impacts (Interstate)
- D7. Approvals for changes in access control (Interstate)
- D8. Construction of new bus storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing



FHWA Non-Programmatic
Categorical Exclusion
Environmental Review
Summary form available at:

http://www.coloradodot.info/programs/environmental/resources/guidance-standards/8_14_03-ce-checklist.pdf/view





zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic

- D9. (Now an FHWA programmatic category)
- D10. (Now an FHWA programmatic category)
- D11. Construction of rail storage and maintenance facilities in areas used predominantly for industrial or transportation purposes where such construction is not inconsistent with existing zoning and where there is no significant noise impact on the surrounding community
- D12. Acquisition of land for hardship or protective purposes; advance land acquisition loans under Section 3(b) of the Urban Mass Transportation (UMT) Act of 1964 as amended
- D13. Acquisition of pre-existing railroad right-of-way pursuant to 49 USC 5324(c). No project development on the acquired railroad right-of-way may proceed until the NEPA process for such project development, including the consideration of alternatives, has been completed
- e. Where a pattern emerges of granting CatEx status for a particular type of action, FHWA will initiate rulemaking proposing to add this type of action to the list of CatExs in paragraph (c) or (d) of this section, as appropriate. MAP-21 was signed into law on July 6, 2012 which complements this new section and subsequent updates to the NEPA Manual will include how this regulation is being implemented.

5.3.2 Non-Programmatic CatEx - Process

Prior to initiating a Non-Programmatic CatEx project, the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form must be reviewed. If any of the following questions, which are included on page one of the form, can be answered in the positive, further investigation will be required in order to determine if a Non-Programmatic CatEx is appropriate for the project:

- ▶ If an Individual Clean Water Act Section 404 permit is required, does the USACE object to a CatEx class of environmental document?
- ▶ If the project adversely affects endangered or threatened species and/or their critical habitat, does the US Department of Interior Fish and Wildlife Service (USFWS) object to the CatEx class of environmental document?



The Denver Regional Council of Government (DRCOG) regionally significant roadway project criteria include:

- Adding a new metropolitan transportation system highway segment of a least one-centerline mile in length
- A highway-widening project one-centerline mile or more in length
- Additions or deletions of a high-occupancy vehicle lane one-centerline mile or more in length, or changes in vehicle occupancy requirements
- Freeway acceleration/deceleration /climbing/auxiliary lanes that connect two interchanges that are one mile or more apart
- New metropolitan transportation system roadway grade separated interchanges
- An improvement to an existing interchange that (1) adds or deletes travel movements or (2) upgrades a local service "diamond" arterial-freeway interchange by adding flyover ramps





- ▶ If a DOT letter of consent is required for easement, does the federal land management agency have unresolved issues with the environmental analysis?
- ▶ Is there any substantial controversy on environmental grounds?

In addition, if any of the following questions, which are also included on page one of the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form, can be answered in the positive and cannot be otherwise resolved by amending the planned action, the project should not be approved as a Non-Programmatic CatEx:

- ▶ Are significant environmental impacts expected?
- ▶ Are there any inconsistencies with the federal, state, or local law, requirement or administration determination relating to the environmental aspects of the action expected?
- ▶ Does this project add additional capacity, as defined by DRCOG as regionally significant?
- ▶ Is there substantial construction on a new alignment?
- ▶ Will the project significantly change traffic patterns?
- ▶ Are there significant impacts expected to properties protected by Section 4(f) of the US DOT Act or Section 106 of the National Historic Preservation Act?
- ▶ Is the right-of-way required significant because of its: size, location, use, or relationship to remaining property and abutting properties?
- ▶ Is there a substantial noise increase (greater than 10 A-weighted decibels [dBA]) or noise levels greater than allowable by CDOT guidelines and mitigation is not reasonable and feasible?

As discussed in **Section 2.4**, CDOT staff, typically the CDOT RPEM, decide the appropriate class of NEPA documentation needed for a project in consultation with FHWA, although FHWA makes the final determination on class of action. These projects originate either through the CDOT planning process, which is further discussed in **Chapter 3**, or as a Local Agency project with CDOT oversight. The following sections discuss the processes for a CDOT Project Non-Programmatic CatEx and a Local Agency Project with CDOT Oversight Non-Programmatic CatEx. Conducting actions documented by the Form 128 will require information input by CDOT into the CDOT SAP computer tracking system. **Attachment 1** includes the step-by-step process to input information into the CDOT SAP computer tracking system.





CDOT PROJECT

The following is the step-by-step process for approval of a Non-Programmatic CatEx project:

1. **Internal Scoping:** The CDOT project manager coordinates with all design and specialty disciplines, including Environmental, Right-of-Way, Utilities, Hydraulics, Traffic, Bridge Materials and Maintenance to get consensus on the scope of the project and to identify the multi-disciplinary project development team. FHWA should be invited but can be briefed afterwards if they are unable to attend. Environmental impact avoidance and minimization alternatives are discussed. The RPEM, or a designee, makes preliminary determinations regarding the anticipated environmental clearances and permits, and associated responsibilities for each. The RPEM, or a designee, schedules and coordinates with the CDOT EPB as necessary to initiate environmental clearance processes required on Part B of Form 128 and the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form.
2. The CDOT project manager drafts a preliminary detailed project schedule that is circulated to the multi-disciplinary project development team for comments. The project schedule is adopted and shared with the multi-disciplinary project development team. Examples of CDOT CatEx schedules can be found in the Environmental Section (Section 2) of CDOT's Project Development Manual.
3. **Project Planning and Programming:** The CDOT project manager should verify that the project is included in the Statewide Transportation Plan (SWP): Statewide Transportation Improvement Program (STIP). If the project is located in an urban area, the CDOT project manager should verify that the project is included in the Regional Transportation Plan (RTP) and the Transportation Improvement Program (TIP). If a project is not included in the SWP, STIP, RTP, and TIP, it cannot be approved by FHWA. Please note that projects that do not meet the metropolitan planning organization regionally significant project criteria are not required to be in the STIP, RTP, or TIP.
4. **Environmental Clearances/Documentation:** The RPEM, or a designee, coordinates with the Region or EPB resource specialists for initiation of the anticipated environmental clearances required for the top portion (Parts A and B) of Form 128 and the *FHWA Non-Programmatic Categorical Exclusion Environmental Review*





Summary form. Both of these forms are required and feed into the project approval documented on the Form 128. The documentation required for Form 128 is further discussed in **Section 5.3.3**. The documentation required for the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form includes:

- A. **Purpose and Need for Action:** A brief (one to two paragraph) purpose and need shall be prepared. **Sections 4.6** and **6.3** provide additional information on preparing a purpose and need for the project.
- B. **Project Description:** The brief project description shall describe the action to be undertaken, including the project limits (logical termini/independent utility); construction activities such as shoulder backing, culverts, staging areas, and facilities; disposal and borrow sites required; any right-of-way acquisition; utility relocations; and construction activities that may require temporary facilities such as haul roads, detours, or ramp closures.
- C. **Project Planning and Programming:** The status of the project in the STIP, RTP, and TIP shall be discussed, or if the project does not meet regionally significant project criteria and is not required to be in the STIP, RTP, or TIP, the reason shall be provided. **Section 3.5** provides additional information on fiscal conformance of projects.
- D. **Public Involvement:** Public involvement is required and shall be documented. **Chapter 7** provides additional information on CDOT's requirements for public involvement. If the project has the following:
 - Additional through traffic lanes
 - Substantially changes the layout or function of the roadway or connection roadways
 - Access limitations
 - Adverse impact on abutting property
 - Social, economic, environmental, or other effects
 - Known public concern regarding the project
- E. **Right-of-Way:** If right-of-way acquisition is required, the number of parcels affected, number of acres required, number of residential relocations, and number of business relocations, will be identified. **Chapter 9.17** provides additional information on right-of-way requirements.



- F. **Threatened and Endangered Species/Migratory Birds/Wildlife:**
These environmental clearances were previously discussed in **Section 5.2.3. Chapter 9.9** provides additional information on threatened or endangered species.
- G. **Water Quality, Wetlands, Floodplains/Stream Encroachments:**
If a water body is located within the project area and potentially impacted by the project, the water quality of the water body shall be assessed. The CDPHE 303(d) list of state impaired waters should be reviewed to determine if any water quality impairments are associated with the water body. In addition, the project shall comply with CDOT's and the Local Agency's (if applicable) MS4 permit. The requirements for wetlands were previously discussed in **Section 5.2.3**. If a floodplain is impacted, coordination with the FEMA and mitigation is required. **Chapter 9.4** provides additional information on water quality.
- H. **Air Quality:** This environmental clearance was previously discussed in **Section 5.2.3. Chapter 9.2** provides additional information on air quality.
- I. **Invasive Species:** If noxious weeds or invasive species are identified in the initial survey of the project area, the extent of the infestation, the risk of spreading to unaffected areas, and the size and length of time that the project will be under construction should be evaluated to determine whether an Integrated Noxious Weed Management Plan (INWMP) should be prepared or whether those weed control or other invasive species BMPs should be documented in the plans and specifications. Additional information on the process is included in **Chapter 9.7**.
- J. **Hazardous Materials:** This environmental clearance was previously discussed in **Section 5.2.3. Chapter 9.25** provides additional information on hazardous materials.
- K. **Land Use/Urban Policy:** If the project is not consistent with local land use plans or zoning, an explanation on the reason for this inconsistency needs to be provided. **Chapter 9.12** provides additional information on land use.
- L. **Prime, Unique, Statewide, or Locally Important Farmland:** This environmental clearance is specific to the FHWA Non-programmatic CatEx process. **Chapter 9.21** provides additional information on farmlands.
- M. **Section 6(f):** The FHWA Non-Programmatic CatEx form deals specifically with Section 6(f), which was previously discussed in **Section 5.2.3. Chapter 9.20** provides additional information on Section 6(f).



- N. **Noise:** This environmental clearance was previously discussed in **Section 5.2.3. Chapter 9.22** provides additional information on noise analysis.
 - O. **Historic Preservation:** This environmental clearance was previously discussed in **Section 5.2.3. Chapter 9.10** provides additional information on historic properties.
 - P. **Native American Consultation:** The project team should coordinate with the RPEM and CDOT EPB staff as necessary. **Chapter 9.10** provides additional information on Native American consultation.
 - Q. **Paleontological:** This environmental clearance was previously discussed in **Section 5.2.3. Chapter 9.11** provides additional information on paleontological resources.
 - R. **Section 4(f) Properties:** This environmental clearance was previously discussed in **Section 5.2.3. Chapter 9.19** provides additional information on Section 4(f).
 - S. **Socio/Economic Factors:** Socioeconomic impacts, including impacts to low-income and minority populations (Environmental Justice), shall be discussed. If necessary, a Socioeconomic Technical Memorandum or an Environmental Justice Evaluation Technical Report should be prepared. Additional information on the process is included in **Sections 9.13, 9.14, and 9.15**.
 - T. **Other Environmental Factors:** Based on the preliminary determinations made by the RPEM, or a designee, regarding the anticipated environmental clearances for a project, additional environmental clearances may be required. The additional environmental clearances could include Visual/Aesthetics, Land Use, etc. **Chapter 9** further discusses the methodologies and processes for these resources.
 - U. **Mitigation:** CDOT's Mitigation Tracking Spreadsheet should be prepared to provide a summary to the project team for inclusion in the CatEx, FOR plans, and specifications.
5. **FIR:** The project team prepares and provides the FIR engineering design plan set, which is approximately 30 percent design, for review and comment. Based on the environmental clearances documentation, the RPEM, or a designee, coordinates with the CDOT project manager and project team to further identify environmental impact avoidance and minimization opportunities. The RPEM, or a designee, communicates information requirements and anticipated timelines for necessary clearances and permits to the CDOT project manager.



6. Based on the environmental clearances documentation, the RPEM, or a designee, updates the CDOT Mitigation Tracking Spreadsheet as necessary and provides this spreadsheet to the CDOT project manager for inclusion in the FOR plans and specifications, which is approximately 90 percent design.
7. **Form 128 (Parts A and B):** The RPEM, or a designee, approves the top portion of Form 128. Usually funds for right-of-way acquisition can be obligated and negotiations for right-of-way acquisition can proceed.
8. **FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary:** The RPEM, or a designee, prepares the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form and submits it to FHWA along with Form 128 and back-up clearance documentation for approval.
9. The FHWA project representative approves the top portion of Form 128 and the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form and returns the original forms to the RPEM for the project file. Upon completion of Parts A and B of Form 128, funds for final design and right-of-way acquisition can be obligated and negotiations for right-of-way acquisition can proceed.
10. The RPEM, or a designee, initiates coordination with the permitting agencies for Part C of Form 128.
11. **FOR:** Environmental impacts are definitively quantified for environmental permit applications and to ensure adequate representation in the project plans and specifications. Form 463 is completed.
12. The RPEM, or a designee, satisfies the requirements identified in Part C of Form 128. Permit mitigation measures are added to the CDOT Mitigation Tracking Spreadsheet and are communicated to the CDOT project manager for inclusion in the final plans and specifications.
13. **Final Check:** The final plans and specifications containing all mitigation measures are provided to the RPEM, or a designee, ideally a minimum of three weeks prior to when final clearance is required. The RPEM, or a designee, verifies that the relevant information presented in the CDOT Mitigation Tracking Spreadsheet is included in the Final Check plan set. Changes made to the plans subsequent to the Final Check plan set are



explained/ summarized. The RPEM, or a designee, reviews and compiles the clearances and permits.

14. **Environmental Project Certification:** The RPEM, or a designee, approves the Environmental Project Certification in Part E of Form 128. This signature means that all environmental commitments are included or being otherwise handled that were identified during the environmental clearance efforts.
15. The CDOT Resident Engineer (in some cases the CDOT project manager) signs and submits the final Form 463, and as applicable, the completed and signed Form 128, and the signed Form 1180 - PS&E by the CDOT Region Business Manager, to FHWA and OFMB. If changes to the project design data have been made, a revised Form 463 would be submitted instead along with the coinciding Form 128.
16. A pre-construction meeting is held with all specialty disciplines to outline permit conditions and mitigation commitments, etc.
17. **Construction:** The Construction Project Engineer and the RPEM, a designee, begins mitigation monitoring during construction to ensure compliance with permit requirements and mitigation commitments. Note: Long term monitoring of mitigation may be required to successfully complete mitigation obligations and permit requirements.
18. The project is closed once construction is final and accepted by CDOT and most of the conditions of environmental permits have been satisfied. CDOT will prepare a Form 950 for project closure. Project documentation and records should be maintained in accordance with CDOT Procedural Directive 51.1.

LOCAL AGENCY PROJECT WITH CDOT OVERSIGHT

There are some differences in process when the project is championed by a Local Agency. The step-wise process is described below.

1. **Preliminary Agency Scoping:** The Local Agency project manager coordinates with the CDOT Resident Engineer and RPEM, or a designee, to prepare a scope of work for the local agency project.
2. **Project Scoping:** The Local Agency project manager and the project team hold a scoping meeting with all CDOT design and specialty disciplines, including Environmental, Right-of-Way, Utilities, Hydraulics, Traffic, Bridge Materials and Maintenance to get consensus on the scope of the project and to identify the multi-disciplinary project development team. FHWA should be invited but





can be briefed afterwards if they cannot attend. Environmental impact avoidance and minimization alternatives are discussed. The RPEM, or a designee, makes preliminary determinations regarding the anticipated environmental clearances and permits, and associated responsibilities for each.

3. **Project Planning and Programming:** The CDOT project manager should verify that the project is included in the STIP. If the project is located in an urban area, the CDOT project manager should verify that the project is included in the RTP and the TIP. If a project is not included in the STIP, it cannot be approved by FHWA. Please note that projects that do not meet the regionally significant project criteria and that are not federally funded are not required to be in the STIP, RTP, or TIP.
4. **Environmental Clearances/Documentation:** The RPEM, or a designee, coordinates with the Region or EPB resource specialists for completion of the anticipated environmental clearances required for the top portion (Parts A and B) of Form 128 and the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form. The project team is typically an environmental consultant hired by the Local Agency with CDOT possibly helping as agreement and time allows. Both of these forms are required and feed into the project approval documented on the Form 128. The documentation required is further discussed in **Section 5.3.3**.
5. **FIR:** The project team prepares and provides the FIR engineering design plan set, which is approximately 30 percent design, for review and comment. Based on the environmental clearances documentation, the Local Agency project manager, or a designee, coordinates with the RPEM and CDOT project manager to further identify environmental impact avoidance and minimization opportunities.
6. The project team prepares the environmental documentation necessary for the environmental clearances required for the top portion (Parts A and B) of Form 128. This documentation is provided to CDOT for their review and comment. A brief technical memorandum summarizing the environmental clearances completed is prepared and submitted to the RPEM.
7. Based on the environmental clearances documentation, the Local Agency project manager, or a designee, prepares the CDOT Mitigation Tracking Spreadsheet and provides this summary to the project team for inclusion in the FOR plans and specifications,



which is approximately 90 percent design. A copy of the CDOT Mitigation Tracking Spreadsheet is provided to the RPEM.

8. **Form 128 (Parts A and B):** The RPEM approves the top portion of Form 128. Upon completion of Parts A and B of Form 128, usually funds for right-of-way acquisition can be obligated and negotiations for right-of-way acquisition can proceed.
9. **FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary:** The local agency team prepares the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form and submits it to CDOT for review. CDOT then submits it to FHWA along with Form 128 for approval.
10. The FHWA project representative approves the top portion of Form 128 and the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form and returns the original forms to the RPEM for the project file. Upon completion of Parts A and B of Form 128, funds for final design and right-of-way acquisition can be obligated and negotiations for right-of-way acquisition can proceed.
11. The Local Agency project manager, or a designee, initiates coordination with the permitting agencies for Part C of Form 128.
12. **FOR:** Environmental impacts are definitively quantified for environmental permit applications and to ensure adequate representation in the project plans and specifications. Form 463 is completed.
13. The Local Agency project manager, or a designee, coordinates with the RPEM, or a designee, to verify that the requirements identified in Part C of Form 128 have been completed. Permit mitigation measures are communicated to the Local Agency project manager for inclusion in the final plans and specifications.
14. **Final Check:** The final plans and specifications containing all mitigation measures are provided to the RPEM, or a designee, ideally a minimum of three weeks prior to when final clearance is required. The RPEM, or a designee, verifies that the relevant information presented in the CDOT Mitigation Tracking Spreadsheet is included in the Final Check plan set. Changes made to the plans subsequent to the Final Check plan set are explained/summarized. The RPEM, or a designee, reviews and compiles the clearances and permits.



15. **Environmental Project Certification:** The RPEM approves the Environmental Project Certification in Part E of Form 128. This signature means that all environmental commitments are included or otherwise being handled that were identified during the environmental clearance efforts.
16. The Resident Engineer (in some cases the project manager) signs and submits the final Form 463, and as applicable, the completed and signed Form 128, and the signed Form 1180 - PS&E by the CDOT Region Business Manager, to FHWA and OFMB. If changes to the project design data have been made, a revised Form 463 would be submitted instead along with the coinciding Form 128. OFMB then initiates the Form 418. Form 418 is initiated with FHWA whenever federal aid or oversight is involved for approval.
17. FHWA receives copies of Forms 463, 128 1180 and 418. FHWA approves Form 418 when federal funds are involved.
18. FHWA approves Form 418; funds are obligated and authorized for the construction phase. The project is sent to advertisement.
19. A pre-construction meeting is held with all specialty disciplines to outline permit conditions and mitigation commitments, etc.
20. **Construction:** The CDOT Construction Project Engineer and the local agency team begin mitigation monitoring during construction to ensure compliance with permit requirements and mitigation commitments. Note: Long term monitoring of mitigation may be required to successfully complete mitigation obligations and permit requirements.
21. The project is closed once construction is final and accepted by CDOT and most of the conditions of environmental permits have been satisfied. Project closure is further detailed in the CDOT Local Agency Manual (CDOT, 2006).

5.3.3 Non-Programmatic CatEx - Documentation

CDOT policy requires that documentation must be provided for all CatEx projects, regardless of whether they are Programmatic or Non-Programmatic projects. This ensures that CDOT is not only complying with NEPA, but systematically ensuring project and program compliance with Colorado Transportation Commission policies, the CDOT Environmental Ethic, and the numerous environmental regulations that may be required for a project. The documentation for Non-Programmatic CatExs is the same regardless of whether the project is a CDOT project or a local agency project with CDOT oversight.





The top portion (Parts A and B) of Form 128 document the environmental clearances detailed in the FHWA *Non-Programmatic Categorical Exclusion Environmental Review Summary*. These environmental clearances for Form 128 were previously discussed in **Section 5.2.3**.

Several of the environmental clearances for Form 128 are also required for *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary*. The documentation required for the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* form includes (previously described above):

1. Purpose and Need for Action
2. Project Description
3. Project Planning and Programming
4. Public Involvement
5. Right-of-Way
6. Threatened or Endangered Species/Migratory Birds/Wildlife
7. Water Quality, Wetlands, Floodplains/Stream Encroachments
8. Air Quality
9. Invasive Species
10. Hazardous Materials
11. Land Use/Urban Policy
12. Prime, Unique, Statewide, or Locally Important Farmland
13. Recreation
14. Noise
15. Historic Preservation
16. Native American Consultation
17. Paleontological
18. Section 4(f) Properties
19. Socio/Economic Factors
20. Other Environmental Factors
21. Mitigation





Documentation that supports the CatEx determination becomes part of the administrative record and provides evidence that CDOT's decision was based on factual information and sound judgment. The level of documentation should be commensurate with the action's potential for adverse impacts.

5.3.4 Non-Programmatic CatEx - Approval

All Non-Programmatic CatExs require the review and approval of FHWA. The CDOT RPEM, or a designee, will sign Part B of Form 128 after environmental clearances have been obtained. FHWA is sent Form 128 and the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* and back-up clearance documentation for review and signature if the project is a federal project, and is not one of the programmatic CatExs. Once FHWA signs Part B of Form 128 and signs the *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary* and returns it to the CDOT RPEM for the administrative record, right-of-way negotiations typically can proceed. The RPEM will not sign Part E of Form 128 until all clearances and permits or their requirements for the project have been obtained or identified in the project plans and specifications to be handled by the contractor, FHWA has signed Part B, and mitigation or subsequent permit requirements are included in the plans and specifications.





5.4 References

CDOT. 2006. Local Agency Manual. Retrieved December 2012 from http://www.coloradodot.info/business/designsupport/bulletins_manuals/2006-local-agency-manual

CDOT. 2011. Programmatic Agreement for the Review and Approval of Certain NEPA Categorical Excluded Transportation Projects between the Federal Highway Administration, Colorado Division and the Colorado Department of Transportation. August 4, 2011. Retrieved December 2012 from <http://www.coloradodot.info/programs/environmental/resources/agreements/CE%20Programmatic%20Agreement%202011.pdf/view>

FHWA/Federal Transit Administration (FTA). 1987 as amended in 2005. Environmental Impact and Related Procedures. 23 Code of Federal Regulations (CFR) 771 § 771.101 – 771.131. Retrieved July 2008 from <http://environment.fhwa.dot.gov/projdev/imp771pream.asp>.





ATTACHMENT – How to Fill Out Form 128 in SAP

Conducting actions documented by the 128 Form will require information input by CDOT into the CDOT SAP computer tracking system. The following explains how to access this form, when and how to input the form information, how it is linked into other parts of the SAP system and important quirks of the system at this point in time.

1. The first step in environmental clearance of a project in SAP is to **Log onto SAP** like you would for entering your timecard. In other words, click on the SAP icon and enter your user name and password for SAP. Your password may, or may not, be the same as for logging onto your computer.
2. The next step is to enter **Project Builder** by entering the short-cut (transaction code) number “CJ20N” where you would enter your timecard function “CAT2”. If you forget the shortcut item or have not bookmarked it as a “Favorite” yet, you can also find Project Builder by going into the User Menu and scrolling down until you see “Project Builder” and clicking on that item to open it.
 - a. Click on the “open folder” button on the left of the window.
 - b. Add the 5-digit sub-account code in the “Project Definition” box and click on the green check-mark in that window or hit enter button. This will bring up the specific project (if the project has been put into SAP by the engineer).
 - c. You will see a set of tabs on the right half of the window – click on “Cust. Enhancement” tab. Click on “Custom Fields” box that pops up.
 - d. You will see another set of tabs – click on “Environmental”.
 - e. Enter the project clearance type in the first field. Use the drop down list to select the appropriate type (Programmatic, Non-programmatic, FONSI, or ROD). You then need to hit the “enter” key on the key board. This will auto-populate this information in the Form 463 as well as in the Form 128.
 - 1) If you enter either CatEx category, the only other field that is not grayed-out in which you can enter information is the comment field – the rest will be auto-populated from the Form 128.
 - 2) If you enter either a FONSI or a ROD category, the three boxes called “Date of Clearance” (date when the FONSI or ROD was signed), “Project Code # Cleared Under” (subaccount code), and “Project # Cleared Under” (contract number) will be ungrayed and will be available for entering data. In these fields you should enter the project subaccount and project number that the ROD or FONSI was acquired under.

The screenshot shows the SAP Project Builder interface for project 17282. The 'Environmental' tab is active, displaying the following details:

Environmental Details	
Type of Clearance	ROD (128 N/A)
If Categorical Exclusion, CE # Type	
Date of Clearance	11/07/2006
Project Code # Cleared Under	91050
Project # Cleared Under	FCBCK 1402-048
Comments	ROD November 2006 covers clearances. FHWA determined that the FES/ROD remain valid for the project on 11/19/09.
Environmental Project Certification (Cleared for Advertisement)	11/20/2009





- f. You can enter a comment in the comment field regarding information you want to show up in the Form 463 such as "Form 128 was initiated on Nov. 2, 2008" or whatever you want to communicate at that time.
 - g. The other gray-out fields will be populated from the Form 128.
 - 1) The "Date of Clearance" box is auto-populated from Part B signature of the 128 if it is for any CatEx category. This will be the RPEM signature date for programmatic clearances and the FHWA date if it is non-programmatic.
 - 2) The final box called "Environmental Project Certification (Cleared for Advertisement)" is auto-populated from Part E signature of the Form 128. This will be true for FONSI/ROD projects as well as for CatEx projects.
 - h. To Exit Project Builder – hit the green back arrow on the top of the page. Hit the "Floppy Disk" icon to the left of the green back arrow to save the information you just entered. Then hit the green back arrow again to exit. If you forget to do this save, and hit the back green arrow again to exit without hitting the "Floppy Disk" icon, there will be a prompter to save the data anyway. Save the data by checking the "yes" box in this prompter if you are at this stage. With either path to save, you will be back at the Project Builder main page where you entered the 5-digit subaccount code using the "open folder" icon. Hit the yellow up arrow to get to the main SAP page.
3. The next step is to enter **Form-128 Categorical Exclusion** by entering the short-cut (transaction code) number "ZJ17" where you would enter your timecard function "CAT2". If you forget the shortcut item or have not bookmarked it as a "Favorite" yet, you can also find Project Builder by going into the User Menu and scrolling down until you see "Form-128 Categorical Exclusion" and clicking on that item to open it. The Form 128 will need to be filled out for final design even if this is a project with a FONSI or a ROD. This is because the bottom part of the form is used for Project Certification that verifies the mitigation commitments identified in the EA or EIS have been included in the Plans and Specifications or have been otherwise addressed. Therefore, in this case, the Form 128 is being used for the Project Certification of this EA or EIS project design, and not only for a CatEx clearance.
- a. There is a field that requires you to identify whether or not the project has a Federal nexus (yes or no) whenever you start up ZJ17. For projects with Federal funds or where a Section 404 permit is required, Form 128 will not save unless the Federal nexus value is yes. The intent is to be able to separate out Federal and non-Federal CatExs for reporting purposes. The information will be used to sort projects at the end of the year when FHWA needs to know the number of CatExs CDOT has completed that have a Federal nexus. It is not linked to anything and can be changed if the status changes, but it is a required field and you cannot save your Form 128 without this information. If you need help deciding if there is a Federal nexus since it is not only about the funding source, see **Chapter 2 Section 2.2.3** of this Manual.
 - b. **Under Basic Data** - Fill in the 5-digit sub-account code under "Project Description" and hit the "enter" key. The basic project information will auto-populate the form from Project Builder. **Under Basic Data** - Enter the "Creation Date" of when the Form 128 was initiated. This number is not linked to anything and can be changed if you want down the road. The "Creation





Date” is required to save the form or to print the form. It assumes that the current date would be used, unless you are documenting a pre-SAP form 128 and want to keep the original date for information purposes. The “Revision Date” is also not linked to anything and can be used if the project gets revised or rescoped and the new clearance dates to follow are for that revised project.

- c. **Under Part A.** Categorical Exclusion Project Determination - Select a category of Form 128 under the “CE number”. If this is a project with a FONSI or a ROD, the “Part A” box will be grayed-out and you can skip this step. If this is a CatEx project, there will be a pull-down menu that selects from the *Programmatic Agreement between CDOT and FHWA for Categorical Excluded Transportation Projects* (CDOT, 2011) or 23 CFR 771.117 paragraphs (C) or (D) from which you can select the correct project number that best fits your project. The only selections available in the pull-down are based upon the clearance type entered in Project Builder. For example, if this is a “Programmatic” CatEx, then only the programmatic categories will be available for selection on the pull-down. This numbering system is also used in this chapter of the NEPA manual for your convenience. You can only choose one number here so if your project needs more than one CatEx number, you can enter other numbers under the comment field in Part D. This is just a quirk of SAP.
- d. **Under Part B.**
 - 1) If this project had a FONSI or ROD, the rest of the top part clearances (part B) of the Form 128 are grayed-out because it is assumed that the environmental issues have been studied and identified during the EA/EIS process. However, because this function does not allow for updates to environmental clearances to be addressed in the Form 128 in the case where the FONSI or the ROD might not be recent or where a Reevaluation is required for changes in scope or resources, and if it’s an issue, there could be a change in SAP that allows for access to these resource boxes even if the FONSI or ROD is selected.
 - 2) If this project is for a CatEx, follow the directions in **Section 5.2.2** for how to complete the Part B of the Form 128. If you cannot enter information in Part B and this is a CatEx, check that the “CE Number” has been selected above in Part A. However, if you do not check the boxes as being required, you can still enter a date for clearance next to it. For example, if you ask a historian whether we need a historic clearance on a project and they say that you do not need one which is documented in an email, you might want to put the date of the email next to “Historics” clearing that resource from further investigation, even though the box is not checked that the clearance is “required”. This tracks that historical resources were thought about and dismissed. If you have resources not specially covered in the resource categories offered, you can check the “Other” box and use the text box next to it to identify what else is requiring investigations. Items in the “other” box might include migratory birds, noxious weeds, environmental justice, farmlands, etc. This box does not wrap so you might need to supplement the space with a footnote in Part D comment box, another quirk of SAP.





- 3) For a Signature in the top part (Part B) block, check the box that indicates “All clearance requirements have been completed for the work indicated in the CDOT Form #463 references above”. This allows data to be put in the “Certified By” and “Certified On” boxes. This form in SAP will not actually have a signature in SAP. The form will have to be printed and signed as a hard copy for the file. Once a signature is secured, the name of the signator can be typed into the “RPEM” or “FHWA” blocks and the dates of the signature manually placed next to that name. The signator does not have to be the RPEM but as delegated by the REPM as outlined in earlier sections of this chapter. For the name of the RPEM or designee to print correctly, the user name of the RPEM should be selected for the name. For example, “neetk” will print as “Kerrie Neet”. The user names should also be available in the pull-down menu. For the FHWA name, it will print as entered. There was a problem when SAP first unveiled the Form 128 where the signature date would change to the current date every-time the form was printed. This problem is now fixed and will retain the original signature date upon subsequent printings. If “Programmatic” is selected above as the CatEx category, the FHWA signature box will be grayed-out and will not be accessible. Directions for completing the CatEx Form and checking the resource boxes are discussed in **Section 5.2.2**.
- e. **Under Part C.** Check the boxes of permits and other clearances that occur in Part C on the form. There is an “Other” box here available too and can be used to clear the Stormwater Management Plan, to document that MS4 documentation was received from the municipality for local agency projects, or to identify if any other permits or additional requirements that are required for final signature. This box also does not wrap so you might need to supplement the space with a footnote in Part D comment box.
- f. **Under Part D.** This is the comment box and it is not linked with any other function in SAP and will only show up on the Form 128. This box text will wrap and should show up in its entirety when printed. This part is typically used to identify particularly sensitive issues associated with this project or to outline conditions of a clearance, such as requiring a storm-water permit before work can begin if a permit was not received prior to advertisement of the project for bid.
- g. **Under Part E – Environmental Project Certification.** The “Bottom Part”, or Part E signature of the Form 128 is for Project Certification. As in Part B, the signator name is entered into the box and the date put next to that entry. This will not be an actual signature in SAP so this form will need to be printed for the files and the hard copy signed. This date entered in the SAP Form 128 is VERY critical for other functions in SAP. It feeds into the “Environmental Project Certification (Cleared for Advertisement)” box in the Form 463 in Project Builder which is required prior to funding being released by OFMB or the business office for construction, and therefore, for project advertisement.





4. Form 128 Linkage with other SAP Functions

- a. The Project Builder (the environmental tabs) feeds the type of environmental clearance (FONSI/ROD/programmatic CatEx/non-programmatic CatEx) displayed in Form 128. This cannot be manually put in the Form 128 but must come from the environmental tabs.
- b. The Project Builder (CJ20N) information that the engineer puts into the Project Manager Tab (and also comes from OFMB, the Business Manager, and the Environmental Tabs) auto-populates the Form 463 that is project related. This information also auto-populates the project information that supports the top part of the Form 128. This information cannot be entered directly into the Form 128 by the environmental and planning personnel. If this information is not available in the Form 128 when the 5-digit account code is entered, that indicates that the engineer has not yet set up the project in SAP.
- c. The ability to save information into the Form 128 is governed by one main factor - the project must be set up in SAP by the engineer in Project Builder.
- d. The top part (Part B) signature of the Form 128 feeds the Form 463 in Project Builder as an entry (Box 5 of Form 463 is built using the Environmental Tabs in Project Builder and the Form 128). Lack of this signature entered in a timely fashion does not hold up any process that goes through SAP. This date is required for right-of-way actions to occur but this is more of a notification rather than an entry that is required for SAP. The right-of-way group will need special notification that they are cleared to proceed with right-of-way actions since they have no way of knowing if the Form 128, Part B was signed.
- e. The bottom part (Part E) signature of the Form 128 feeds the Form 463, "Environmental Project Certification (Cleared for Advertisement)" box in Project Builder as an entry. The timing of this signature is **VERY** critical which is required prior to funding being obligated by OFMB or the business office for construction, and therefore, for project advertisement.
- f. The comment box in Form 128 only prints out on the Form 128 and does not link with any other function or form in SAP. The comment box in the Environmental Tab in Project Builder also only prints out on the Form 463 and does not link with any other function or form in SAP as well.

5. Quirks and Trouble-shooting the SAP System

- a. **Who to call if I have trouble?** Tony (Antoon) Bemelen with CDOT worked the Project Builder and Form 128 functions in SAP. He has stated that he is happy to help engineers or environmental staff trouble-shoot problems or will take suggestions on improvements for the Form 128 or Form 463/Environmental Custom Tab functions. His contact information is: 970-385-1417. His email is Antoon.Bemelen@state.co.us. You can also contact Tawnya Nicholson at 303-512-5207 or Tawnya.Nicholson@state.co.us .
- b. **How do I print a blank Form 128?** This is currently a quirk in SAP. For now, either set up the project information in the form including the "Creation Date" and print once that is populated, or use an old hard-copy from the past.





c. **Why are the boxes grayed-out?** Boxes are usually grayed-out when authorization has not been granted from the RPEM to that person trying to enter data, that person is only authorized to view the information in display mode, the project has not been set up in SAP by the engineer, the data is already entered (or will be entered) elsewhere in SAP, or the scoping date has not been entered and "confirmed" by the engineer for that project in Project Builder. Boxes can also be grayed-out if they are linked with other parts of the form or with other forms that are supposed to generate the data and feed those grayed-out boxes. This occurs in the Form 128 and the Environmental Tab with:

- 1) Form 128 - Part A of the Form 128 when FONSI or ROD is selected so that resource clearances are already granted under those forms,
- 2) Form 128 - For the CatEx "type" that is auto-populated from the Environmental Tab (although this causes problems if it is done when the project is not set to "lock" which the engineers are reluctant to do because it blocks them from easily making changes so we are trying to change this to go from Form 128 to the Environmental Tab instead of the other way around. Just for further information, if the SAP user status is set to "PMGR only" then only the project manager tab is editable, if it is set to "BMGR only", then only the Business Managers tab is editable. Either of these settings would block the Environmental tab from being edited),
- 3) Form 128 - For the project contract and description data in the top part of Form 128 that is auto-populated from Project Builder in CJ20N that the engineer, business manager, environmental manager, and OFMB fills out,
- 4) Form 128 - In the FHWA signature block when a "programmatic" category is selected and the signature is not needed,
- 5) Environmental Tab - The signature dates for Part B and E clearance actions that auto-populates from the Form 128.
- 6) Environmental Tab - If the entire Environmental Tab is unavailable for edit, it might be caused by the project "User Status" not being set to LOCK. See the screen shot.

Environmental Tab - If the entire project in CJ20N appears to be uneditable, it can be caused by someone else already being in the project in CJ20N Edit Mode. See the screen shot for how to determine if that is the case.

d. **Why can't I enter data in the Form 128?**

- 1) If the entire Form 128 is not available when the 5-digit account code is entered as indicated by a message "Project Number is invalid", this indicates that the engineer has not yet set up the project in SAP, Project Builder (CJ20N).
- 2) If the entire Form 128 is grayed out, which indicates that the environmental and planning personnel attempting to access the form is not yet authorized by the





RPEM to enter this data into SAP. Once this authorization is granted, that person should be able to enter any Form 128 for projects within their region.

- 3) In the CatEx "type" is grayed-out, that is because this entry is auto-populated from the Environmental Tab in Project Builder (CJ20N) so that entry in the Environmental Tab in Project Builder is required before the Form 128 can be filled out. However, the environmental group can get excluded out of this Environmental Tab when the system status is set to PMGR or BMGR as discussed in 5.c.2 above. Only when the project is in "LOCK" status can the environmental group edit the form in the environmental custom tab. The "LOCK" status is OFMB's way of saying the project managers and the business managers tabs are not editable now so we are ready for the environmental clearance process to begin. The projects are always supposed to be in "LOCK" status since the Project and Business Managers are not supposed to be changing their information without informing OFMB.

e. **Why can't I get into the Custom Tabs in Project Builder?**

- 1) If you cannot even get into the Custom Tabs to reach the Environmental Tab, then you still need to get authorization to get access to the Custom tabs. Only authorized environmental and planning personnel will be allowed to edit the Environmental Tab to prevent "just anyone" from being able to notate that their project is cleared to go to ad. To get this clearance, you will need to submit an "ERP authorization request form" and ask for the role "RC630" for your region. The RPEM will need to sign the request form. You will also need to request Tony Bemelen/Tawnya Nicholson to add you to PSAM's role tab to authorize you to edit the environmental tab in CJ20N.
- 2) If you can get into the Environmental Tab but you still can't get into the boxes to enter data, this is because most of the boxes auto-populate from the Form 128. The comment field in the Environmental Tab is unique to the Form 463, however, and any comment you write here will end up in the Block 5, Environmental Section of the Form 463. However, if you can get to the Environmental Custom Tab but not edit it at all, it is likely due to not getting placed into the proper PSAM table for that authorization. Contact Tony Bemelen or Tawnya Nicholson to get that authorization changed to the right one.

- f. **Who can edit access to the Form 128?** The Form 128 is now restricted to permanent full-time planning and environmental employees who are GP3 or higher as authorized by the RPEM. The RPEM will need to contact the SAP help desk/Tony Bemelen/Tawnya Nicholson to grant this authorization to employees that meet these qualifications. This limitation was set after conversations with FHWA who were concerned with rumors about non-qualified persons, such as an administrative assistant, having the ability to enter a clearance date in the Form 128. However, everyone has Display Only access to the transaction ZJ17 to review the status of the Form 128 in SAP.





CHAPTER 6 ENVIRONMENTAL ASSESSMENT (CLASS III)

	<u>Page</u>
6.0 ENVIRONMENTAL ASSESSMENT (CLASS III)	6-1
6.1 EA Initiation	6-1
6.1.1 Agency Early Coordination Process	6-2
6.1.2 Public Early Coordination Process	6-2
6.2 EA Documentation Content	6-3
6.2.1 Standardization of EA Sections	6-3
6.2.2 EA Cover and Consultant Information	6-4
6.2.3 Cover Sheet	6-5
6.2.4 Table of Contents	6-5
6.2.5 Executive Summary	6-5
6.2.6 Project Description	6-6
6.3 Purpose of and Need for the Project	6-7
6.3.1 Purpose of the Project	6-8
6.3.2 Need for the Project	6-8
6.4 Alternatives Analysis	6-10
6.4.1 Alternatives Considered but Dismissed from Further Evaluation	6-13
6.4.2 Identifying a Preferred Alternative	6-14
6.5 Affected Environment and Environmental Consequences	6-14
6.5.1 Affected Environment	6-15
6.5.2 Environmental Consequences	6-18
6.5.3 Mitigation and Monitoring Commitments	6-21
6.5.4 Cumulative Impacts	6-22
6.6 Section 4(f) Evaluation	6-22
6.7 Agency Coordination and Public Involvement	6-23
6.7.1 Consultation and Coordination	6-23





6.8	References and Citations	6-23
6.9	Appendices and Technical Reports	6-24
6.10	Compliance with Applicable Laws	6-25
6.11	Announcing the EA Availability	6-25
6.12	EA Public Review	6-25
6.13	Finding of No Significant Impact	6-26
6.14	EA Reevaluations	6-27
6.14.1	Documenting Reevaluations Using CDOT Form 1399	6-28
6.15	Project Files and Administrative Record	6-31
6.15.1	Project File	6-31
6.15.2	Administrative Record	6-34
6.15.3	Project File Example	6-36
6.16	Statute of Limitations	6-40
6.17	References	6-41

LIST OF FIGURES

Figure 6-1	Example Alternatives Development Process	6-12
Figure 6-2	Example Index File	6-39





6.0 ENVIRONMENTAL ASSESSMENT (CLASS III)

An Environmental Assessment (EA) is prepared for an action where the significance of impacts is uncertain. It may also be prepared for projects that do not fit the Categorical Exclusion (Cat Ex) categories and is not expected to require the preparation of an Environmental Impact Statement (EIS), or where the Colorado Department of Transportation (CDOT) believes an EA would assist in determining the need for an EIS (23 Code of Federal Regulation [CFR] § 771.119). An EA is not merely a disclosure document; it is to be used by CDOT in conjunction with other relevant information to plan actions and make informed project decisions and to determine whether or not significant environmental impacts are expected.

The EA should concentrate attention on environmental resources with impacts that may be significant or that could be a discerning factor in alternative selection; therefore, this approach should result in a much shorter and more focused document than with an EIS. An EA details the process through which a transportation project is developed, including consideration of alternatives and analysis of the potential impacts, as well as providing an avenue for public involvement. It documents compliance with other applicable environmental laws, regulations, and executive orders. This chapter outlines the process of an EA from initiation to completion.

6.1 EA Initiation

At the beginning of the EA process, informal consultation with state and federal agencies is undertaken. There is no formal scoping requirement for an EA; however, an early coordination process is important in defining the logical termini, length and general location of the project; as well as, purpose and need, alternatives, environmental consequences, and mitigation.

At the beginning of the EA process, the appropriate agencies will be identified by the project team. While Section 6002 of Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) is required for an EIS, the decision on the use of Section 6002 for EA projects will be made by the project team, with the concurrence of the other lead agency(ies), on a case-by-case basis. According to SAFETEA-LU, the "default" assumption is that the Section 6002 environmental review process not be applied to EAs. Should it be determined that the project will follow Section 6002, please refer to **Chapter 4**.

Cooperating agencies are sent letters inviting them to participate in the development of the EA. Jurisdictional agencies, such as US Army Corps of Engineers (USACE) or US Fish and Wildlife Service (USFWS), are invited in



CEQ § 1508.27 "Significantly" as used in the National Environmental Policy Act (NEPA) requires considerations of both context and intensity.



Refer to SAFETEA-LU Environmental Review Process Final Guidance - Pub L 109-59, Nov. 15, 2006 for additional information including, however not limited to, Project Initiation Letter (Questions 11-13); Cooperating Agencies (Questions 30 and 31); and Participating Agencies (Questions 21-29). If unsure who should be invited to participate in the NEPA process, consult with the RPEM.



writing to participate in early meetings to discuss issues and permits that may be involved in the project. When an action may affect Native American Tribal lands, the Tribal Government should be involved in early coordination.

Copies of early coordination letters are included in the appendices of the EA. Meetings and substantive contacts with agencies are also documented.

Public and agency involvement are continuous throughout the EA process. Please refer to **Chapter 7** for more information on public and agency involvement.

6.1.1 Agency Early Coordination Process

The lead agency (typically CDOT or FHWA) may invite the participation of any interested agencies, Native American tribes, project proponents or opponents, and other interested persons; and will consult with and obtain the comments of any federal agency with jurisdiction by law or special expertise with respect to any environmental impact of the build alternative. During the early coordination process, CDOT may request other agencies having special interest or expertise to become cooperating agencies. Agencies with jurisdiction by law must be requested to become cooperating agencies (FHWA and FTA, 23 CFR § 771.111).

Meetings and substantive contacts with government agencies during the early coordination process must be documented. Correspondence (including written correspondence and meeting minutes) with participating and cooperating agencies or the public becomes a part of the administrative record (**Section 6.14.2**). Pertinent correspondence and results of agency coordination will be incorporated into the EA, typically in an appendix.

6.1.2 Public Early Coordination Process

It is helpful to maintain a brief summary of public involvement activities and the issues raised as they occur (e.g., dates of key meetings and correspondence), so it can be easily incorporated into the EA without having to reconstruct the information from the project file.

The project team should send correspondence to property owners who may be affected by a project, as well as to organizations and individuals who have previously expressed an interest in the project or requested notification. In every case, the CDOT project manager must coordinate with the CDOT Right-of-Way office, and in some cases the CDOT Public Relations office, to ensure that communications with property owners are handled appropriately and that a clear message is sent to the public.





Where there is a high level of public controversy, the formation of citizen committees and specialized efforts aimed at issue identification and resolution are encouraged.

6.2 EA Documentation Content

CEQ regulations (CEQ, 40 CFR § 1500 – 1508) and FHWA's Technical Advisory T6640.8A *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA, 1987) specify several required sections for an EIS, but not specifically for an EA. However, CDOT's recommended format for an EA is similar to that of an EIS. Technical information and studies developed to analyze impacts are summarized in the EA and/or incorporated by reference. Technical studies that support the EA are a part of the project file and are public documents that must be available for review.

6.2.1 Standardization of EA Sections

CDOT has a recommended standard EA format to ensure consistency across CDOT Regions. The following guidelines provide direction on the scale of the EA, formatting, and how to present any supporting documentation:

- ▶ **LENGTH** — The adequacy of an EA is measured by its functional usefulness in decision-making, not by its size or level of detail. Level of detail should be commensurate with the scale of the proposed project and the related impact.
- ▶ **LAYOUT** — Text should be presented in the portrait page setup printing format. Landscape format may be used to present large graphics as necessary.
- ▶ **LINE SPACING** — Single-spaced, double-sided prints are suggested to save paper and reduce both EA distribution and reproduction costs.
- ▶ **PAGE NUMBERING** — All pages in the EA should be numbered and appear in a document footer at the bottom of each page. Page numbers should correspond to the appropriate chapter/appendix number of the EA.
- ▶ **FONT** — Print type should be of adequate size and style to be easily read.
- ▶ **EXHIBITS** — Exhibits (figures, charts, tables, maps, and other graphics) are useful in reducing the amount of narrative required. Such exhibits should be technically accurate and of high quality. Avoid complex, busy figures, overly complex charts and matrices



Use simple terms understandable to a lay person.



when possible. An EA should be composed to convey to the reader, in understandable terms, the composition of the project and the extent of its impact on the human environment.

- ▶ **CROSS REFERENCING** — When referencing supporting technical documents, ensure the specific section number and section title are provided to assist the reader in accurately locating the reference. Cross referencing helps keep documents brief and concise.

The recommended CDOT outline for an EA includes the following sections, which are discussed in detail in this chapter. However, Section 4(f) is discussed in detail in **Chapter 9** of this Manual, and Public Involvement is discussed in detail in **Chapter 7**.

- ▶ **EA Cover**
- ▶ **Cover Sheet**
- ▶ **Table of Contents**
- ▶ **Executive Summary**
- ▶ **Chapter 1** – Purpose of and Need for Action
- ▶ **Chapter 2** – Alternatives Analysis
- ▶ **Chapter 3** – Affected Environment and Environmental Consequences (Including Mitigation Measures and Cumulative Impacts)
- ▶ **Chapter 4** – Section 4(f) Evaluation, if required
- ▶ **Chapter 5** – Agency Coordination and Public Involvement
- ▶ **Chapter 6** – References and Citations
- ▶ **Appendices**



Exhibits must have a legend, scale, north arrow and note any prominent features referenced in the text and vice versa.

6.2.2 EA Cover and Consultant Information

At the Region's discretion, an EA cover may be the illustration of a project; however, consultant logos and information are not to be used on the front cover of any EA.

It is important for users of the EA to know who prepared the document in case they have questions or comments. Consultant information may be shown on any supporting documentation for the EA (i.e., Noise Impact Assessment, Air Quality Report, and Preliminary Engineering Report). Consultant information may be displayed on an interior copy of the EA cover. Information can be incorporated on the interior cover sheet under "the following company may be contacted for additional information concerning this document".





6.2.3 Cover Sheet

The FHWA T6640.8A guidance recommends following the EIS cover sheet format for an EA. It should not exceed one page and must include the following components:

- ▶ Project name and CDOT project number
- ▶ Type of document
- ▶ Title and location of the project; route number, local name, project limits, and county in which project is located
- ▶ Responsible agencies, including the lead agency, co-lead agency, and any cooperating agencies
- ▶ Cite the federal authority for which the EA is being prepared (i.e., "Submitted pursuant to 42 United States Code [USC] 4332 (2)(c)")
- ▶ Provide date and signature block for the Region Transportation Director, Chief Engineer and FHWA Division Administrator



Chapter 8 *Document Review Procedures of this Manual* has a signature format example for the cover sheet.

6.2.4 Table of Contents

The table of contents must include the major EA components (as discussed in this section) as well as a list of figures, tables, and appendices. It should be of sufficient detail to provide adequate direction to users reading the EA and allow the reader to easily navigate the document.

6.2.5 Executive Summary

The executive summary is a not a mandatory component of an EA but is highly recommended. The executive summary should provide the components that will be used in final decision-making and later be documented in the Finding of No Significant Impact (FONSI). The summary forms a reader's first and lasting impression of the EA and should include sufficient information to allow the reader to gain a complete understanding of the issues addressed in the body of the EA. It should discuss alternatives to the preferred alternative, major environmental resource impacts, and proposed mitigation measures in a comparative form. The executive summary should be succinct, but of sufficient detail to serve as a stand-alone document. The use of a matrix or table(s) is encouraged to present information concisely.

In general, the executive summary should serve to highlight for the reader the major findings and conclusions of the environmental analyses and should include the following:

- ▶ Purpose of and need for the project.





- ▶ Identification of project issues and impacts (and areas of controversy and unresolved issues if applicable) in proportion to their importance.
- ▶ The alternatives considered (and identification of the preferred alternative if applicable).
- ▶ Identification of principal environmental issues and key differences among alternatives (highlight any noteworthy impacts, impacts that cannot be avoided, impacts that can be mitigated, and additional review or permits required before taking action). If impacts are determined to be 'significant', the EA process would stop and a decision would be made to either go forward with an EIS or change the project so that it does not have significant impacts.
- ▶ Any recommendations, commitments, mitigation or interagency agreements that may have been reached over the course of the study (if applicable).
- ▶ Appropriate findings reached and concluding statement of findings to comply with Executive Orders 11990 (Wetlands) and 11988 (Floodplains). A statement of no findings is required if there are no wetlands or floodplains involved in the project.
- ▶ Appropriate findings reached and concluding statement of findings where there is involvement with Section 4(f) or Section 106 resources. Discussion must state that no "feasible and prudent" alternative exists and that all practicable measures to minimize harm have been taken. A statement of no findings is required if there are no Section 4(f) or Section 106 resources involved in the project.
- ▶ An effects determination for threatened and endangered species or their critical habitat and coordination with the USFWS. A statement of no findings is required if there are no threatened and endangered species or their critical habitat involved in the project.
- ▶ Appropriate findings reached and concluding statement of findings where there is involvement with prime or unique farmlands and coordination with the Natural Resources Conservation Service (NRCS).



FHWA Technical Advisory T6640.8A. 1987. Guidance for Preparing and Processing Environmental and Section 4(f) Documents. October 30.

AASHTO, ACEC, and FHWA. 2006. Improving the Quality of Environmental Documents. May.

http://environment.transportation.org/pdf/IQED-1_for_CEE.pdf

6.2.6 Project Description

A detailed project description is included in the EA for a proposed transportation project. The following information is required, but not limited to:

- ▶ A brief description of the existing transportation system





- ▶ A location map that shows the project limits and displays key landmarks
- ▶ A description of the limits of the proposed project, including its length and logical termini
- ▶ The name of the city and county where the project is to be located
- ▶ A description of the proposed improvements, including the number of lanes, type of median, and any major structures

6.3 Purpose of and Need for the Project

The purpose and need chapter, typically Chapter 1 in an EA, provides a brief but important overview of information that must be considered in defining a purpose and need statement for the project. It is essentially the foundation of the EA and decision-making process.

The purpose and need chapter in the EA takes the goals and objectives, and corridor visions developed in a transportation plan to the next logical step—implementing those goals and objectives through on-the-ground project development. The planning level goals and objectives describe the transportation problem(s) that need to be addressed. This chapter also looks into the future an average of 20 years (based on planning horizons), to determine the needs of the project area in that future. For more information on CDOT’s planning and project development process, see the Project Development Manual and CDOT’s Statewide/Regional Planning website.

An EA purpose and need statement provides the details about the transportation-related needs and describes the “what and why” of the project. The purpose and need statement defines the criteria under which transportation alternatives are initially evaluated. Build alternatives should fully address the stated purpose and need. Those alternatives that do not fully address the purpose and need can be eliminated from further consideration.

Transportation planning data developed for regional, sub-area, and corridor planning can be an excellent primary source of information to assist in establishing a purpose and need statement. The purpose and need should briefly describe the project context including actions taken to date, other agencies and governmental units involved, actions pending, schedules etc.

The resulting purpose and need chapter should be succinct, yet include enough information to clearly identify a problem and a need to fix it that may require the expenditure of funds. It should be narrowly defined enough to serve as an effective means to screen/evaluate alternatives. The initial purpose and need statement may change during the NEPA process if new information or needs are discovered, or public input provides suggestions for



Further information on logical termini and independent utility can be found at FHWA and FTA, 23 CFR § 771.111(f).



CEQ § 1502.13 “Purpose and need” The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.





improving the purpose and need statement. If the initial purpose and need statement changes substantially during the process, the lead agency will need to be cognizant of the impacts that it will have on the selection of alternatives or the criteria used to evaluate and screen alternatives.

The project's need may be considered as the transportation problem, while the purpose may be thought of as the intention to solve the problem. Further guidance regarding the development of a purpose and need statement can be found in CDOT's Purpose and Need Guidance, FHWA Technical Advisory T6640.8A (FHWA, 1987) and FHWA Memorandum *The Importance of Purpose and Need* (FHWA, 1990).

6.3.1 Purpose of the Project

The project purpose statement guides the alternatives that will be considered in response to the established need. The following bullets are examples of possible project purposes:

- ▶ Improve traffic flow
- ▶ Accommodate high traffic volumes
- ▶ Increase multi-modal travel options
- ▶ Provide lane continuity and balance
- ▶ Optimize highway system operations
- ▶ Improve connectivity between transportation modes
- ▶ Improve pedestrian/bicycle mobility
- ▶ Increase safety for motorists, pedestrians, and bicyclists
- ▶ Correct roadway deficiencies
- ▶ Reduce congestion and delays



The preferred alternative is not discussed in the purpose and need and the statement should be an honest, full explanation of why the agency is considering the action and what the agency objectives include.

6.3.2 Need for the Project

The need for the project should provide the rationale for how the project addresses the problems, issues, and concerns identified. This section must outline and discuss any established community goals and objectives that pertain to the project. This section serves as the foundation for the proposed project and provides the principal information upon which the "No Action" alternative discussion is based. This section establishes the rationale for pursuing the action and explains how the actions proposed are consistent with local transportation planning, local comprehensive planning, land use planning, and growth management efforts.

The following bullets are examples of possible project needs:





- ▶ **System Linkage** – Describe how the project fits into the existing transportation system
- ▶ **Transportation Demand** – Explain relationships to any statewide plan or other transportation plan together with the project's traffic forecasts
- ▶ **Capacity** – Describe how the capacity of the existing transportation system is inadequate for the present or projected system load. Define what level(s) of service are required for existing and proposed facilities
- ▶ **Legislation** – Identify federal, state, or local governmental mandates that must be met by the project
- ▶ **Social Demands or Economic Development** – Identify all projected economic development/land use changes driving the need for the project, including new employment, schools, land use plans, and recreation
- ▶ **Modal Interrelationships** – Describe how the build alternative evaluates modes of transportation as an alternative to highway travel and how the project interfaces with and serves to complement other transportation features existing in the corridor, including existing highways, airports, rail and inter-modal facilities, and mass transit services
- ▶ **Safety** – Discuss the existing or potential safety hazards within the project area, including data related to existing accident rates as well as other plans or projects designed to improve the situation
- ▶ **Roadway Deficiencies** – Describe any existing deficiencies associated with the project area roadways (e.g., substandard or outdated geometrics, load limits on structures, inadequate cross section, or high maintenance costs)

The statement of need should consist of a factual, objective description of the specific transportation problem with a summary of the data and analysis that supports the conclusion that there is a problem requiring action. Quantified data, such as vehicle miles of travel, travel speeds, time of day characteristics, current and projected levels of service, accident rates, and/or road condition assessments, should be utilized where applicable. Full documentation, such as reports and studies that were developed in the project planning process, should be referenced in the need statement and must be available upon request of reviewing agencies and the public.

There are often multiple deficiencies or desires that establish the project need, and therefore often become multiple needs. These needs can be





separated into two categories: area-wide needs and project corridor needs. Area-wide needs relate to system deficiencies and local government or community desires. Project corridor needs relate to route deficiencies and specific community desires within the corridor. Examples of each are provided below.

Area-Wide Needs:

- ▶ Federal, state, or local government authority desires or requirements

Project Corridor Needs:

- ▶ System linkage
- ▶ Capacity
- ▶ Structural sufficiency

6.4 Alternatives Analysis


Alternatives analysis generally occurs in Chapter 2 of an EA. In general, the range of alternatives is often broader and the number of alternatives subject to analysis of impacts is greater in an EIS than an EA. For an EA, there may be only one build alternative or one build alternative with options. An EA is not required to analyze all reasonable alternatives. A build alternative and No Action alternative are sufficient for an EA.

The alternatives analysis chapter in the EA discusses alternatives to the build alternative, including the No Action alternative. The process used to develop the alternatives is discussed, and a summary of public and agency input is included. The language of NEPA has been interpreted to require that FHWA take a “hard look” at alternatives that result in avoidance or minimization of impacts to the environment, to the community, or to the economy. Alternatives analysis can be the single most costly aspect of developing the EA and will require close management by the CDOT project manager. **Figure 6-1** shows an example alternatives development process.

A comparative table of alternatives and associated impacts can be presented in common terms that will be easily understood by the public. This comparison follows the resource-specific affected environment presentation and alternative impact evaluation and provides a comparison among evaluated alternatives at a logical place in the document.

NO ACTION ALTERNATIVE

The “No Action” alternative includes other programmed activities already in the fiscally-constrained statewide plan and approved through the NEPA process or longer-term maintenance activities that would occur even if the



"The EA does not need to evaluate in detail all reasonable alternatives for the project, and may be prepared for one or more build alternatives."
 FHWA Technical Advisory
 T6640.8A





No Action alternative is selected. The No Action alternative is included as an alternative in an EA.

The No Action alternative is fully assessed in the same manner as an alternative and is used as a baseline comparison for environmental analysis against which to compare the impacts of all other alternatives.

The No Action alternative can have two meanings: (1) continue present management activities, but do not do a build alternative and (2) do not take any action. The No Action alternative also includes actions already approved in the project area. It is important to indicate to readers which meaning of No Action the EA is using. The No Action alternative also includes other projects already approved. The No Action alternative should always be fully analyzed and discussed for comparison and cannot be removed from analysis because it does not meet the purpose and need.

The EA should present a thorough description of the current transportation need and describe and project future operational/environmental conditions of a future in which a build alternative is not implemented. For purposes of travel demand forecasting and identifying resource impacts that are directly related to traffic volume, such as air quality and noise, transportation projects currently planned in the project vicinity should be included along with the No Action alternative. Transportation projects that may occur independent of the No Action alternative can be located in the Transportation Improvement Program (TIP) and Statewide Transportation Improvement Program (STIP). These other transportation projects have committed or identified funds for construction and will be completed regardless of whether or not any other improvements are made as part of the build alternative. Travel demand forecasting predicts traffic conditions that are expected to occur on the transportation system in the design year.



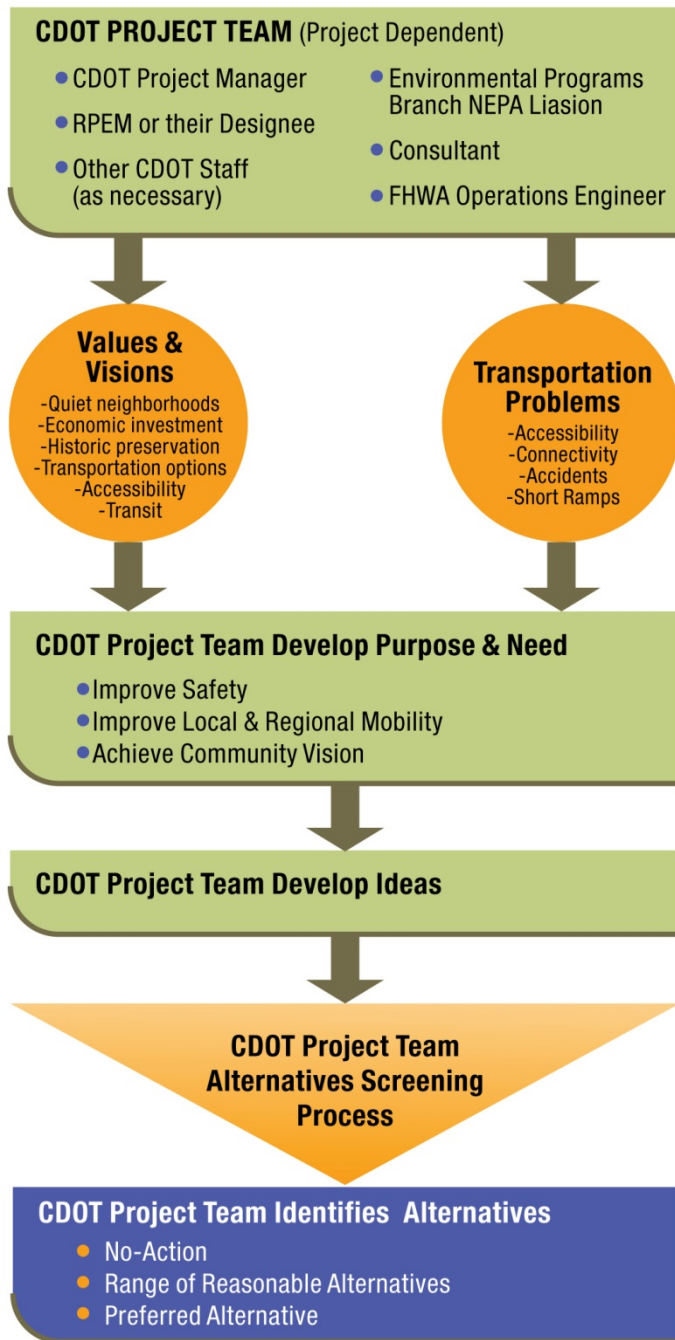
The current TIP/STIP can be found at

<http://www.coloradodot.info/programs/statewide-planning/statewide-planning-1.html>





Figure 6-1 Example Alternatives Development Process





6.4.1 Alternatives Considered but Dismissed from Further Evaluation

Since an EA is only required to have one alternative in addition to the No Action, other alternatives may have existed that are no longer considered. CDOT recommends keeping information on these previous alternatives, but not necessarily within the EA. The level of detail to present in the EA for alternatives considered should be decided by the CDOT project team. However, one option is to have an Alternatives Analysis Technical Report to the EA that contains the information.

Those alternatives analyzed within the EA each should have equivalent detail provided, allowing the reader to evaluate their comparative merits. This does not dictate an amount of information to be provided for each alternative; rather, it prescribes a level of treatment that may in turn require varying amounts of information to enable a reader to evaluate and compare alternatives. The alternatives chapter of the EA should be devoted to description and comparison of the alternatives, with impact discussion limited to a concise summary in a comparative form. The environmental consequences chapter of the EA is the appropriate place for a discussion of detailed scientific analysis of the direct and indirect environmental impacts of build alternative. However, redundancy between these sections should be avoided.

Just as important as analyzing alternatives is maintaining documentation explaining why alternatives have been considered but dismissed from further evaluation during the NEPA process (the criteria used, the point in the process where alternatives were eliminated, and disclosure of the parties involved in establishing the criteria for assessing alternatives and measures of effectiveness). The alternatives documentation should also define the role of other applicable regulations such as the Clean Water Act Section 404, Section 4(f) of the Department of Transportation Act, and Section 106 of the National Historic Preservation Act as they pertain to avoidance and minimization. Documentation can be maintained in the project file or in the administrative record (**Section 6.14**).

Deciding which alternatives to consider but dismiss from further evaluation may be simple and straightforward, depending on the complexity of the project, or may involve several levels of analysis before the list of alternatives can be narrowed to a set for final evaluation.

In preparing an EA, retaining documentation to support the rationale for generating, evaluating, and eliminating alternatives is critical. This documentation can be maintained in an Alternatives Analysis Technical Report. Being as specific as possible is also essential—if an alternative is eliminated from further consideration because it “does not meet the purpose



and need," the text should provide an adequate explanation of why this is true in the project file or technical report. Alternatives suggested during the early coordination process by cooperating and participating agencies, or the public, that are eliminated without detailed study should be adequately documented in the project file or technical report, and discussed as to why the alternatives were eliminated.

6.4.2 Identifying a Preferred Alternative

The preferred alternative is generally the one that the lead agency, typically FHWA, believes would meet the project purpose and need, minimizing impacts to the environment (natural, cultural, and socioeconomic), and is supported by the public and resource agencies. Typically, alternatives are adjusted throughout the NEPA process to minimize harm to the environment and communities. The preferred alternative is typically the alternative that has incorporated these changes and achieves the best balance between needs, impacts, costs, etc. For an EA if there are only two alternatives (build alternative and No Action) the preferred alternative may be obvious.

When a preferred alternative is clear based on the analyses developed during the EA process, CDOT is required to disclose the preferred alternative. Where the preferred alternative is not clear, it is not essential that the preferred alternative be identified within the EA and may be disclosed within the FONSI. However, the EA should state that the preferred alternative has not been identified, but will be in the FONSI decision-document.

If a preferred alternative has been identified in the EA, it is acceptable to collect additional information relevant to that alternative to more fully develop it and better understand its impacts prior to the FONSI being released. If the preferred alternative is modified after the EA, the FONSI must clearly identify the changes and discuss the reasons why any new impacts are not of major concern.

The level of analysis presented must be neutral and objective in regard to all alternatives and cannot be slanted to support a preferred alternative over any other alternative.

6.5 *Affected Environment and Environmental Consequences*

The affected environment, environmental consequences, mitigation, and cumulative impacts are typically presented within Chapter 3 in an EA.



Concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail (40 CFR § 1500.1(b))



6.5.1 Affected Environment

The affected environment section sets the context for assisting with decision-making and assessing impacts.

The affected environment chapter should succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions should be no longer than is necessary to understand the impacts of the alternative(s). Data and analyses in a statement must be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies are urged to avoid useless bulk during the EA process and concentrate efforts and attention on important issues. Refer to American Association of State Highway and Transportation Officials' (AASHTO) *Improving the Quality of Environmental Documents* (AASHTO, ACEC, FHWA, 2006) for suggestions on preparing a good, concise, readable, and legally sufficient EA. **Appendix C** of this Manual provides a recommended style guide for EA preparation.

It is best to develop a good definition of the project's affected environment before proceeding with project design or alternatives analysis. A complete baseline encourages more accurate project budgeting and provides a better basis for determining the appropriate level of NEPA documentation, project schedule, and funding. At this stage, the project team may also be able to identify potential environmental impacts resulting from the project.

Preliminary environmental analysis varies with the complexity of the project. For example, for smaller projects the initial site visit to the project area by the project engineer and key environmental specialists may be sufficient to gather the information necessary to form existing conditions within the project area and identify potential impacts. For more complex projects, a database search combined with multiple site visits with a multidisciplinary team may be necessary to collect relevant existing condition information, identify potential impacts that need to be considered, and identify future data needs including supplemental field studies or required interviews with a knowledgeable public or agencies. For all projects, this is also the stage to consider the potential geographic area(s) in which indirect and cumulative impacts will be assessed, as data will often need to be gathered in a broader area than the project study area for direct impacts. The project manager should use early field visits and discussions to feed information into the overall project schedule and budget, allowing time for longer-term analysis requirements and other environmental issues.

The description of the affected environment associated with the project area provides the context for evaluating environmental impacts. The existing conditions should rely heavily on information already available from known,



CEQ § 1502.15 "Affected Environment" . . . shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration.





reliable sources, including agencies responsible for environmental resources. Early descriptions should be limited to readily available information because the affected environment and environmental consequences will be further refined during preparation of the EA. In all cases, the context and complexity of the project as it relates to the surrounding area should be taken into consideration. The environmental data set should address all of the resources, ecosystems, and human communities potentially affected by the project. Data gaps should be identified and noted, since supplemental field studies may be required to provide the missing information depending on scoping conclusions and overall project need. The initial affected environment description should contain the following information to the extent that it is readily available and not considered confidential (i.e. specific locations of cultural artifacts):

- ▶ The status and location of important natural, cultural, social, or economic resources and systems
- ▶ Important environmental or social stress factors and constraints
- ▶ Pertinent development plans, local regulations, and local administrative standards
- ▶ Environmental and socioeconomic trends
- ▶ Demographic and land use data

The description of the project's affected environment should not only provide the existing conditions required for evaluating potential environmental consequences of transportation strategies, it should also be a strong resource for developing alternatives that will avoid or minimize impacts associated with the project. The more complete the description, the more accurately potential impacts can be predicted.

Resource-specific impact analysis and mitigation measures are discussed in **Chapter 9**.

ENVIRONMENTAL BACKGROUND

Environmental background information is usually collected early in the project planning process, or may be generated by statewide planning processes or the metropolitan or non-metropolitan transportation planning region, and can be utilized to support the affected environment chapter. Such information can also be obtained during the initial site visits.

Some background data may need to be researched before the site visit, including a review of area maps or geographic information systems (GIS) information, relevant environmental or transportation reports, previous surveys, and consultation with resource experts including external agency personnel.





Verify that consultants hired to perform supplemental field studies have or can readily obtain the required approvals for right of entry in time to perform the needed field work in the appropriate season(s). Additional information on resource-specific methodologies are included in **Chapter 9**.

SUPPLEMENTAL FIELD STUDIES

If gaps exist in the information required to characterize specific resources or identify potential project impacts, the project team may need to conduct supplemental field studies to fill these gaps.

Specific certifications may be required to legally conduct some of the supporting studies that require collection of field data. For example, field survey of historic properties is performed by personnel who are listed in the Directory of Cultural Resource Management Agencies, Consultants and Personnel for Colorado, as holding a state permit to do fieldwork in archaeology and paleontology on state, county, city, and some private lands in Colorado (but not on federal or Tribal lands). This is because there are minimum qualifications for state permits (Office of Archaeology and Historic Preservation, History Colorado, Publication #1308b, 8CCR 1504-7 Rules and Procedures Historical, Prehistorical, and Archaeological Resources Act (revised 09/11)) that help to ensure that the permit holder will collect reliable and legally compliant data.

In addition, field surveys of fish and wildlife species that require species handling may require a permit from Colorado Parks and Wildlife (CPW) and/or the USFWS. The population status of the species to be studied frequently determines whether a permit is required. Field surveys that rely solely on observation seldom require permits.

Supplemental field studies should begin early in the process to avoid affecting the project schedule and budget. These studies are frequently restricted to specific seasons, may take a long time to complete, or need to be coordinated with other agencies.

Use the information gained from field studies to evaluate alternative(s); this information should clearly support the analysis of impacts. Having the appropriate detailed information from these studies will avoid project delays and cost increases. The results of existing conditions data collection and supplemental field studies may require additional budget for data collection and additional environmental analyses. Project budgets may need to increase or could be decreased depending on the findings. Similar impacts on the project schedule should also be anticipated. Further detail on supplemental field studies is provided by resource in **Chapter 9**.

The timeline for determining how field studies fit into the overall project schedule should be discussed during early site visits and adjusted as





necessary throughout the project. The schedule could be developed during the official project scoping at the onset of the NEPA process.

6.5.2 Environmental Consequences

The analysis of environmental consequences forms the basis for comparing alternatives. This section of the EA addresses the impacts of the build alternative(s) and No Action on the quality of the human environment, and describes the measures proposed to mitigate potential adverse impacts of the project. NEPA defines the “human environment” broadly to include many aspects of the natural and built environments. The analysis presented in the EA should be of sufficient detail to establish the reasonableness of a conclusion that an impact will or will not occur and whether the impacts are significant. The description and analysis of impacts must be supported by the information and data presented in each of the specific resource sections and need to estimate both impact and the significance to the human environment.

The allocation of environmental study resources should be in proportion to the importance of the potential impacts identified in the scoping process with the resource agencies and the public. Information developed in the project planning process and studies conducted by environmental specialists should provide the basis for determining what areas of the environment may be impacted and therefore require specific analysis in the EA, and whether or not the impacts are significant and justify an EIS.

A summary of the results of technical studies and reports undertaken should be included, but not all information resulting from technical studies and reports needs to be incorporated. Where quantitative data support conclusions, they should be included. CDOT encourages the use of charts, tables, matrices, and other graphics as a means of comparing the impacts of the build alternative(s) and No Action. It should be noted that quantitative data does not always show the whole picture. Qualitative data is sometimes needed to get a clearer picture.

The key to managing the considerable amounts of data required to conduct a full NEPA analysis is to determine what is important in terms of disclosing environmental impacts. For example, if the project is in an urban setting with no farmlands, then farmland impacts are not discussed. If the project is a highway widening in an area inhabited by an endangered mammal, the wildlife surveys, background data, Biological Assessment and Biological Opinion, and a thorough discussion of avoidance and mitigation measures may all be appropriate for inclusion in the main body of the document, in an appendix, and in associated technical reports.



A short introductory paragraph should be placed at the beginning of the Existing Environment and Environmental Consequences chapter briefly outlining those resources that were investigated but that there were no impacts and announce that, therefore, no further analysis of these resources is required in this section.



When preparing the decision document (FONSI, if no significant impacts), the impacts and mitigation measures of the preferred alternative may need to be discussed in more detail to elaborate on information, provide more detail on commitments, or address issues raised during the public comment period. The decision document should also identify any new impacts (and their implication) that may have resulted from modification or identification of substantive new circumstances or information regarding the build alternative following the document's circulation.

TYPES OF IMPACTS

NEPA uses the terms "impact," "effect," and "consequence" synonymously. This Manual utilizes "impact". For an action to impact (positively or negatively) the environment, it must have a causal relationship with the environment. NEPA distinguishes three types of causal impacts: direct, indirect, and cumulative.

- ▶ **Direct impacts** are caused by the action and occur at the same time and place (CEQ, 40 CFR § 1508.8). For example, highway construction that occurs within a wetland would completely remove the wetland or modify the structure and function of the wetland. This would therefore be a direct impact on wetlands.
- ▶ **Indirect impacts** are caused by the action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect impacts may include those related to induced changes in patterns of land use, population density or growth rate, and related impacts on air and water and other natural systems, including ecosystems (CEQ, 40 CFR § 1508.8). For example, highway construction that alters the hydrology of an area could increase or decrease overland water flow to nearby wetlands and streams, which would have an indirect effect on the structure and function of these water resources. Additional indirect impacts could occur to plant and animal species that inhabit the affected wetlands and streams.
- ▶ **Cumulative impacts** result from the incremental impact of the action when it is added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts could result from individually minor, but collectively significant, actions that take place over time (CEQ, 40 CFR § 1508.7). Cumulative impacts are further discussed in **Section 6.5.5**.

Impacts may be ecological, aesthetic, historical, cultural, economic, and social. Impacts may either be either beneficial or adverse. Beneficial impacts



Impacts discussions and associated findings should reflect realistic impact potentials rather than what might be possible if well known requirements, mandates and commitments to avoid, minimize and mitigate impacts did not exist.



may occur when a build alternative improves a situation (e.g., lessens serious traffic congestion). However, even when the impact of an action will be generally environmentally beneficial, adverse environmental impacts may still occur in other resource areas.

FHWA's Technical Advisory T6640.8A notes that the level of impacts should not be described using the term "significant" (FHWA, 1987). However, when conclusions regarding the significance of an impact have received concurrence from consulting or jurisdictional agencies, this information should be included (for instance, there may be concurrence on a Finding of Adverse Effect under Section 106 of the Historic Preservation Act). Furthermore, if the term "significant" is used, it should be consistent with the CEQ definition and supported by factual information (CEQ, 40 CFR § 1508.27).

To help CDOT Program Managers completely understand how a resource will be impacted, context, intensity, duration, and timing must be considered. Context is defined as the setting of the build alternative and is established in the description of the "affected environment" (are the impacts site-specific, local, or regional). Intensity is considered the severity of the impact (are the impacts negligible, minor, moderate, or major).

As required by CEQ regulations, the severity of an impact requires consideration of a number of the following factors:

- ▶ Degree of effect on public health or safety
- ▶ Presence of unique characteristics of the project area such as proximity to resources or protected areas
- ▶ Degree of controversy
- ▶ Degree to which possible impacts are uncertain or involve unique or unknown risks
- ▶ Degree to which the action would set a precedent for future actions with significant impacts
- ▶ Contribution to cumulatively significant impacts
- ▶ Degree to which there may be adverse impacts to scientific, cultural or historical resources
- ▶ Degree to which there may be adverse impacts on an endangered or threatened species or its critical habitat
- ▶ Conflict with federal, state or local laws for the protection of the environment



Clearly state all assumptions and methods so that it is obvious how results and conclusions were formed. Anyone with the appropriate skills should be able to duplicate the work.



Impacts should also be characterized as temporary or permanent. Temporary impacts are generally those that result from demolition, site preparation, and construction activities, and will not persist once project construction is completed. Common examples of possible temporary impacts include dust generation, erosion, construction noise, stream diversion, or traffic congestion. When analyzing temporary impacts, all aspects of project construction should be considered within the project footprint such as use of areas to store equipment and materials or set up a construction office, construction of roads to gain access to the site, or use of areas for borrow of fill or disposal of excavated material.

Permanent impacts are those that persist after a project has been completed. Common examples of permanent impacts include creating cut-and-fill areas or right-of-way acquisition. Some impacts, such as changes in noise levels or changes in access to local businesses or residences, may be temporary or permanent or both, depending on project specifics.

6.5.3 Mitigation and Monitoring Commitments

Prior to mitigation, CDOT always makes best efforts to:

- ▶ Avoid the impact altogether by not taking a certain action or parts of an action
- ▶ Minimize impacts by limiting the degree or magnitude of the action and its implementation

However, if avoidance or minimization is not feasible then mitigation measures may be implemented including:

- ▶ Rectifying the impact by repairing, rehabilitating, or restoring the affected environment
- ▶ Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- ▶ Compensating for the impact by replacing or providing substitute resources or environments (CEQ, 40 CFR § 1508.20)

FHWA regulations require that mitigation measures presented as commitments in the EA and decision document (FONSI, if no significant impacts) be incorporated into a project (FHWA and FTA, 23 CFR § 771.109[b] and 23 CFR § 771.125[a] [1]). Monitoring conducted during project construction and operation is the means to ensure mitigation measures are implemented effectively. If monitoring identifies any deficiencies in mitigating the impact, adjustments to the level, timing, and/or procedure of mitigation must be made accordingly.





Mitigation commitments are specific and include information regarding responsibility, monitoring, performance standards, and schedules for implementation. The NEPA decision document makes commitments about implementing and monitoring the proposed mitigation measures, and the commitments are documented in a summary of impacts and mitigation table. The first seven columns of CDOT's standardized Mitigation Tracking Spreadsheet

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view

should be used as the summary of impacts and mitigation table in NEPA documents. This summary is formatted to allow its use as a stand-alone document that can be added into the main Mitigation Tracking Spreadsheet, which will follow the project through the design, construction, and maintenance phases. CDOT maintenance staff should be informed and consulted as early as possible in the process of determining mitigation measures.

It is important for the project team to note that long-term mitigation measures may include multi-year environmental monitoring and other components that have an effect on project schedule, budget, and long-term maintenance and operation.

6.5.4 Cumulative Impacts

In mandating cumulative impacts analysis, CEQ seeks to ensure that projects consider not only the project and its alternatives, but the other actions that could contribute to long-term environmental degradation. For example, a CDOT highway project may be just one piece of the bigger growth picture in a county. Other pieces of this picture include new retail (a new mall), new business parks (such as Interlocken or the Denver Tech Center in the Denver Metro Area, or Centerra in Loveland), new housing developments (occurring all around Colorado), and the competing demands of new residents for open space, parks, hospitals, and schools. In this example, land use is the resource being evaluated in a cumulative impact context; the growth in the area would supply information about the existing conditions and future conditions. Methodology for a cumulative impact section is further discussed in **Chapter 9**.

6.6 Section 4(f) Evaluation

Section 4(f) guidance for publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites is discussed in detail in **Chapter 9** of this Manual. Section 4(f) findings are typically Chapter 4 in an EA, if required.





6.7 Agency Coordination and Public Involvement

Agency coordination and public involvement guidance is discussed in **Chapter 7** of this Manual. Agency coordination and public involvement is typically discussed in Chapter 5 in an EA (if a Section 4(f) chapter is present; otherwise Chapter 4).

6.7.1 Consultation and Coordination

Public involvement, consultation, and coordination efforts are summarized in the EA, typically in Chapter 4 or 5 (depending on whether or not a Section 4(f) analysis is present as Chapter 4). CDOT has specific policies regarding public involvement that are discussed in **Chapter 7**. In addition to the information in **Chapter 7**, the consultation and coordination chapter should:

- ▶ Provide a chronology of key public and stakeholder meetings and events that have occurred on the project, including the early coordination and scoping processes
- ▶ Document all meetings and other correspondence with government leaders, government agencies (including cooperating and participating agencies), Native American interests, community and advisory groups, and individual citizens
- ▶ Summarize all issues raised by agencies and the public

The EA document should contain copies of pertinent interagency correspondence in an appendix, consultation with USFWS, Section 106 coordination with the SHPO, and important communications with similar agencies.

6.8 References and Citations

The EA must cite the references used in preparing the document. The citations should include the technical studies used to substantiate the analyses and conclusions in the document. These references must support information in tables and figures as well, which are often overlooked in documents. They may also cite other relevant sources, such as local or regional planning documents, pertinent scientific studies, or other relevant materials. Materials prepared by other agencies in compliance with other regulatory processes (e.g., a Biological Opinion) should also be referenced. There are no specific CEQ regulations for references and citations.





6.9 Appendices and Technical Reports

The EA should be a concise document and should not contain long descriptions or detailed information which may have been gathered or analyses which may have been conducted for the build alternative. NEPA guidance emphasizes that EA should be succinct statements of the information on environmental impacts in order to make a determination whether or not significant impacts will occur from the build alternative, and if an EIS should be prepared. The appendices should only include material that is directly relevant to the EA and that substantiates data important to the analysis, and supports the conclusions of whether or not an EIS is warranted.

Relevant appended information may include listings (e.g., wildlife species common to the project area), letters of agreement, Memoranda of Understanding, or Referendums. The appendices to an EA must contain correspondence, or summaries of correspondence, received from government agencies and private interest groups concerning the project. However, they do not include any letters between CDOT and FHWA or internal CDOT memos or letters.

Appendices contain detailed information that is not essential to a basic understanding of the document and the results obtained but information that may be helpful to readers. Appendices help to streamline the content of the document. The EA is expected to contain the following appendices:

- ▶ Agency Coordination
- ▶ Public Involvement and Coordination

Lengthy technical discussions should be contained in separate technical reports. Technical reports are not treated as appendices to the EA. They are bound as separate documents and referenced. While separate technical reports are not circulated with the EA during public review, they are public documents and must be available for review. They must also be submitted along with copies of the preliminary copy for CDOT headquarters (Environmental Programs Branch [EPB] and others) review and FHWA review and approval. Some EAs may have reports available on CD-ROM, or via the internet. During the public comment period the EA and the technical reports are placed in convenient locations for public review and copying (typically libraries or other easily accessible public buildings). **Chapter 7** provides detailed guidance for the agency and public involvement process.

Other appendices may be added if appropriate. All appendices must be called out in the body of the document. They are lettered sequentially (i.e., Appendix A, Appendix B, etc.) at the end of the document in the order in which they are called out.



An appendix for an EA should:

- (a) consist of material prepared in connection with the EA
- (b) consist of material which substantiates any analysis fundamental to the EA
- (c) normally be analytic and relevant to the decision to be made
- (d) be circulated with the EA or be readily available on request



6.10 Compliance with Applicable Laws

The EA should demonstrate compliance with requirements of all applicable environmental laws, executive orders, and other related requirements. For a list of NEPA-related regulations that are often considered during a CDOT NEPA effort, refer to **Figure 2-1** in **Chapter 2** of this Manual.

6.11 Announcing the EA Availability

Agencies should make diligent efforts to involve the public in the NEPA process by providing public notice of NEPA-related hearings, public meetings and the availability of environmental documents (CEQ, 40 CFR § Regulations 1506.6). In order to announce the availability of the EA, publication can occur in local newspapers (in papers of general circulation rather than legal papers), local media, newsletters, direct mailings, posting of notices, press release and through community organizations. CDOT has guidance for public involvement that is discussed in **Chapter 7**. The EA announcement should include the following:

- ▶ A brief description of the project
- ▶ A brief summary of environmental consequences
- ▶ Time period and dates of the public comment period (30 days)
- ▶ Locations of where the document is available for public review (examples include libraries or municipal offices)
- ▶ Location, date, and time of public meetings, if held. The EA must be available for public review at least two weeks prior to a public meeting (Section 7.3.7)
- ▶ A point of contact at CDOT for further information

6.12 EA Public Review

When FHWA expects to issue a FONSI for an action described in FHWA and FTA, 23 CFR § 771.115(a), copies of the EA shall be made available for public review (including the affected units of government) for a minimum of 30 days before FHWA makes its final decision (40 CFR § 1501.4[e] [2].) This public availability shall be announced by a notice similar to a public hearing notice. If, at any point in the EA process, FHWA determines that the action is likely to have a significant impact on the environment, that EA process will stop and the preparation of an EIS will be required.

The following steps summarize the public coordination process for completion of an EA.





- ▶ Upon the announcement of availability, the public and agencies have 30 calendar days to submit comments. During this time, a public meeting or hearing is also recommended, but not required. Note that in order to call a public meeting a hearing, there must be a court reporter and the opportunity for members of the public to speak in front of the group.
- ▶ After the 30-day public comment period concludes, the comments gathered are evaluated to determine where changes to the analysis would affect the decision. Responses to substantive comments must be prepared, and the comments and responses must be submitted to FHWA.

If comments are received during the public availability period that indicate that changes are necessary, then a clarification is made in the FONSI, or an addendum to the EA is prepared in order to:

- ▶ Reflect changes in the build alternative(s) or mitigation measures resulting from comments received on the EA or at the public hearing (if one is held) and any impacts of the changes
- ▶ Include any necessary findings, agreements, or determination (e.g., wetlands, Section 106, Section 4(f)) required for the proposal
- ▶ Include a copy of pertinent comments received on the EA and appropriate responses to the comments

Upon conclusion of the public comment period, the public comments are considered and a determination of the significance of the impacts is made. Specific details regarding the NEPA review process for an EA are discussed in **Chapter 8**.

6.13 Finding of No Significant Impact

If FHWA agrees with the applicant's (CDOT's) recommendations pursuant to 23 CFR §771.119(g), FHWA will prepare a separate written FONSI incorporating by reference the EA and any other appropriate environmental documents. In the case of FHWA and CDOT acting as co-lead agencies for a project, CDOT prepares the FONSI for FHWA signature.

The CEQ Regulations 40 CFR §1508.13 states that a "finding of no significant impact is a document by a federal agency briefly presenting the reasons why an action, not otherwise excluded (40 CFR §1508.4), will not have a significant effect on the human environment and for which an environmental impact statement therefore will not be prepared. It shall include the environmental assessment or a summary of it and shall note any other environmental documents related to it (40 CFR §1501.7[a] [5]). If the



The project described in the EA must be in a fiscally constrained plan for FHWA to sign a FONSI.





assessment is included, the finding need not repeat any of the discussion in the assessment but may incorporate it by reference.”

The FONSI should contain the following information:

- ▶ Selection of an alternative for construction
- ▶ Summary of all environmental impacts associated with the project including a statement of findings on all relevant impact categories
- ▶ Summary of mitigation of impacts.

An announcement of availability of the FONSI is sent by CDOT to the affected units of federal, state, and local government, and the FONSI is made available from CDOT and FHWA upon request by the public. Notice is also sent to the state intergovernmental review contacts established under Executive Order 12372.

If another federal agency has issued a FONSI on an action that includes an element proposed for FHWA funding, FHWA will review the other agency's FONSI. If FHWA determines that this element of the project and its environmental impacts have been adequately identified and assessed, and concurs in the decision to issue a FONSI, FHWA will issue its own FONSI incorporating the other agency's FONSI. If environmental issues have not been adequately identified and assessed, FHWA will require appropriate environmental studies (FHWA Regulation 23 CFR §771.121).

6.14 EA Reevaluations

Periodically, the preferred alternative in the EA is not constructed following release of the FONSI due to funding limitations or other constraints. The passage of time following the approval of the EA to the point of the build alternative being implemented is referred to in the *CDOT Environmental Stewardship Guide* as the “shelf-life” of the EA. The *CDOT Environmental Stewardship Guide* states that “after approval of the FONSI, CDOT shall consult with FHWA prior to requesting any major approvals or grants to establish whether or not the approved environmental document remains valid for the requested Administration action.”

The Reevaluation is for the entire document or project (i.e., same limits as the original environmental document). The Reevaluation should consider the entire project, but be focused on the validity of the EA and/or project decision as related to the current phase or work, major approval, or action to be taken by FHWA to advance the project. If documentation of the Reevaluation is necessary, the previous phases would be referenced as a previous action and summarized as background information. The current phase would be discussed in more detail, but only to the extent that there



A Reevaluation is prepared with the purpose to determine whether or not a supplement to the EA is needed.



have been changes to the project or affected environment. Future phases could be mentioned and discussed, but the detail could be delayed until approval is needed to proceed with the future phase. There is no requirement to modify phases already built or reconsider previous designs when the next phase is being built.

If the project decision, affected environment, mitigation or other environmental commitments, or environmental requirements have not changed or if the changes examined result in the determination by FHWA that the environmental document is valid, the Reevaluation process is completed. If the Reevaluation process determines that the approved environmental document is no longer adequate, then supplemental environmental documentation is needed to fully analyze the changes that have occurred (FHWA and FTA, 23 CFR § 771.129).

Determining if the design year and traffic numbers need updating for the final segment or the entire project under a Reevaluation should be examined on a case-by-case basis and may be commensurate with the time lapse between the original environmental document and decision and the current FHWA approval action. For example, if the project is so old that the design would not be appropriate, it should probably be changed. There is no requirement to change the design year (and associated traffic numbers) of a project during Reevaluation of the environmental document.

23 USC 109 provides that the project must adequately serve the existing and planned future traffic of the highway in a manner that is conducive to safety, durability and economy of maintenance. In accordance with AASHTO's *A Policy on Design Standards – Interstate System*, "In all but extraordinary circumstances, the design year for new construction and complete reconstruction is to be at least 20 years beyond that which the plans, specifications, and estimate for construction for the section are approved." FHWA does not have a requirement for design year on non-interstate facilities.

6.14.1 Documenting Reevaluations Using CDOT Form 1399

CDOT Form 1399 is to be used when completing a Reevaluation. Below are the sections of the Reevaluation form with a discussion for how to fill out each section.

SECTION I. DOCUMENT TYPE

Section I indicates specifically what type of document is being reevaluated. Identify the type of document by checking the appropriate box on the form.





SECTION II. REASON FOR REEVALUATION

There are three primary reasons that CDOT completes a Reevaluation:

1. Project is proceeding to the next major federal approval or action 23 CFR 771.129(c).
2. Project changes such as laws, policies, guidelines, design, environmental setting, impacts or mitigation have occurred – Sometimes the design that was originally approved changes in final design, resulting in newly discovered or otherwise unaccounted for impacts to resources not initially evaluated in the NEPA document. Reevaluations may also be completed to serve as field verifications to ensure that impacts documented in the initial NEPA clearance are still correct and that the same mitigation measures apply.
3. Greater than three years have elapsed since approval of the DEIS, (23 CFR 771.129(a)) or FHWA's last major approval action for the FEIS (23 CFR 771.129(b)) - Sometimes after a preferred alternative is identified in an EA or EIS it is not constructed due to funding limitations or other constraints. CDOT utilizes Reevaluations to 'refresh' project information that may have exceeded its shelf life. The passing of time following the approval of a NEPA document to the point of the alternative being implemented is referred to as the "shelf-life".

SECTION III. CONCLUSION AND RECOMMENDATION

Section III determines whether or not the environmental document reviewed is still valid. Should it be determined that no substantial changes have occurred, the project can advance to the next phase of project development. However, should it be determined that the NEPA document is no longer valid and more information is needed then additional work will be required.

The Regional Planning Environmental Manager (RPEM), or designee, and the FHWA Division Administrator or Designee are responsible for signing Section III.

SECTION IV. EVALUATION

This section of the form documents the level of Reevaluation, which should be determined in coordination with the RPEM. Level 1 and Level 2 Reevaluations do not need to be reviewed by EPB. Check with the Environmental Policy & Biological Resources Section Manager to determine if EPB review is necessary for Level 3 Reevaluations. Level 4 Reevaluations must be sent to EPB for review. FHWA concurrence is required for Level 2, Level 3, and Level 4 Reevaluations.





This section also documents if there have been changes in the Affected Environment or in impacts to each resource. Design alterations, regulatory changes, an assessment of impacts for resources that have changes in impacts, and mitigation are also included in this section. The first seven columns of CDOT's standardized Mitigation Tracking Spreadsheet should be attached to the Reevaluation.

SECTION V. PUBLIC/AGENCY INVOLVEMENT

Section V of the Reevaluation form deals with documentation of public and/or agency involvement activities. Some projects may not have any public involvement requirements; however, those that do should be documented. Public involvement may also include outreach to other interested parties, such as business districts, or other stakeholders or entities. Agency involvement may be as simple as meetings or correspondence.

SECTION VI. ADDITIONAL STUDIES REQUIRED FOR PROPOSED ACTION

This section should list studies that might be needed in addition to the original documentation, or to supplement the Reevaluation. Such studies might include: resource technical reports or memorandums, traffic analysis or design components.

SECTION VII. ADDITIONAL REQUIREMENTS FOR PROPOSED ACTION

If it is determined within Section III that the environmental document or CE designation is no longer valid, then Section VII indicates the next level of appropriate analysis. The required analysis ranges from:

- ▶ Supplemental EIS
- ▶ Revised ROD
- ▶ Appropriate environmental study
- ▶ EA
- ▶ Revised FONSI
- ▶ No additional studies

SECTION VIII. PERMITS UPDATED (OPTIONAL)

This section of the Reevaluation form only needs to be completed when the next stage of a project is going to construction. Required permits should be listed in this section.





SECTION IX. ATTACHMENTS LISTED

This final section of the Reevaluation form should include all attachments that support the conclusion of the form. These attachments, referenced in previous sections, could include permits, studies, background data, public/agency involvement materials, etc.

PROJECT CERTIFICATION CLEARANCE FORM

Signature of the Reevaluation form completes the NEPA requirement for the project; however, it is not the final step in the process. The CDOT Form 128 must also be completed for all Reevaluations. Section C of the CDOT Form 128 includes information regarding Permits and Additional Requirements and Section E includes the Environmental Project Certification. Completion of these two sections is required in order for the project to move into construction.

6.15 Project Files and Administrative Record

This section establishes what should be maintained in a project file and provides information for compiling the administrative record should a lawsuit be filed.

6.15.1 Project File

Throughout the life of a NEPA project, project materials are generated by the entire project team. All of the materials maintained by the project team are considered the project file. The size of the project file may depend on the type of project; a CatEx for an intersection improvement may have a small file whereas an EIS for an interstate widening will have a larger file.

Items that comprise the project file may include:

- ▶ Email messages and any attachments
- ▶ Letters/Memoranda and any attachments
- ▶ Meeting materials (agenda, sign-in, handouts, minutes)
- ▶ GIS information and data layers
- ▶ Modeling results
- ▶ Maps, drawings, and displays
- ▶ Project documents in original formats (for example, Word or CAD)
- ▶ Policies, guidelines, directives and manuals, or easy references to these materials as long as they are readily available
- ▶ Articles and books. Be sensitive to copyright laws governing duplication.



CDOT PMs are responsible for establishing electronic naming conventions for emails at the beginning of a project. A standard indicator should be used throughout the project in the subject line to easily track project related emails.





- ▶ Factual information or data.
- ▶ Communications received from other agencies and from the public, and any responses to those communications
- ▶ Documents and materials that contain information that support or oppose the challenged agency decision
- ▶ All draft documents that were circulated for comment either outside the agency or outside the author's immediate office, if changes in these documents reflect significant input into the decision-making process
- ▶ Technical information, sampling results, survey information, and engineering reports or studies. Certain technical information, such as threatened/endangered species, historic, and archaeological resource survey reports, should be kept in the files but labeled "SENSITIVE – NOT FOR PUBLIC RELEASE" due to their sensitive nature.
- ▶ Decision documents
- ▶ Documentation of telephone conversations and meetings, such as memoranda or handwritten notes, unless they are personal notes
- ▶ Alternatives screening and development information
- ▶ Public comment correspondence
- ▶ Documentation of public involvement efforts

As a general rule, do not include internal "working" drafts of documents that may be superseded by a later, more complete, edited version of the same document.

All written documentation should contain a date, indicate to/from (or attendees for meetings), location (for meetings), and be clear on subject matter. The project team may want to consider establishing a template for internal communications, memos, e-mails (e.g., always using the project number in the subject line of an e-mail) early in the NEPA process.

At the beginning of the project it is important to determine several things to ensure an adequate project file:

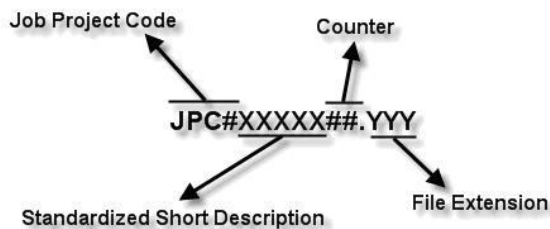
- ▶ Who is responsible for maintaining the project file (i.e. project manager, project coordinator)
- ▶ Whether or not a database will be used to manage files, such as was used for the I-70 Mountain Corridor Programmatic EIS (PEIS)
- ▶ Where files will be housed during the project





- ▶ How electronic and hard copy information will be filed
- ▶ If a project email will be established where all email correspondence will be sent or copied to assist with record keeping

CDOT has a naming standard that uses a formula that restricts the character placement, ensures unique file names, and identifies the information contained in the file. All CDOT projects now must follow these file naming conventions. The naming standard creates consistency between projects being completed by different firms and in different Regions. Standardizing file names is necessary for effective management of the large numbers of files needed to produce project deliverables. CDOT files are named in a standard format that identifies the file's project, the data contained within it, and product used for its creation. The naming convention is illustrated as follows:



Job Project Code (JPC) is the CDOT project code, formerly known as the project subaccount number. **Example – 16602**

Standardized Short Description of data may contain as many characters within reason to describe the contents and purpose of the file. **Example – Aerial**

Counter indicates more than one file of a specific type. **Example – Aerial_02**

File Extensions define the product used for its creation. **Example – .doc**

Full Example of a file naming convention 16602_Aerial.doc or 16602_Aerial_02.doc

The project file may be kept at a central location at a consulting firm where project files are maintained throughout the project. However, a decision must be made on how the files will be provided to CDOT at the close of the project. Given that some projects have numerous consulting firms involved it is necessary to obtain all the appropriate files from each of the firms,



A well organized project file is the foundation for putting together the administrative record.





organize into logical folders (hardcopy and electronic) and provide to CDOT. In cases where the majority of files have been maintained electronically, a final deliverable to CDOT must include an electronic deliverable.

The CDOT Generic Scope of Work Section 2. G. Administrative Record task is a place to include the effort for maintaining the project file (CDOT, 2011). Although the task is labeled administrative record, it can be changed in the project specific scope to include the project file, as well. Regardless, hours and effort need to be allocated for this task in the project budget, regardless of the project size.

There is no general NEPA guidance on how long a project file should be kept and federal agencies are free to establish their own guidelines on retention of files. However, once a project has been completed, prudence dictates that the following types of data should be permanently retained:

- ▶ Design and as-built drawings and specifications in both hard copy and electronic format
- ▶ Deeds and titles
- ▶ All information considered under NEPA in selecting the alternative that was implemented

Such information may be useful in assessing and resolving future problems with project structures, ownership, or choices associated with implementation.

6.15.2 Administrative Record

Should the NEPA decision be challenged in court, the project file provides a starting point for preparing the administrative record. When a project faces litigation, the administrative record must be prepared, which includes all materials that are submitted to the court.

Under the Administrative Procedure Act, a court reviews an agency's action to determine if it was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" (5 USC § 706[2][A]). In making this determination, a court evaluates the agency's administrative record. The administrative record is the paper trail that documents the agency's decision-making process and the basis for the agency's decision.

The administrative record for each project will be drawn from the project file as needed. Not all material in the project file will necessarily become part of the administrative record; however; any information that supports the final decision should be part of it. As established by case law, the general rule is that the administrative record should contain "all documents and materials directly or indirectly considered by the agency" in making its decision.



CDOT has adopted the **AASHTO Practitioner's Handbook Maintaining a Project File and Preparing an Administrative Record for a NEPA Study** (July 2006) for further guidance on the administrative record documentation.

<http://environment.transportation.org/pdf/programs/PG01.pdf>





An administrative record will most likely include:

- ▶ Pre-decision documents, such as final versions of memoranda, final versions of reports, manuals and guidance documents, and meeting minutes
- ▶ Field notes
- ▶ Correspondence, both paper and electronic
- ▶ Email, including attachments
- ▶ Technical files, which could include items such as Section 106 reports

An administrative record may include, depending on the type of lawsuit:

- ▶ Engineering plans and
- ▶ Raw data and information

An administrative record most likely will not include:

- ▶ Documents created after the decision document is signed
- ▶ Detailed mapping of sensitive archaeological, tribal, or Endangered Species Act resources
- ▶ Materials related to national security
- ▶ Privileged materials
- ▶ Duplicates, such as emails with chains
- ▶ Non-substantive comments or emails

An administrative record can be in electronic, hard copy, or a combination format. It is ultimately up to the court to decide which format is preferred. It is important to note that if electronic documents are converted to PDF format, the original source files must also be available.

Some general guidance for organizing an administrative record includes ensuring all items have a date, that items are organized in a logical and accessible way (for example, chronological or by topic), and an index completed. The index should list documents in chronological order, assign unique page numbers to documents, include brief descriptions of each document, and include the author of each document.

FHWA is ultimately responsible for the administrative record as the decision-maker. Therefore, it is important to work closely with FHWA staff when preparing an administrative record to ensure that it contains the appropriate information and is in the appropriate format(s).





6.15.3 Project File Example

PROJECT FILE EXAMPLE

The I-70 Mountain Corridor PEIS project spanned 11 years, beginning in late 1999/early 2000 and ending in June 2011 with the signing of the Record of Decision (ROD). Over those 11 years, the project involved producing a Draft PEIS; changing directions with a new administration; establishing a Project Leadership Team with stakeholder involvement; engaging in a collaborative effort process to arrive at a preferred alternative; performing a Reevaluation of the Draft PEIS; and producing a Revised Draft PEIS, a Final PEIS, and a ROD within a tight timeframe. With all of the project changes it was very important to maintain a project file that could easily transition into an administrative record if needed.

One key component was setting up a file structure that stood the test of time through technological and user changes. For the I-70 Mountain Corridor PEIS, this filing structure was set up so that hard copies and electronic files would be mirrored so that what was placed in the hard copy file was also placed in the electronic file. Also, it was important that items were placed in the file immediately upon their receipt to ensure no documentation was missed.

When the I-70 project began in late 1999, most project documentation was in hard copy format. It consisted of correspondence from agencies, stakeholders, and the public; reference reports; data sharing agreements; meeting documentation; and open house materials, among others. The consultant used a filing cabinet to house hard copies of the early project documentation.

Agency, stakeholder, and public meetings and open houses played a key role in developing the I-70 Mountain Corridor PEIS. The consultant set up a meeting log to track each meeting that occurred for the project. This meeting log identified meeting attendees, meeting dates and times, and topics to be discussed, among other information. The consultant also set up monthly calendars noting days with meetings to ensure that all meetings were accounted for.

Up through the production of the Draft PEIS in December 2004, the consultant compiled all meeting documentation in hard copy format and placed this information in three-ring binders. Included were sign-in sheets, agendas, meeting notes, handouts, and transcripts. Anything associated with a particular meeting was kept in one place. The consultant did not create PDFs of meeting materials prior to 2005, but the source files were kept on a network server. The consultant began creating PDFs of all meeting materials in 2005. The consultant would later scan all the meeting



Lesson Learned:

Assemblage of the I-70 PEIS Adobe Acrobat project file began towards the end of the project, which took more time and money to complete. It is recommended that decisions on how files will be maintained happen at the start of a project.



materials in the three-ring binders into PDF files so that the electronic record mirrored the hard copy binder information.

Given the expected controversy on the project, FHWA and CDOT directed the consultant to compile a project file that would allow for an administrative record to be easily created if needed. CDOT, FHWA (as the lead agency), and the consultant worked together to decide on the format for the project file. CDOT and FHWA decided that a searchable project file would be most fitting, but it needed to be easily accessed, not proprietary software, and cost effective. Adobe Acrobat was chosen because it is universal software that everyone has access to and is compatible through versions and software updates as well. This searchable file would serve several purposes. This file could span the life of the project serving as a database of sorts and it could be used as a resource for future corridor (Tier 2) studies moving forward. It could also be used as an effective search tool if the public or agencies request project information. Also, if someone legally challenged the project, CDOT and FHWA could then take the project file and easily compile an administrative record. CDOT and FHWA also decided that all files would be available in an electronic format with only important hardcopies being retained, such as those with original signatures, licensure stamps etc..

The consultant scanned all of the hard copies files into an electronic format using Adobe Acrobat PDF. Housing the documentation in a filing cabinet and using three-ring binders for meeting materials made it easier for the consultant to locate and scan the earlier project documentation that was not available in any other form but hard copy.

Another key to compiling the I-70 Mountain Corridor PEIS project file was having a file naming convention system in place. Using AASHTO's *Practitioner's Handbook, Maintaining a Project File and Preparing a Project Record for a NEPA Study*, FHWA, CDOT, and the consultant decided to set up the project record chronologically by date (yyyy-mm-dd). The file name was also to include the topic or subject of the documentation, followed by sender-recipient, then a brief description of the documentation, and finally type of documentation (such as letter, meeting documentation, reports).

The following demonstrates the naming convention that was used:

2005-10-17 106 CDOT-Breckenridge_His-Prop-Inv L.pdf

The example represents a letter sent on October 17, 2005, regarding Section 106, from CDOT to the Town of Breckenridge about the historic properties inventory.

If no date was provided on a piece of documentation, 0000-00-00 was used for the date.





In this electronic age, email communication plays a key role in project management. Because project guidance was often communicated in email correspondence, especially in the more recent years of the project, emails became an important part of the I-70 PEIS project file. The consultant set up a filing system for emails, created PDFs of any emails providing direction, along with their attachments, saved emails as they were received, and used the same file naming conventions as were used for other files. Sometimes email conversations included much back and forth communication between agencies or individuals. In those cases, the consultant created a PDF of the last incoming email on the topic with all the in-between communication included in the PDF.

Something that would benefit any project would be to set up a project email account so that any emails related to the project would be carbon copied to that email address. One person could be designated to manage that email account on a weekly basis to ensure that PDFs of emails and their attachments are created early on. Having to go back through emails of all project team members after the fact can be time consuming and create duplication.

Finally, comments received from document reviews were another key part of the I-70 Mountain Corridor PEIS project file. In their reviews, CDOT and FHWA used a spreadsheet where comments and responses were entered. These spreadsheets can be used to track controversial topics and provide a history of how the document was finalized.

Once all the files were named correctly and converted to PDFs, a searchable project file using Adobe Acrobat was created. The consultant set up searchable indexes once the folder structure was determined. PDFs that were created from files that were not already PDFs were then added to the indexes. The consultant learned that it worked best if this process was done concurrently as the project progressed. Once PDF files are saved in their respective portfolios, the user can run searches on individual indexes. Some example screenshots are shown in **Figure 6-2**.

The consultant also built an index file. An index file allows searches on the entire project file. Having this capability enables CDOT or FHWA to compile an administrative record if the project is legally challenged and goes to litigation or to compile information for Tier 2 studies or public/agency requests.

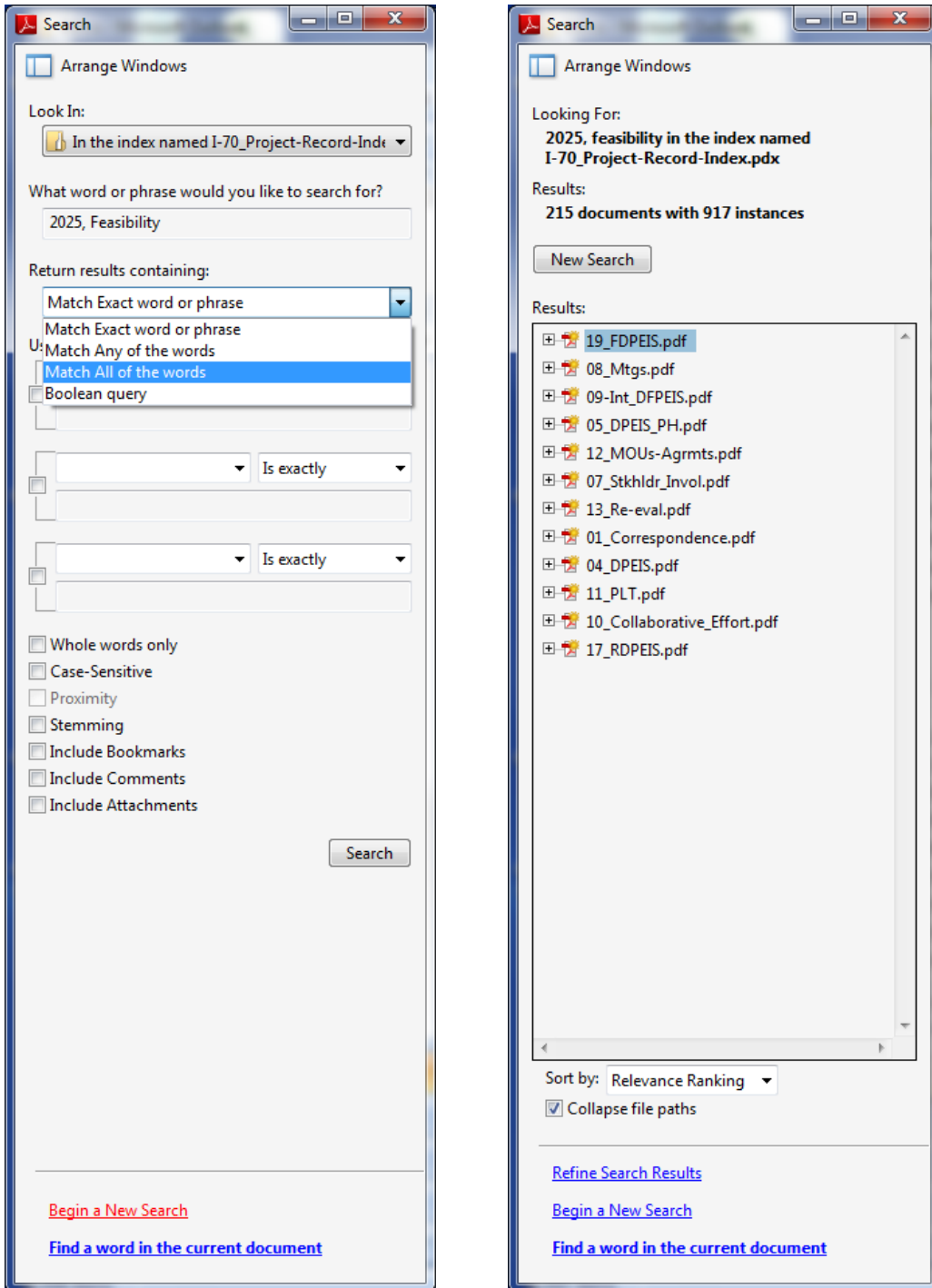
The index file allows the user to search independently of Adobe Reader or Adobe Acrobat. The user can choose the words or phrases for the search. The search results will display as a drop-down list in the Search dialog box with the file names and the number of instances where the key word is found within the searchable record. The user can then select the file/files that





he/she wants to open. The original source files (i.e. Word document, Xcel spreadsheets) for each PDF file are also saved as part of the project file.

Figure 6-2 Example Index File





6.16 Statute of Limitations

Section 1308 of MAP-21 established a 150-day limitation on claims on litigation for projects being implemented. The 150-day clock starts with Federal Register publication of a notice that a permit, license, or approval action is final.

The following language is standard language that should be included in all documents (typically on the reverse side of the signature page). This language is also presented in **Appendix F**.

The Federal Highway Administration may publish a notice in the Federal Register, pursuant to 23 United States Code (USC) § 139(1), once the Record of Decision (or Finding of No Significant Impact) is approved. If such notice is published, a claim arising under Federal law seeking judicial review of a permit, license, or approval issued by a Federal agency for a highway or public transportation capital project shall be barred unless it is filed within 150 days after publication of a notice in the Federal Register announcing that the permit, license, or approval is final pursuant to the law under which judicial review is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.





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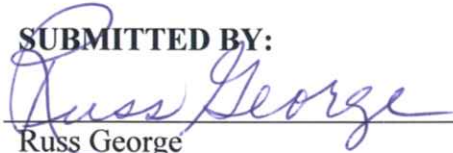
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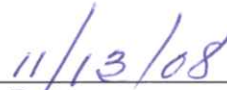
**COLORADO DEPARTMENT OF
TRANSPORTATION**

**Stakeholder Involvement Guidance
and
Public Involvement Plan**

SUBMITTED BY:



Russ George
Executive Director
Colorado Department of Transportation

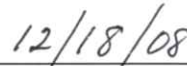


Date

APPROVED BY:



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Date



CHAPTER 7: STAKEHOLDER INVOLVEMENT GUIDANCE AND PUBLIC INVOLVEMENT PLAN

	<u>Page</u>
7.0 STAKEHOLDER INVOLVEMENT GUIDANCE AND PUBLIC INVOLVEMENT PLAN	7-1
7.1 Public Involvement Overview	7-1
7.1.1 Definition of Stakeholders	7-2
7.1.2 Tribal Sovereignty and Government-to-Government Consultations	7-2
7.1.3 Purpose for Public Involvement	7-3
7.2 Project Public Involvement Plan	7-4
7.2.1 Developing a Project Public Involvement Plan	7-5
7.2.2 Elements of the Public Involvement Plan	7-5
7.3 Required Elements for National Environmental Policy Act Compliance	7-6
7.3.1 Environmental Impact Statements (Class I)	7-6
7.3.2 Categorical Exclusions (Class II)	7-9
7.3.3 Environmental Assessments (Class III)	7-10
7.3.4 Reevaluations and Supplemental Actions	7-12
7.4 Public Involvement Documentation	7-13
7.4.1 Reasonable Accommodations Language	7-14
7.4.2 Public Hearing Requirements	7-14
7.4.3 Comment Forms	7-15
7.5 References	7-16

ATTACHMENT 1: Federal Regulations Related to Public Involvement for Transportation Planning and Project Development

ATTACHMENT 2: History of Public Involvement

ATTACHMENT 3: Additional Public Involvement Resources

ATTACHMENT 4: Steps for Developing a Project Public Involvement Plan

ATTACHMENT 5: Public Involvement Plan Development Worksheets

ATTACHMENT 6: Additional Public Involvement Techniques/Examples

ATTACHMENT 7: Sample Comment Form and Newspaper Notice

ATTACHMENT 8: Guidelines for Conducting Open Forum Public Meetings and Hearings





7.0 STAKEHOLDER INVOLVEMENT GUIDANCE AND PUBLIC INVOLVEMENT PLAN

This chapter provides guidance on public involvement and stated public involvement principles of CDOT for National Environmental Policy Act (NEPA) projects. It is intended to fulfill Federal Highway Administration (FHWA) requirements to submit a description of the public involvement component of plans, programs, and projects considered and undertaken by CDOT. It is not intended to cover public involvement requirements required by other state, federal, local, or Tribal laws and regulations. A listing of the more prominent federal requirements that may affect public involvement requirements on any given project can be found in **Attachment 1**.

This chapter outlines public involvement considerations for CDOT staff on all federal aid projects as updated because of regulation changes, refinement of requirements, and improvement in public involvement procedures that have been employed by CDOT. In keeping with CDOT's philosophy for public involvement, a similar process will be followed for all state-funded projects, as addressed in CDOT's Environmental Stewardship Guide and this Manual.

This chapter also presents guidance on public involvement activities expected to be implemented during the development of projects. This chapter replaces the *CDOT Procedures for Public Involvement and Participation in the Project Development and Environmental Analysis Process* (CDOT, 1995). A history of public involvement requirements is included in **Attachment 2**.

7.1 Public Involvement Overview

Public involvement is a process by which the influence of various stakeholders is organized in relationship to decision-making. Public involvement is a key component of the environmental review and project development process. Federal laws and regulations establish some basic requirements for public involvement but developing a public involvement process that is appropriate for the project and will lead to sustainable decisions requires careful planning and consideration. This often requires elements that go beyond the basic federal requirements.

Developing a public involvement plan for a project requires knowledge of the issues that could affect, or be affected by, a project as well as identifying and understanding the risks involved in making project decisions.



This chapter replaces the *CDOT Procedures for Public Involvement and Participation in the Project Development and Environmental Analysis Process* (CDOT, 1995).





Appropriate identification of internal and external stakeholders is part of this process. The influence of stakeholders in decision-making changes with the decisions being made, so the steps in the decision-making process change accordingly. A public involvement plan provides a framework for how stakeholders interact with the project and with decision-makers. While the plan is likely to evolve and change as circumstances dictate, a well developed public involvement plan will chart the path the Project team will take to ensure that all appropriate public involvement steps have been completed. Note that a public involvement plan is not the same as a coordination plan. **Chapter 4** contains more information on coordination plans.

7.1.1 Definition of Stakeholders

Stakeholders can be external or internal to CDOT and include the general public, businesses, governmental agencies, non-governmental organizations, CDOT Maintenance, and other interest groups who either have, or perceive they have, an interest in the outcome of a decision. Specific stakeholders may also be required by legislation or regulations and based on jurisdiction. These include low-income communities, minority communities, elderly, disabled, Native American Tribes, resource agencies and regulatory agencies.

7.1.2 Tribal Sovereignty and Government-to-Government Consultations

Consultation with Native American Tribes recognizes the government-to-government relationship between the US government and sovereign Tribal groups.

The US government and the State of Colorado have unique relationships with American Indian governments as set forth in the Constitution of the United States, treaties, statutes, court decisions, and executive orders and memoranda. These form the basis of cooperative relationships between the CDOT and its Tribal partners.

On April 29, 1994, a Presidential Memorandum was issued reaffirming the federal government's commitment to operate within a government-to-government relationship with federally recognized American Indian and Alaska Native Tribes, and to advance self-governance for such Tribes. The Presidential Memorandum directs each executive department and agency, to the greatest extent practicable and to the extent permitted by law, to consult with Tribal governments prior to taking actions that have substantial direct effects on federally recognized Tribal governments. In order to ensure that the rights of sovereign Tribal governments are fully respected, all such



Stakeholders include the general public; businesses; local, state, and federal governmental agencies; non-governmental agencies; citizen and community groups; civic and professional organizations; and other interest groups.





consultations are to be open and candid so that Tribal governments may evaluate for themselves the potential impact of relevant proposals.

On May 14, 1998, the President issued Executive Order 13084, *Consultation and Coordination with Indian Tribal Governments*, which was revoked and superseded on November 6, 2000, by the identically titled Executive Order 13175, which sets forth guidelines for all federal agencies to (1) establish regular and meaningful consultation and collaboration with Indian Tribal officials in the development of federal policies that have Tribal implications; (2) strengthen the US government-to-government relationships with Indian Tribes; and (3) reduce the imposition of unfunded mandates upon Indian Tribes.

Recognition of the independent sovereignty of Tribal governments includes the role of the Tribes in regulating impacts to resources on sovereign property, and in some cases for resources on non-sovereign lands. Mitigation for impacts to resources under the jurisdiction of the Tribal governments must be developed in coordination with the Tribal governments as an equal party to federal and state government.

7.1.3 Purpose for Public Involvement

Public involvement acknowledges people's desire to participate in decisions that they perceive or actually will affect them. It provides a managed process that encourages and supports stakeholders so that input into the decision-making process is meaningful and considers their values, interests and needs.

Both the public and the decision-maker need to fully comprehend the problems, opportunities, constraints, and the available options if a viable solution is to be found. By including multiple perspectives, public involvement develops a more thorough understanding of the scope of the issues and decisions as well as a better understanding of the impacts of the project.

Effective public involvement supports the development of sustainable decisions. It is based on the values of the stakeholders and Project team, focuses on the decision to be made, and addresses the goals established for the public involvement effort.

Sustainable decisions are ones that effectively balance economic viability, technical feasibility, environmental compatibility, and public acceptability. A sustainable decision is important because it results in the development of projects that:



Section 9.10 of this Manual discusses the Tribal consultation coordination activities completed for each NEPA document by CDOT EPB.



- ▶ Do not require significant redesign
- ▶ Are less likely to end up being litigated
- ▶ Are able to obtain all necessary permits
- ▶ Are financially responsible

Additionally, it is more likely that project decisions will continue to be applicable even if projects are not constructed immediately. By effectively involving stakeholders in a project's decision-making process, issues and opportunities are identified that might otherwise be missed. As a result, fewer issues are likely to arise after decisions are made. Non-sustainable decisions can result in the need for re-evaluation and result in time and money being lost to perform those activities.

Some areas in the project development process where public involvement can help develop sustainable decisions include:

- ▶ Definition of the project's purpose and need
- ▶ Development of key issues to be addressed in the NEPA process
- ▶ Agreement on the decision-making process and the roles and responsibilities of the different stakeholders in those decisions
- ▶ Key concerns and issues affecting alternative selection
- ▶ Mitigation needs and opportunities

7.2 Project Public Involvement Plan

Each project should have a public involvement strategy but a formal public involvement plan is mandatory for all Environmental Impact Statement (EIS) processes and recommended for other projects where there are complex issues. Depending on the type of NEPA document being prepared, there are specific legal requirements for public involvement that must be met. These specific requirements should be anticipated and included in the project public involvement plan and are outlined below in the required elements for NEPA compliance. In the case of smaller projects, the public involvement plan may include only basic information about how the general public will be alerted to the project, such as how any information about necessary detours or closures will be communicated. Additional resources for developing public involvement plans, tools, techniques, and other information can be found in **Attachment 3**.



All EIS projects require a public involvement plan. A public involvement strategy is recommended for other projects with complex issues.



7.2.1 Developing a Project Public Involvement Plan

In developing an effective public involvement plan the requirements for the coordination plan must be taken into consideration (Chapter 4). No set process is required but the following steps can be implemented:

1. Identify the key issues or decisions that are relevant to project decisions
2. Gain internal commitment
3. Learn from the stakeholders
4. Select the level of involvement
5. Identify how success will be evaluated
6. Define the decision process and participant objectives
7. Develop the final project public involvement plan

Each step has a series of activities intended to provide the structure that builds upon one another. By the conclusion, the Project team should have a clear plan in place for public involvement on the project. Detailed information on the steps above for developing a public involvement plan can be found in **Attachment 4** and **Attachment 5**. A variety of different tools and techniques for involving stakeholders are available. These tools and techniques include basic informational tools such as newsletters and bulletins, information gathering techniques like surveys and public meetings, and decision-making techniques. Examples of some tools used by CDOT projects are included in **Attachment 6**. Information on a variety of different tools and techniques can be found in the Public Participation toolbox available through the International Association for Public Participation Website and through other websites listed in the **Attachment 3**.

The steps presented in this section are one method for developing an effective public involvement plan and are based on the International Association for Public Participation: Planning for Effective Public Participation.

The International Association for Public Participation: Planning for Effective Public Participation's website <http://www.iap2.org/>

7.2.2 Elements of the Public Involvement Plan

The public involvement plan should include

- ▶ Public involvement tools and techniques intended to be used by the project as well as the stakeholders identified
- ▶ Timeline demonstrating when particular public involvement activities will take place and how they relate to the project development process





- ▶ Evaluation criteria that the Project team will be using to determine how effective the public involvement activities were in accomplishing the objectives

If the project is required to have a coordination plan under the Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) (SAFETEA-LU, 23 USC § 1001 - 11167), the public involvement plan can include these activities as well. This is recommended as it will help demonstrate how other stakeholders relate to discussions and decisions with resource and regulatory agencies.

7.3 *Required Elements for National Environmental Policy Act Compliance*

7.3.1 Environmental Impact Statements (Class I)

Chapter 4 discusses the process and procedures for the EIS class of action (Class I). When the notice of intent (NOI) to conduct an EIS is prepared for the Federal Register, an advertisement is also placed in local newspapers and publications to reach as many people as possible, including minorities and low-income and traditionally under-served segments of the population, such as the elderly, persons with disabilities, and those without access to transportation. The advertisements typically include the following information:

- ▶ Category of NEPA document and a general description of the project,
- ▶ Date and location of the first public meeting,
- ▶ Invitation to place names on the project mailing list,
- ▶ Information required to comply with the public involvement requirements of other laws, regulations, or Executive Orders, and
- ▶ Statement that reasonable accommodation will be provided at public meetings and hearings for persons with disabilities, and translators will be provided if necessary (Section 7.4.1).

An example advertisement is included in **Attachment 7**.

As the project progresses, the Project team adds names to the mailing list and notifies those on the list of meetings, workshops, and new developments. The list typically includes federal and state agencies, local officials, regional transportation planning entities, citizen advisory groups, neighborhood/community groups, civic and professional organizations, property owners, and other interested citizens. The Project team should





work to ensure that the mailing list includes minority, low-income, and other under-served groups.

The Project team must also notify federal land management agencies, adjacent states, and any other agencies responsible for resources protected by federal, state, and local laws if land or resources under their jurisdiction may be impacted by the project. This also includes Tribal governments (Section 7.1.2), as applicable.

CDOT must contact the appropriate local, state, and federal agencies and the general public to gain their assistance in developing the purpose and need, identification of all reasonable alternatives, evaluation of the likely project impacts, and identification of possible mitigation measures. All federal, state, and local agencies that are expected to have permit approval or right-of-way transfer responsibilities are requested to be cooperating agencies or participating agencies, and their responsibilities are outlined during this scoping process. Additional information on agency scoping is provided in Chapter 4. A primary aim of this early coordination is to identify all applicable federal and state regulatory requirements so all necessary environmental studies, analyses, consultation, and permit coordination requirements can be incorporated into the NEPA compliance process.

Early in the development of the project, the Project team must hold at least one public scoping meeting. Notice of the meeting is sent to all individuals and agencies on the mailing list. Fliers can also be distributed and announcements posted in local papers, at local businesses and community gathering places. At the public meeting, those attending are provided with the following information if it is available:

- ▶ Need for the project
- ▶ CDOT's objectives for the project
- ▶ Project's relationship to regional and statewide transportation plans
- ▶ Potential need to acquire additional right-of-way
- ▶ Potential requirement to relocate residences or businesses
- ▶ Anticipated resources of concern

Agency representatives and members of the public are encouraged to comment on the proposed project's purpose and need, alternatives, and its social, economic, and environmental impacts. The CDOT Region then considers these comments as it develops and evaluates alternative solutions for the identified transportation problem(s). One or more subsequent meetings may be held to resolve as many issues as possible before





completion of a Draft EIS, or the Project team may decide to hold a series of meetings or workshops with various groups to explain specific aspects of the project and gain input on issues of concern.

Additional measures are required to reach minority, low-income, and traditionally under-served groups such as the elderly, persons with disabilities, and those without access to transportation. These measures supplement the public involvement activities described above. These additional activities could include:

- ▶ Providing information about the project in foreign languages
- ▶ Making information available at locations such as churches, community centers, and schools
- ▶ Holding meetings within the communities at familiar locations
- ▶ Asking to be included on the agendas of regularly scheduled community or neighborhood meetings
- ▶ Providing translators at public meetings

Examples of other successful public involvement techniques that have been completed by CDOT Regions are included in **Attachment 6**.

As soon as the Draft EIS is approved by FHWA, it is circulated for public and agency review. FHWA distributes copies to appropriate federal agencies and transmits copies to the Environmental Protection Agency for publication of availability in the Federal Register. The Project team announces the document's availability in the newspapers and minority publications previously identified. These announcements must indicate where the document and explanatory information are available, give the date and location of the public hearing, request comments on the Draft EIS, indicate how to submit comments, and include any information necessary to comply with the public involvement requirements of other laws, regulations, and Executive Orders applicable to the project. The Draft EIS is made available at local sites such as libraries and municipal buildings, CDOT Region and Headquarters offices, FHWA, and at the public hearing described below.

Public hearings must be held for all EISs following the distribution of the Draft EIS. The date of the first required hearing must be at least 15 days after the notice of availability (NOA) of the Draft EIS is published in the Federal Register. The Draft EIS must be available for public review at CDOT Region and Headquarters offices and at FHWA for a minimum of 15 days before the hearing and for a total period of at least 45 days. This time frame may be extended if circumstances warrant.





The public hearing offers the public the opportunity to comment on the Draft EIS, the alternatives under consideration, and the anticipated impacts. Those attending have the opportunity to make written comments or to make an oral statement, which must be recorded verbatim. Translators should be provided so that everyone can be involved and provide comments.

Written comments received during the review period and at the hearing and a certified transcript of any verbal comments made for the record at the hearing are provided to FHWA. They become part of the project record and are addressed in the Final EIS or included in the Record of Decision (ROD).

In addition to copies of the Draft EIS, the following information is made available at the hearing:

- ▶ Purpose and need for the project and consistency with statewide, regional, and local planning
- ▶ Major design features (i.e. number of lanes, access control, bridges, interchanges, right-of-way requirements)
- ▶ Figure and description of each alternative and summary of its advantages and disadvantages
- ▶ Social, economic, and environmental impacts of each alternative,
- ▶ Avoidance, minimization, and mitigation measures under consideration as well as all enhancement measures
- ▶ Approximate timetable for the project
- ▶ Right-of-way acquisition procedures, relocation assistance, and payment programs
- ▶ Explanation of the FHWA - CDOT relationship
- ▶ Source and amount of funding available and the staged funding plan, if applicable
- ▶ Information required to comply with other laws, regulations, and Executive Orders
- ▶ Procedures for making written or oral comments for the record

Comments received during the hearings must be responded to in the Final EIS.

7.3.2 Categorical Exclusions (Class II)

Each Categorical Exclusion (CatEx) project is given specific consideration by the CDOT Region Planning and Environmental Manager (RPEM) and FHWA at the time it is categorized to identify any special aspects of the





project which might require coordination with interested groups, agencies, or individuals. **Chapter 5** discusses the process and procedures for the CatEx class of action (Class II).

While most CatExs will not require any specific public involvement procedures, the opportunity for a public meeting or other public involvement activities may need to be offered for some CatExs as determined by FHWA and CDOT. In these situations, the Project team places an advertisement in local newspapers, and where possible, in publications that serves minorities and low-income populations and traditionally underserved segments of the population, announcing the date and location for the meeting. The announcement should be advertised at least 10 days prior to the hearing and the announcement must include the following information:

- ▶ Category of NEPA document and a general description of the project
- ▶ Date and location of the public meeting
- ▶ Information required to comply with the public involvement requirements of other laws, regulations, or Executive Orders applicable to the project
- ▶ Statement that reasonable accommodations will be provided at public meetings and hearings for persons with disabilities and that translators will be provided if necessary

An example meeting notice is included in **Attachment 7**. At the conclusion of the public meeting, the Project team prepares a memorandum for the record which includes a description of the project, a transcript of any testimony presented at the meeting, responses to oral and written comments made by the public or involved agencies up to 10 days following the meeting, and a decision on the appropriateness of the CatEx categorization.

7.3.3 Environmental Assessments (Class III)

Public involvement procedures for an Environmental Assessment (EA) are similar to those required for an EIS. However, the process is more flexible, in order to focus on those issues of true concern or controversy. **Chapter 6** discusses the process and procedures for the EA class of action (Class III).

After categorization, the Project team may place an advertisement announcing the project in local newspapers, and where possible, in publications that serve minorities, low-income populations, and other traditionally under-served segments of the population. When placed, these advertisements should include the following information:





- ▶ Category of NEPA document and a general description of the project
- ▶ Date and location of the first public meeting or hearing, if scheduled
- ▶ Invitation to be added to the project mailing list
- ▶ Information required to comply with the public involvement requirements of other laws, regulations, or Executive Orders applicable to the project
- ▶ Statement that reasonable accommodations will be provided at public meetings and hearings for persons with disabilities and that translators will be provided if necessary

An example meeting notice is included in **Attachment 7**.

As the EA progresses, the Project team adds names to the mailing list and notifies those on the list of meetings, workshops, and new developments. The mailing list includes federal and state agencies, local officials, regional transportation planning entities, citizen advisory groups, neighborhood and community groups, civic and environmental organizations, affected property owners, and interested citizens. Minority, low-income, and other underserved groups should be included on the mailing list.

If land or resources under their jurisdiction may be impacted by the project, the Project team must also notify federal land management agencies, adjacent states, and agencies responsible for resources protected by federal, state, and local laws. This includes Tribal governments (**Section 7.1.2**), as applicable.

The CDOT Region uses information gained in the Statewide Transportation Planning and Programming process and through project coordination with the public, neighborhood/community groups, and other groups and agencies to gain information on the social, economic, and environmental impacts that are likely to result from the project.

Public hearings are not mandatory for EAs, but public meetings or other activities are recommended. The decision on whether or not to hold public meetings is made by the CDOT Region Transportation Director (RTD), in consultation with the RPEM and FHWA, and is based on the interest expressed by the public, the complexity of the project, the amount of right-of-way to be acquired, and the number of relocations anticipated on the project and the requirements of 23 CFR 771.111 (h) (FHWA and Federal Transit Administration [FTA], 23 CFR 771 § 771.101 – 771.131).





Public meetings are the responsibility of the CDOT Region. However, the Region may ask Headquarters staff personnel or representatives from other agencies to attend, based on their areas of expertise. Notice of the meetings is provided to everyone on the project mailing list. Other public involvement tools, such as workshops, charrettes, or topic discussions may be used in addition to the public meetings.

The Project team considers all information gathered through environmental studies, inter-agency coordination, and public involvement activities to prepare the EA. The document includes a summary of public involvement activities and the results of coordination with other agencies. Upon completion, the Project team announces the availability of the EA and offers the opportunity for a public hearing in newspaper advertisements, press releases and other means, as appropriate. The NOA invites comments, offers the opportunity to request a hearing, and includes any information necessary to comply with the public involvement requirements of other laws, regulations, and Executive Orders. If a public hearing is requested by only a few individuals or agencies, a meeting with the interested parties may be held in lieu of a public hearing.

The EA is made available at local sites, CDOT Region and Headquarters offices, FHWA, and at the public hearing, if one is held. The CDOT Region sends copies of the EA to all parties who have requested it and sends copies of the NOA to affected units of the federal, state, and local governments and to all parties on the mailing list. The EA must be available for a minimum of 15 days before the hearing, and comments must be accepted for a total of at least 30 days. If a public hearing is not held, the document is made available for comments for a minimum of 30 days.

If a public hearing is held, it is conducted in the same manner as a hearing for an EIS. Comments received during the review period and at the hearing are addressed, and the comments and responses are incorporated into the Finding of No Significant Impact (FONSI). Notice of the availability of the FONSI is sent to affected agencies of government and the document is made available to the public, upon request. If the completion of the EA leads to a decision to prepare an EIS, the reasons underlying this decision should be included in the NOI to prepare a Draft EIS.

7.3.4 Reevaluations and Supplemental Actions

Where a reevaluation or supplemental action is necessary, public involvement steps are determined by the CDOT Region and CDOT Environmental Programs Branch, in consultation with FHWA.





7.4 *Public Involvement Documentation*

Documentation is critical to the overall public involvement process and to demonstrate that the letter and spirit of laws and regulations requiring public involvement were followed. When public involvement activities take place, documentation of the activities, the participants, and the results of the activities as well as any follow up activities that may be necessary is required as part of the project file. Documentation should be prepared as quickly after the activity as possible. Some events, such as formal public hearings, require specific documentation activities that must be followed.

Basic documentation that should be collected for all public involvement activities which become part of the project administrative record includes:

- ▶ Advertisements used for activity/event
- ▶ Participant sign-in sheets
- ▶ Copies of handouts
- ▶ Documentation of displays or exhibits used
- ▶ Documentation of the discussions, comments, questions, and oral or written responses
- ▶ All correspondences and acknowledgements/responses
- ▶ Purpose for event/activity

Primary issues identified as well as the purpose for each public involvement activity should be documented. The majority of this documentation will become part of the project file and the administrative record for the project, but need not be included within the NEPA document itself or its appendices.

Documentation in the NEPA document should:

- ▶ Identify goals and objectives for the public involvement
- ▶ Identify public involvement tools, techniques, and activities including the intended purpose, what was achieved, and the effect of the public involvement activities on the decision-making process
- ▶ Identify a timeline for activities required for the NEPA process such as the NOI, NOA of the document, public hearing dates, and public comment periods
- ▶ Include responses to public comments for the Final EIS and FONSI. If additional comments were accepted after the Final EIS, response to those comments must be included in the ROD





7.4.1 Reasonable Accommodations Language

In order to accommodate all members of the public, including those with disabilities, access to public information and public meeting venues will be in accordance with the Americans with Disabilities Act of 1990 (ADA) and other statutory regulations. According to the ADA, no qualified individual with a disability shall, by reason of such disability, be excluded from involvement in or be denied the benefits of services, programs, or activities of a public entity, or be subjected to discrimination by any such entity. All events held for projects receiving federal funds and that are open to the general public must be made accessible to everyone including persons with sight, hearing or mobility disabilities. Special effort will be made to ensure involvement by the disability community. Public notices and other notification about public meetings must inform the public of how to ask for reasonable accommodations.

7.4.2 Public Hearing Requirements

As detailed above, when a public hearing is held for a project, a transcript of the hearing must be taken. The format of the public hearing varies and could be an open house format and/or a formal presentation. The NEPA document must be available for review at the public hearing and for at least 15 days prior to the public hearing. Opportunities for the public to provide comments in addition to the transcriber should be available. This usually is in the form of comment sheets that can be submitted at the public hearing or mailed back at a later date. Depending on the constituency, a translator may be necessary. Information regarding the project should be presented and should include, but is not limited to, project purpose and need, alternatives, including the Preferred Alternative if one has been identified, impacts and mitigation associated with the project, and any other pertinent information. This information is often presented as boards that are displayed around the room, but other visual-aid medium may also be used especially if a formal presentation is given. The NOA of the document for review should include the day, time and location of the public hearing and how and to whom comments should be submitted.

Public Hearings are different from public meetings. Public hearings are formal events for soliciting public input and occur as specified times in the NEPA process and are open to anyone to attend. Public meetings may occur at any time in the process, can be less formal, and may be targeted to specific stakeholders or topics. Guidelines for conducting open forum public meetings and hearings can be found in **Attachment 8**.



ADA Public Notice Sample Language

“Meeting locations are ADA accessible. Reasonable accommodations for participation in this event will be made upon request, including those for disabilities and translation services.”





7.4.3 Comment Forms

Comment forms should be provided at every public meeting and public hearing. They should include the address and contact person for return by mail. Comment forms can also be available on a project website. If a large number of comments are expected or are received, a comment tracking form is a useful tool, especially for larger and more controversial projects with high public involvement. A sample comment form is included in **Attachment 7**.





7.5 References

Colorado Department of Transportation (CDOT). 1995. CDOT Procedures for Public Involvement and Participation in the Project Development and Environmental Analysis Process. March.

Federal Highway Administration (FHWA)/Federal Transit Administration (FTA). 1987 as amended in 2005. Environmental Impact and Related Procedures. 23 Code of Federal Regulations (CFR) 771 § 771.101 – 771.131. Retrieved August 2008 from <http://environment.fhwa.dot.gov/projdev/imp771pream.asp>.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). 2005. 23 USC § 1001 - 11167. Retrieved July 2008 from <http://www.fhwa.dot.gov/safetealu/index.htm>.





ATTACHMENT 1: FEDERAL REGULATIONS RELATED TO PUBLIC INVOLVEMENT FOR TRANSPORTATION PLANNING AND PROJECT DEVELOPMENT

Federal Laws and Regulations

United States Code (USC) (<http://uscode.house.gov/search/criteria.shtml>)

Title 23 Highways

- ▶ 23 USC 134: Metropolitan Transportation Planning
- ▶ 23 USC 135: Statewide Planning
- ▶ 23 USC 128: Public Hearings

Title 33 Navigation and Navigable Waters

Title 42 The Public Health and Welfare

SAFETEA LU codification

Code of Federal Regulations (CFR) (<http://www.gpoaccess.gov/cfr/index.html>)

- ▶ 23 CFR 450: Highways, Planning Assistance and Standards (Metropolitan and State)
- ▶ 23 CFR 771: The policies and procedures of FHWA for implementing the National Environmental Policy Act of 1969 as amended (NEPA)
- ▶ 40 CFR 1500 through 1508: Regulations of the Council on Environmental Quality
- ▶ 23 CFR 772: Procedures for Abatement of Highway Traffic Noise and Construction Noise
- ▶ 23 CFR 740: Relocation Assistance
- ▶ 49 CFR 24: Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs
- ▶ 40 CFR 51: Requirements for Preparation, Adoption, and Submittal of Implementation Plans
- ▶ 40 CFR 93: Determining Conformity of Federal Actions to State or Federal Implementation Plans
- ▶ 36 CFR 800: Protection of Historic Properties





Source	Citation
PROJECT DEVELOPMENT – DESIGN CRITERIA	
23 USC 109	<p>(c) Design Criteria for National Highway System. –</p> <p>(1) A design for new construction, reconstruction, resurfacing (except for maintenance resurfacing), restoration, or rehabilitation of a highway on the National Highway System may take into account, --</p> <p>(A) the constructed and natural environment of the area;</p> <p>(B) the environmental, scenic, aesthetic, historic, community, and preservation impacts of the activity; and</p> <p>(C) access for other modes of transportation.</p> <p>(h) the Secretary shall submit to Congress, and promulgate guidelines designed to assure that possible adverse economic, social, and environmental effects relating to any proposed project on any federal-aid system have been fully considered. and that the final decisions on the project are made in the best overall public interest, taking into consideration the need for fast, safe and efficient transportation, public services, and the costs of eliminating or minimizing such adverse effects and the following:</p> <p>(1) air, noise, and water pollution;</p> <p>(2) destruction or disruption of man-made and natural resources, aesthetic values, community cohesion and the availability of public facilities and services;</p> <p>(3) adverse employment effects, and tax and property values losses;</p> <p>(4) injurious displacement of people, businesses and farms; and</p> <p>(5) disruption of desirable community and regional growth.</p>
PROJECT DEVELOPMENT – NEPA	
SAFETEA-LU	<p>6002(f) Purpose and Need.--</p> <p>(1) Participation.--As early as practicable during the environmental review process, the lead agency shall provide an opportunity for involvement by participating agencies and the public in defining the purpose and need for a project.</p> <p>6002(f)(4)(A) Participation.--As early as practicable during the environmental review process, the lead agency shall provide an opportunity for involvement by participating agencies and the public in determining the range of alternatives to be considered for a project.</p> <p>6002 (g) Coordination and Scheduling.--</p> <p>(1) Coordination plan.--</p> <p>(A) In general.--The lead agency shall establish a plan for coordinating public and agency participation in and comment on the environmental review process for a project or category of projects. The coordination plan may be incorporated into a memorandum of understanding.</p> <p>(B) Schedule.--</p> <p>(i) In general.--The lead agency may establish as part of the coordination plan, after consultation with each participating agency for the project and with the state in which the project is located (and, if the state is not the project sponsor, with the project sponsor), a schedule for completion of the environmental review process for the project.</p> <p>(ii) Factors for consideration.--In establishing the schedule, the lead agency shall consider factors such as—</p> <p>(i) the responsibilities of participating agencies under applicable laws;</p>





Source	Citation
	<ul style="list-style-type: none"> (ii) resources available to the cooperating agencies; (iii) overall size and complexity of the project; (iv) the overall schedule for and cost of the project; and (v) the sensitivity of the natural and historic resources that could be affected by the project. <p>(C) Consistency with other time periods.--A schedule under subparagraph (B) shall be consistent with any other relevant time periods established under federal law.</p> <p>(D) Modification.--The lead agency may--</p> <ul style="list-style-type: none"> (i) lengthen a schedule established under subparagraph (B) for good cause; and (ii) shorten a schedule only with the concurrence of the affected cooperating agencies. <p>(E) Dissemination.--A copy of a schedule under subparagraph (B), and of any modifications to the schedule, shall be--</p> <ul style="list-style-type: none"> (i) provided to all participating agencies and to the state transportation department of the state in which the project is located (and, if the state is not the project sponsor, to the project sponsor); and (ii) made available to the public. <p>(2) Comment deadlines.--The lead agency shall establish the following deadlines for comment during the environmental review process for a project:</p> <p>(A) For comments by agencies and the public on a draft environmental impact statement, a period of not more than 60 days after publication in the Federal Register of notice of the date of public availability of such document, unless--</p> <ul style="list-style-type: none"> (i) a different deadline is established by agreement of the lead agency, the project sponsor, and all participating agencies; or (ii) the deadline is extended by the lead agency for good cause. <p>(B) For all other comment periods established by the lead agency for agency or public comments in the environmental review process, a period of no more than 30 days from availability of the materials on which comment is requested, unless--</p> <ul style="list-style-type: none"> (i) a different deadline is established by agreement of the lead agency, the project sponsor, and all participating agencies; or (ii) the deadline is extended by the lead agency for good cause. <p>(3) Deadlines for decisions under other laws.--In any case in which a decision under any federal law relating to a project (including the issuance or denial of a permit or license) is required to be made by the later of the date that is 180 days after the date on which the Secretary made all final decisions of the lead agency with respect to the project, or 180 days after the date on which an application was submitted for the permit or license, the Secretary shall submit to the Committee on Environment and Public Works of the Senate and the Committee on Transportation and Infrastructure of the House of Representatives--</p> <ul style="list-style-type: none"> (A) as soon as practicable after the 180-day period, an initial notice of the failure of the federal agency to make the decision; and (B) every 60 days thereafter until such date as all decisions of the federal agency relating to the project have been made by the federal agency, an additional notice that describes the number of decisions of the federal agency that remain outstanding as of the date of the additional notice. <p>(4) Involvement of the public.--Nothing in this subsection shall reduce any time period provided for public comment in the environmental review process under existing federal law, including a</p>





Source	Citation
	regulation. (h) Issue Identification and Resolution.-- (1) Cooperation.--The lead agency and the participating agencies shall work cooperatively in accordance with this section to identify and resolve issues that could delay completion of the environmental review process or could result in denial of any approvals required for the project under applicable laws. (2) Lead agency responsibilities.--The lead agency shall make information available to the participating agencies as early as practicable in the environmental review process regarding the environmental and socioeconomic resources located within the project area and the general locations of the alternatives under consideration. Such information may be based on existing data sources, including geographic information systems mapping.
23 CFR 771	The policies and procedures of the FHWA and UMTA for implementing the National Environmental Policy Act of 1969 as amended (NEPA), and the regulation of the Council on Environmental Quality (CEQ), 40 CFR parts 1500 through 1508 and Department of Transportation (DOT) requirements under NEPA for the processing of highway and urban mass transportation projects.
23 CFR 771.105	It is the policy of the Administration that: (a) To the fullest extent possible, all environmental investigations, reviews, and consultations be coordinated as a single process, and compliance with all applicable environmental requirements be reflected in the environmental document required by this regulation. (b) Alternative courses of action be evaluated and decisions be made in the best overall public interest based upon a balanced consideration of the need for safe and efficient transportation; of the social, economic, and environmental impacts of the proposed transportation improvement; and of national, State, and local environmental protection goals. (c) Public involvement and a systematic interdisciplinary approach be essential parts of the development process for proposed actions. (f) No person, because of handicap, age, race, color, sex, or national origin, be excluded from participating in, or denied benefits of, or be subject to discrimination under any Administration program or procedural activity required by or developed pursuant to this regulation.
23 CFR 771.111	Early coordination, public involvement, and project development. (a) Early coordination with appropriate agencies and the public aids in determining the type of environmental document an action requires, the scope of the document, the level of analysis, and related environmental requirements. This involves the exchange of information from the inception of a proposal for action to preparation of the environmental document. (h) For the federal-aid highway program: (1) Each state must have procedures approved by the FHWA to carry out a public involvement/public hearing program pursuant to 23 U.S.C.128 and 40 CFR parts 1500 through 1508. (2) State public involvement/public hearing procedures must provide for: (i) Coordination of public involvement activities and public hearings with the entire NEPA process. (ii) Early and continuing opportunities during project development for the public to be involved in the identification of social, economic, and environmental impacts, as well as impacts associated with relocation of individuals, groups, or institutions. (iii) One or more public hearings or the opportunity for hearing(s) to be held by the state highway agency at a convenient time and place for any federal-aid projects which





Source	Citation
	<p>requires significant amounts of right-of-way, substantially changes the layout or functions of connecting roadways or of the facility being improved, has a substantial adverse impact on abutting property, otherwise has a significant social, economic, environmental or other effect, or for which the FHWA determines that a public hearing is in the public interest.</p> <p>(iv) Reasonable notice to the public of either a public hearing or the opportunity for a public hearing. Such notice will indicate the availability of explanatory information. The notice shall also provide information required to comply with public involvement requirements of other laws, Executive orders, and regulations.</p> <p>(v) Explanation at the public hearing of the following information, as appropriate:</p> <p>(A) The project's purpose, need, and consistency with the goals and objectives of any local urban planning,</p> <p>(B) The project's alternatives, and major design features,</p> <p>(C) The social, economic, environmental, and other impacts of the project,</p> <p>(D) The relocation assistance program and the right-of-way acquisition process.</p> <p>(E) The state highway agency's procedures for receiving both oral and written statements from the public.</p> <p>(vi) Submission to the FHWA of a transcript of each public hearing and a certification that a required hearing or hearing opportunity was offered. The transcript will be accompanied by copies of all written statements from the public, both submitted at the public hearing or during an announced period after the public hearing.</p> <p>(3) Based on the reevaluation of the project environmental documents the FHWA and the state highway agency will determine whether changes in the project or new information warrant additional public involvement.</p> <p>(i) Applicants for capital assistance in the UMTA program achieve public participation on proposed projects by holding public hearings and seeking input from the public through the scoping process for environmental documents. For projects requiring EISs, a public hearing will be held during the circulation period of the draft EIS. For all other projects, an opportunity for public hearings will be afforded with adequate prior notice, and such hearings will be held when anyone with a significant social, economic, or environmental interest in the matter requests it. Any hearing on the action must be coordinated with the NEPA process to the fullest extent possible.</p>
23 CFR 771.113	<p>Timing of Administration activities.</p> <p>(a) The Administration in cooperation with the applicant will perform the work necessary to complete a FONSI or an EIS and comply with other related environmental laws and regulations to the maximum extent possible during the NEPA process. This work includes environmental studies, related engineering studies, agency coordination and public involvement. However, final design activities, property acquisition, purchase of construction materials or rolling stock, or project construction shall not proceed until</p> <p>(2) For actions proposed for FHWA funding, the FHWA Division Administrator has received and accepted the certifications and any required public hearing transcripts required by 23 U.S.C. 128;</p>





Source	Citation
23 CFR 771.119	<p>Environmental Assessments.</p> <p>(b) For actions that require an EA, the applicant, in consultation with the Administration, shall, at the earliest appropriate time, begin consultation with interested agencies and others to advise them of the scope of the project and to achieve the following objectives: determine which aspects of the proposed action have potential for social, economic, or environmental impact; identify alternatives and measures which might mitigate adverse environmental impacts; and identify other environmental review and consultation requirements which should be performed concurrently with the EA. The applicant shall accomplish this through an early coordination process (i.e., procedures under §771.111) or through a scoping process. Public involvement shall be summarized and the results of agency coordination shall be included in the EA.</p> <p>(d) The EA need not be circulated for comment but the document must be made available for public inspection at the applicant's office and at the appropriate Administration field offices in accordance with paragraphs (e) and (f) of this section. Notice of availability (NOA) of the EA, briefly describing the action and its impacts shall be sent by the applicant to the affected units of federal, state and local government. Notice shall also be sent to the state intergovernmental review contacts established under Executive Order 12372.</p> <p>(e) When a public hearing is held as part of the application for federal funds, the EA shall be available at the public hearing and for a minimum of 15 days in advance of the public hearing. The notice of the public hearing in local newspapers shall announce the availability of the EA and where it may be obtained or reviewed. Comments shall be submitted in writing to the applicant or the Administration within 30 days of the availability of the EA unless the Administration determines, for good cause, that a different period is warranted. Public hearing requirements are as described in § 771.111.</p> <p>(f) When a public hearing is not held, the applicant shall place a notice in a newspaper(s) similar to a public hearing notice and at a similar stage of development of the action, advising the public of the availability of the EA and where information concerning the action may be obtained. The notice shall invite comments from all interested parties. Comments shall be submitted in writing to the applicant or the Administration within 30 days of the publication of the notice unless the Administration determines, for good cause, that a different period is warranted.</p> <p>(g) If no significant impacts are identified, the applicant shall furnish the administration a copy of the revised EA, as appropriate; the public hearing transcript, where applicable; copies of any comments received and responses thereto; and recommend a FONSI.</p> <p>(h) When the Administration expects to issue a FONSI for an action described in §771.115(a) copies of the EA shall be made available for public review (including the affected units of government) for a minimum of 30 days before the Administration makes its final decision. This public availability shall be announced by a notice similar to a public hearing notice.</p>
23 CFR 771.121	<p>Findings of No Significant Impact.</p> <p>(b) After a FONSI has been made by the Administration, a NOA of the FONSI shall be sent by the applicant to the affected units of federal, state and local government and the document shall be available from the applicant and the Administration upon request by the public.</p>
23 CFR 771.123	<p>Draft Environmental Impact Statements.</p> <p>(a) When the decision has been made by the Administration to prepare an EIS, the Administration will issue a notice of intent (NOI) (40 CFR 1508.22) for publication in the Federal Register. Applicants are encouraged to announce the intent to prepare an EIS by appropriate means at the local level.</p> <p>(b) The scoping process will be used to identify the range of alternatives and impacts and the significant issues to be addressed in the EIS and to achieve the other objectives of 40 CFR 1501.7. For FHWA,</p>





Source	Citation
	<p>scoping is normally achieved through public and agency involvement procedures required by §771.111. For UMTA, scoping is achieved by soliciting agency and public responses to the action by letter or by holding scoping meetings. If a scoping meeting is to be held, it should be announced in the Administration's NOI and by appropriate means at the local level.</p> <p>(f) A lead, joint lead, or a cooperating agency shall be responsible for printing the EIS. The Initial printing of the draft EIS shall be in sufficient quantity to meet requirements for copies which can reasonably be expected from agencies, organizations, and individuals. Normally, copies will be furnished free of charge. However, with Administration concurrence, the party requesting the draft EIS may be charged a fee which is not more than the actual cost of reproducing the copy or may be directed to the nearest location where the statement may be reviewed.</p> <p>(g) The draft EIS shall be circulated for comment by the applicant on behalf of the Administration. The draft EIS shall be made available to the public and transmitted to agencies for comment no later than the time the document is filed with the Environmental Protection Agency in accordance with 40 CFR 1506.9. The draft EIS shall be transmitted to:</p> <ol style="list-style-type: none"> (1) Public officials, interest groups, and members of the public known to have an interest in the proposed action or the draft EIS; (2) Federal, state and local government agencies expected to have jurisdiction or responsibility over, or interest or expertise in, the action. <p>(h) The UMTA requires a public hearing during the circulation period of all draft EISs. FHWA public hearing requirements are as described in §771.111(h). Whenever a public hearing is held, the draft EIS shall be available at the public hearing and for a minimum of 15 days in advance of the public hearing. The availability of the draft EIS shall be mentioned, and public comments requested, in any public hearing notice and at any public hearing presentation. If a public hearing on an action proposed for FHWA funding is not held, a notice shall be placed in a newspaper similar to a public hearing notice advising where the draft EIS is available for review, how copies may be obtained, and where the comments should be sent.</p> <p>(i) The Federal Register public availability notice (40 CFR 1506.10) shall establish a period of not less than 45 days for the return of comments on the draft EIS. The notice and the draft EIS transmittal letter shall identify where comments are to be sent.</p>
23 CFR 771.125	<p>Final Environmental Impact Statements.</p> <p>(a)(1) After circulation of a draft EIS and consideration of comments received, a final EIS shall be prepared by the Administration in cooperation with the applicant or, where permitted by law, by the applicant with appropriate guidance and participation by the Administration. The final EIS shall identify the preferred alternative and evaluate all reasonable alternatives considered. It shall also discuss substantive comments received on the draft EIS and responses thereto, summarize public involvement, and describe the mitigation measures that are to be incorporated into the proposed action.</p> <p>(f) The initial printing of the final EIS shall be in sufficient quantity to meet the request for copies which can be reasonably expected from agencies, organizations, and individuals. Normally, copies will be furnished free of charge. However, with Administration concurrence, the party requesting the final EIS may be charged a fee which is not more than the actual cost of reproducing the copy or may be directed to the nearest location where the statement may be reviewed.</p> <p>(g) The final EIS shall be transmitted to any persons, organizations, or agencies that made substantive comments on the draft EIS or requested a copy, no later than the time the document is filed with EPA. In the case of lengthy documents, the agency may provide alternative circulation processes in</p>





Source	Citation
	<p>accordance with 40 CFR 1502.19. The applicant shall also publish a NOA in local newspapers and make the final EIS available through the mechanism established pursuant to DOT Order 4600.13 which implements Executive Order 12372. When filed with EPA, the final EIS shall be available for public review at the applicant's offices and at appropriate Administration offices. A copy should also be made available for public review at institutions such as local government offices, libraries, and schools, as appropriate.</p>
23 CFR 771.127	<p>Record of Decision.</p> <p>(a) The Administration will complete and sign a record of decision (ROD) no sooner than 30 days after publication of the final EIS notice in the Federal Register or 90 days after publication of a notice for the draft EIS, whichever is later.</p> <p>(b) If the Administration subsequently wishes to approve an alternative which was not identified as the preferred alternative but was fully evaluated in the final EIS, or proposes to make substantial changes to the mitigation measures of findings discussed in the ROD, a revised ROD shall be subject to review by those Administration offices which reviewed the final EIS. To the extent practicable the approved revised ROD shall be provided to all persons, organizations, and agencies that received a copy of the final EIS pursuant to §771.125(g).</p>
23 CFR 771.135	<p>Section 4(f)</p> <p>(a)(i) The Administration may not approve the use of land from a significant publicly owned public park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that:</p> <p style="padding-left: 40px;">(i) There is no feasible and prudent alternative to the use of land from the property; and</p> <p style="padding-left: 40px;">(ii) The action includes all possible planning to minimize harm to the property resulting from such use.</p>
Regulations of the Council on Environmental Quality for Implementation of NEPA	
40 CFR 1500.1	<p>(b) NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA.</p>
40 CFR 1500.2	<p>Policy</p> <p>Federal agencies shall to the fullest extent possible:</p> <p>(b) Implement procedures to make the NEPA process more useful to decision-makers and the public; to reduce paperwork and the accumulation of extraneous background data; and to emphasize real environmental issues and alternatives.</p> <p>(d) Encourage and facilitate public involvement in decisions which affect the quality of the human environment.</p> <p>(e) Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.</p> <p>(f) Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment.</p>
40 CFR 1500.4	<p>Reducing paperwork.</p> <p>Agencies shall reduce excessive paperwork by:</p> <p>(d) Writing environmental impact statements in plain language (Sec. 1502.8).</p>





Source	Citation
	<p>(f) Emphasizing the portions of the environmental impact statement that are useful to decision-makers and the public (Secs. 1502.14 and 1502.15) and reducing emphasis on background material (Sec. 1502.16).</p> <p>(h) Summarizing the environmental impact statement (Sec. 1502.12) and circulating the summary instead of the entire environmental impact statement if the latter is unusually long (Sec. 1502.19).</p>
40 CFR 1501.4	<p>Whether to prepare an Environmental Impact Statement. In determining whether to prepare an environmental impact statement the federal agency shall:</p> <p>(a) Determine under its procedures supplementing these regulations (described in Sec. 1507.3) whether the proposal is one which:</p> <ol style="list-style-type: none"> (1) Normally requires an environmental impact statement, or (2) Normally does not require either an environmental impact statement or an environmental assessment (categorical exclusion). <p>(b) If the proposed action is not covered by paragraph (a) of this section, prepare an environmental assessment (Sec. 1508.9). The agency shall involve environmental agencies, applicants, and the public, to the extent practicable, in preparing assessments required by Sec. 1508.9(a)(1).</p> <p>(e) Prepare a finding of no significant impact (Sec. 1508.13), if the agency determines on the basis of the environmental assessment not to prepare a statement.</p> <ol style="list-style-type: none"> (1) The agency shall make the finding of no significant impact available to the affected public as specified in Sec. 1506.6. (2) In certain limited circumstances, which the agency may cover in its procedures under Sec. 1507.3, the agency shall make the finding of no significant impact available for public review (including state and area wide clearinghouses) for 30 days before the agency makes its final determination whether to prepare an environmental impact statement and before the action may begin. The circumstances are: <ol style="list-style-type: none"> (i) The proposed action is, or is closely similar to, one which normally requires the preparation of an environmental impact statement under the procedures adopted by the agency pursuant to Sec. 1507.3, or (ii) The nature of the proposed action is one without precedent.
40 CFR 1501.7	<p>Scoping There shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process shall be termed scoping. As soon as practicable after its decision to prepare an environmental impact statement and before the scoping process the lead agency shall publish a NOI (Sec. 1508.22) in the Federal Register (except as provided in Sec. 1507.3(e)).</p> <p>(a) As part of the scoping process the lead agency shall:</p> <ol style="list-style-type: none"> (1) Invite the participation of affected federal, State, and local agencies, any affected Indian Tribe, the proponent of the action, and other interested persons (including those who might not be in accord with the action on environmental grounds), unless there is a limited exception under Sec. 1507.3(c). An agency may give notice in accordance with Sec. 1506.6. (2) Determine the scope (Sec. 1508.25) and the significant issues to be analyzed in depth in the environmental impact statement. <p>(b) As part of the scoping process the lead agency may:</p> <ol style="list-style-type: none"> (4) Hold an early scoping meeting or meetings which may be integrated with any other early planning meeting the agency has. Such a scoping meeting will often be appropriate when the impacts of a particular action are confined to specific sites.





Source	Citation
40 CFR 1502.1	<p>Purpose [of Environmental Impact Statement]. The primary purpose of an environmental impact statement is to serve as an action-forcing device to insure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the federal government. It shall provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.</p>
40 CFR 1502.8	<p>Writing. Environmental impact statements shall be written in plain language and may use appropriate graphics so that decision-makers and the public can readily understand them. Agencies should employ writers of clear prose or editors to write, review, or edit statements, which will be based upon the analysis and supporting data from the natural and social sciences and the environmental design arts.</p>
40 CFR 1502.9	<p>Draft, final, and supplemental statements. c) Agencies: (4) Shall prepare, circulate, and file a supplement to a statement in the same fashion (exclusive of scoping) as a draft and final statement unless alternative procedures are approved by the Council.</p>
40 CFR 1502.11	<p>Cover sheet. The cover sheet shall not exceed one page. It shall include: (f) The date by which comments must be received (computed in cooperation with EPA under Sec. 1506.10).</p>
40 CFR 1502.19	<p>Circulation of the Environmental Impact Statement. Agencies shall circulate the entire draft and final environmental impact statements except for certain appendices as provided in Sec. 1502.18(d) and unchanged statements as provided in Sec. 1503.4(c). However, if the statement is unusually long, the agency may circulate the summary instead, except that the entire statement shall be furnished to: (c) Any person, organization, or agency requesting the entire environmental impact statement. (d) In the case of a final environmental impact statement any person, organization, or agency which submitted substantive comments on the draft. If the agency circulates the summary and thereafter receives a timely request for the entire statement and for additional time to comment, the time for that requestor only shall be extended by at least 15 days beyond the minimum period.</p>
40 CFR 1503.1	<p>Inviting comments. (a) After preparing a draft environmental impact statement and before preparing a final environmental impact statement the agency shall: (4) Request comments from the public, affirmatively soliciting comments from those persons or organizations who may be interested or affected. (b) An agency may request comments on a final environmental impact statement before the decision is finally made. In any case other agencies or persons may make comments before the final decision unless a different time is provided under Sec. 1506.10.</p>
40 CFR 1503.4	<p>Response to comments. (a) An agency preparing a final environmental impact statement shall assess and consider comments both individually and collectively, and shall respond by one or more of the means listed below, stating its response in the final statement. Possible responses are to: (1) Modify alternatives including the proposed action. (2) Develop and evaluate alternatives not previously given serious consideration by the agency. (3) Supplement, improve, or modify its analyses.</p>





Source	Citation
	<ul style="list-style-type: none"> (4) Make factual corrections. (5) Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response. (b) All substantive comments received on the draft statement (or summaries thereof where the response has been exceptionally voluminous), should be attached to the final statement whether or not the comment is thought to merit individual discussion by the agency in the text of the statement. (c) If changes in response to comments are minor and are confined to the responses described in paragraphs (a)(4) and (5) of this section, agencies may write them on errata sheets and attach them to the statement instead of rewriting the draft statement. In such cases only the comments, the responses, and the changes and not the final statement need be circulated (Sec. 1502.19). The entire document with a new cover sheet shall be filed as the final statement (Sec. 1506.9).
40 CFR 1505	<p>NEPA and Agency Decision-making 1505.1 Agency decision-making procedures. Agencies shall adopt procedures to ensure that decisions are made in accordance with the policies and purposes of the Act [NEPA]. Such procedures shall include but not be limited to:</p> <ul style="list-style-type: none"> (1) Designating the major decision points for the agency's principal programs likely to have a significant effect on the human environment and assuring that the NEPA process corresponds with them. (e) Requiring that the alternatives considered by the decision-maker are encompassed by the range of alternatives discussed in the relevant environmental documents. If another decision document accompanies the relevant environmental documents to the decision-maker, agencies are encouraged to make available to the public before the decision is made any part of that document that relates to the comparison of alternatives.
40 CFR 1505.3	<p>Implementing the decision. The lead agency shall:</p> <ul style="list-style-type: none"> (d) Upon request, make available to the public the results of relevant monitoring.
40 CFR 1506	<p>Other Requirements of NEPA 1506.2 Elimination of duplication with state and local procedures.</p> <ul style="list-style-type: none"> (b) Agencies shall cooperate with state and local agencies to the fullest extent possible to reduce duplication between NEPA and state and local requirements such cooperation shall to the fullest extent possible include: <ul style="list-style-type: none"> (3) Joint public hearings (except where otherwise provided by statute).
40 CFR 1506.6	<p>Public involvement. Agencies shall:</p> <ul style="list-style-type: none"> (a) Make diligent efforts to involve the public in preparing and implementing their NEPA procedures. (b) Provide public notice of NEPA-related hearings, public meetings, and the availability of environmental documents so as to inform those persons and agencies who may be interested or affected. <ul style="list-style-type: none"> (1) In all cases the agency shall mail notice to those who have requested it on an individual action. (2) In the case of an action with effects of national concern notice shall include publication in the Federal Register and notice by mail to national organizations reasonably expected to be interested in the matter and may include listing in the 102 Monitor. An agency engaged in rulemaking may provide notice by mail to national organizations who have requested that notice regularly be provided. Agencies shall maintain a list of such organizations. (3) In the case of an action with effects primarily of local concern the notice may include:





Source	Citation
	<ul style="list-style-type: none"> (i) Notice to state and area wide clearinghouses pursuant to OMB Circular A-95 (Revised). (ii) Notice to Indian Tribes when effects may occur on reservations. (iii) Following the affected State's public notice procedures for comparable actions. (iv) Publication in local newspapers (in papers of general circulation rather than legal papers). (v) Notice through other local media. (vi) Notice to potentially interested community organizations including small business associations. (vii) Publication in newsletters that may be expected to reach potentially interested persons. (viii) Direct mailing to owners and occupants of nearby or affected property. (ix) Posting of notice on and off site in the area where the action is to be located. <p>(c) Hold or sponsor public hearings or public meetings whenever appropriate or in accordance with statutory requirements applicable to the agency. Criteria shall include whether there is:</p> <ul style="list-style-type: none"> (1) Substantial environmental controversy concerning the proposed action or substantial interest in holding the hearing. (2) A request for a hearing by another agency with jurisdiction over the action supported by reasons why a hearing will be helpful. If a draft environmental impact statement is to be considered at a public hearing, the agency should make the statement available to the public at least 15 days in advance (unless the purpose of the hearing is to provide information for the draft environmental impact statement). <p>(d) Solicit appropriate information from the public.</p> <p>(e) Explain in its procedures where interested persons can get information or status reports on environmental impact statements and other elements of the NEPA process.</p> <p>(f) Make environmental impact statements, the comments received, and any underlying documents available to the public pursuant to the provisions of the Freedom of Information Act (5 U.S.C. 552), without regard to the exclusion for interagency memoranda where such memoranda transmit comments of federal agencies on the environmental impact of the proposed action. Materials to be made available to the public shall be provided to the public without charge to the extent practicable, or at a fee which is not more than the actual costs of reproducing copies required to be sent to other federal agencies, including the Council [on Environmental Quality].</p>
NOISE ABATEMENT	
23 CFR 772	<p>Procedures for Abatement of Highway Traffic Noise and Construction Noise Sec. 772.9 Analysis of traffic noise impacts and abatement measures.</p> <p>(a) The highway agency shall determine and analyze expected traffic noise impacts and alternative noise abatement measures to mitigate these impacts, giving weight to the benefits and cost of abatement, and to the overall social, economic and environmental effects.</p> <p>Sec. 772.11 Noise abatement.</p> <p>(a) In determining and abating traffic noise impacts, primary consideration is to be given to exterior areas. Abatement will usually be necessary only where frequent human use occurs and a lowered noise level would be of benefit.</p> <p>(b) In those situations where there are no exterior activities to be affected by the traffic noise, or where the exterior activities are far from or physically shielded from the roadway in a manner that prevents an impact on exterior activities, the interior criterion shall be used as the basis of determining noise impacts.</p>





Source	Citation
	<p>(c) If a noise impact is identified, the abatement measures listed in Sec. 772.13(c) of this chapter must be considered.</p> <p>(d) When noise abatement measures are being considered, every reasonable effort shall be made to obtain substantial noise reductions.</p> <p>(e) Before adoption of a final environmental impact statement or finding of no significant impact, the highway agency shall identify:</p> <p style="padding-left: 40px;">(1) Noise abatement measures which are reasonable and feasible and which are likely to be incorporated in the project, and</p> <p style="padding-left: 40px;">(2) Noise impacts for which no apparent solution is available.</p> <p>(f) The views of the impacted residents will be a major consideration in reaching a decision on the reasonableness of abatement measures to be provided.</p> <p>Sec. 772.15 Information for local officials. In an effort to prevent future traffic noise impacts on currently undeveloped lands, highway agencies shall inform local officials within whose jurisdiction the highway project is located of the following:</p> <p>(a) The best estimation of future noise levels (for various distances from the highway improvement) for both developed and undeveloped lands or parties in the immediate vicinity of the project,</p> <p>(b) Information that may be useful to local communities to protect future land development from becoming incompatible with anticipated highway noise levels, and</p> <p>(c) Eligibility for federal-aid participation for Type II projects</p>
Uniform Relocation Assistance and Real Property Acquisition	
49 CFR 24	<p>Transportation. Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs</p> <p>Sec. 24.5 Manner of notices. Each notice which the Agency is required to provide to a property owner or occupant under this part, shall be personally served or sent by certified or registered first-class mail, return receipt requested, and documented in Agency files. Each notice shall be written in plain, understandable language. Persons who are unable to read and understand the notice must be provided with appropriate translation and counseling. Each notice shall indicate the name and telephone number of a person who may be contacted for answers to questions or other needed help.</p> <p>Sec. 24.205 Relocation planning, advisory services, and coordination.</p> <p>(a) Relocation planning. During the early stages of development, federal and federal-aid programs or projects shall be planned in such a manner that the problems associated with the displacement of individuals, families, businesses, farms, and nonprofit organizations are recognized and solutions are developed to minimize the adverse impacts of displacement.</p> <p>(c) Relocation assistance advisory services--(1) General. The Agency shall carry out a relocation assistance advisory program which satisfies the requirements of title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.), title VIII of the Civil Rights Act of 1968 (42 U.S.C. 3601 et seq.), and Executive Order 11063 (27 FR 11527, November 24, 1962), and offers the services described in paragraph (c)(2) of this section. If the Agency determines that a person occupying property adjacent to the real property acquired for the project is caused substantial economic injury because of such acquisition, it may offer advisory services to such person.</p> <p>(2) Services to be provided. The advisory program shall include such measures, facilities, and services as may be necessary or appropriate in order to:</p>





Source	Citation
	<ul style="list-style-type: none"> (i) Determine the relocation needs and preferences of each person to be displaced and explain the relocation payments and other assistance for which the person may be eligible, the related eligibility requirements, and the procedures for obtaining such assistance. This shall include a personal interview with each person. (ii) Provide current and continuing information on the availability, purchase prices, and rental costs of comparable replacement dwellings, and explain that the person cannot be required to move unless at least one comparable replacement dwelling is made available as set forth in Sec. 24.204(a). <p>(A) As soon as feasible, the Agency shall inform the person in writing of the specific comparable replacement dwelling and the price or rent used for establishing the upper limit of the replacement housing payment (see Sec. 24.403 (a) and (b)) and the basis for the determination, so that the person is aware of the maximum replacement housing payment for which he or she may qualify.</p>
23 CFR 740.35	Full and adequate public notice of the relocation assistance program shall be given.
TRANSPORTATION CONFORMITY (EPA – Clean Air Act)	
40 CFR 51	<p>Transportation Conformity Rule Environmental Protection Agency, Part 51 – Requirements for Preparation, Adoption, and Submittal of Implementation Plans</p>
40 CFR 93	<p>Determining Conformity of Federal Actions to State or Federal Implementation Plans Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws</p> <p>Sec 93.100 Purpose The purpose of this subpart is to implement section 176(c) of the Clean Air Act (CAA), as amended (42 U.S.C. 7401 et seq.), and the related requirements of 23 U.S.C. 109(j), with respect to the conformity of transportation plans, programs, and projects which are developed, funded, or approved by the United States Department of Transportation (DOT), and by metropolitan planning organizations (MPOs) or other recipients of funds under title 23 U.S.C. or the Federal Transit Laws (49 U.S.C. Chapter 53).</p> <p>Sec. 93.105 Consultation.</p> <p>(a) General. The implementation plan revision required under Sec. 51.390 of this chapter shall include procedures for interagency consultation (federal, state, and local), resolution of conflicts, and public consultation as described in paragraphs (a) through (e) of this section. Public consultation procedures will be developed in accordance with the requirements for public involvement in 23 CFR part 450.</p> <p>(e) Public consultation procedures. Affected agencies making conformity determinations on transportation plans, programs, and projects shall establish a proactive public involvement process which provides opportunity for public review and comment by, at a minimum, providing reasonable public access to technical and policy information considered by the agency at the beginning of the public comment period and prior to taking formal action on a conformity determination for all transportation plans and TIPs, consistent with these requirements and those of 23 CFR 450.316(b). Any charges imposed for public inspection and copying should be consistent with the fee schedule contained in 49 CFR 7.95. In addition, these agencies must specifically address in writing all public comments that known plans for a regionally significant project which is not receiving FHWA or FTA funding or approval have not been properly reflected in the emissions analysis supporting a proposed</p>





Source	Citation
	<p>conformity finding for a transportation plan or TIP. These agencies shall also provide opportunity for public involvement in conformity determinations for projects where otherwise required by law.</p> <p>Sec. 93.156 Public Participation.</p> <p>a) Upon request by any person regarding a specific federal action, a federal agency must make available for review its draft conformity determination under Sec. 93.158 with supporting materials which describe the analytical methods and conclusions relied upon in making the applicability analysis and draft conformity determination.</p> <p>b) A federal agency must make public its draft conformity determination under Sec. 93.158 by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the action and by providing 30 days for written public comment prior to taking any formal action on the draft determination. This comment period may be concurrent with any other public involvement, such as occurs in the NEPA process.</p> <p>c) A federal agency must document its response to all the comments received on its draft conformity determination under Sec. 93.158 and make the comments and responses available, upon request by any person regarding a specific federal action, within 30 days of the final conformity determination.</p> <p>d) A federal agency must make public its final conformity determination under Sec. 93.158 for a federal action by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the action within 30 days of the final conformity determination.</p>
ADVISORY COUNCIL ON HISTORIC PRESERVATION – HISTORIC PROPERTIES, Section 106	
36 CFR 800	<p>Protection of Historic Properties</p> <p>Sec. 800.1 Purposes.</p> <p>(a) Purposes of the section 106 process. Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties and afford the Council [Advisory Council on Historic Preservation] a reasonable opportunity to comment on such undertakings. The procedures in this part define how federal agencies meet these statutory responsibilities. The section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation among the agency official and other parties with an interest in the effects of the undertaking on historic properties, commencing at the early stages of project planning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties.</p> <p>Sec. 800.2 Participants in the Section 106 process.</p> <p>(4) Consultation. The agency official shall involve the consulting parties described in paragraph (c) of this section in findings and determinations made during the section 106 process.</p> <p>(5) Certain individuals and organizations with a demonstrated interest in the undertaking may participate as consulting parties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties.</p> <p>(d) The public.</p> <p>(1) Nature of involvement. The views of the public are essential to informed federal decision-making in the section 106 process. The agency official shall seek and consider the views of the public in</p>





Source	Citation
	<p>a manner that reflects the nature and complexity of the undertaking and its effects on historic properties, the likely interest of the public in the effects on historic properties, confidentiality concerns of private individuals and businesses, and the relationship of the federal involvement to the undertaking.</p> <p>(2) Providing notice and information. The agency official must, except where appropriate to protect confidentiality concerns of affected parties, provide the public with information about an undertaking and its effects on historic properties and seek public comment and input. Members of the public may also provide views on their own initiative for the agency official to consider in decision-making.</p> <p>(3) Use of agency procedures. The agency official may use the agency's procedures for public involvement under the National Environmental Policy Act or other program requirements in lieu of public involvement requirements in subpart B of this part, if they provide adequate opportunities for public involvement consistent with this subpart.</p> <p>Sec. 800.4 Identification of historic properties the agency official shall</p> <p>(3) Seek information, as appropriate, from consulting parties, and other individuals and organizations likely to have knowledge of, or concerns with, historic properties in the area, and identify issues relating to the undertaking's potential effects on historic properties;</p> <p>Sec. 800.5 Assessment of adverse effects The agency official shall consider any views concerning such effects which have been provided by consulting parties and the public.</p> <p>(c) Consulting party review. If the agency official proposes a finding of no adverse effect, the agency official shall notify all consulting parties of the finding and provide them with the documentation specified in Sec. 800.11(e).</p> <p>Sec. 800.6 Resolution of adverse effects The agency official shall consult with the SHPO/THPO and other consulting parties, including Indian Tribes and Native Hawaiian organizations, to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties.</p>
CLEAN WATER ACT – U.S. ARMY CORPS OF ENGINEERS	
33 USC	<p>Navigation and Navigable Waters</p> <p>Water Pollution Prevention and Control – Permits and Licenses</p> <p>SECTION 401 OF THE CLEAN WATER ACT SEC. 1341. CERTIFICATION</p> <p>(a)(1) Any applicant for a federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the state in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable waters at the point where the discharge originates or will originate, that any such discharge will comply with the applicable provisions of sections 1311, 1312, 1313, 1316, and 1317 of this title. Such state or interstate agency shall establish procedures for public notice in</p>





Source	Citation
	<p>the case of all applications for certification by it and, to the extent it deems appropriate, procedures for public hearings in connection with specific applications.</p> <p>Section 404 of the Clean Water Act Sec. 1344.</p> <p>A. The Secretary [of the Army, acting through the Chief of Engineers] may issue permits, after notice and opportunity for public hearings for the discharge of dredged or fill material into the navigable waters at specified disposal sites. Not later than the fifteenth day after the date an applicant submits all the information required to complete an application for a permit under this subsection, the Secretary shall publish the notice required by this subsection.</p> <p>H. 1.c. To assure that the public, and any other state the waters of which may be affected, receive notice of each application for a permit and to provide an opportunity for public hearing before a ruling on each such application.</p>
<p>42 USC 2000(d) to (d)(1) Civil Rights Act of 1964</p>	<p>Title VI – Non-Discrimination in Federally Assisted Programs</p> <p><u>General</u> This title declares it to be the policy of the United States that discrimination on the ground of race, color, or national origin shall not occur in connection with programs and activities receiving federal financial assistance and authorizes and directs the appropriate federal departments and agencies to take action to carry out this policy.</p> <p><u>Section 601</u> -- no person in the United States shall be excluded from participation in or otherwise discriminated against on the ground of race, color, or national origin under any program or activity receiving federal financial assistance.</p>





ATTACHMENT 2: HISTORY OF PUBLIC INVOLVEMENT

The National Environmental Policy Act (NEPA) of 1969, FHWA environmental regulations (23 CFR 771) and Council on Environmental Quality implementing regulations outline requirements for public input during the project development process. These regulations include publishing notices and providing the opportunity for public hearings to obtain input about transportation improvements. The regulations and how they apply to each of the different NEPA processes is outlined below.

The federal Americans with Disabilities Act (ADA) encourages the involvement of people with disabilities in the development and improvement of transportation and para-transit plans and services. The ADA prohibits discrimination and ensures equal opportunity for persons with disabilities in employment, state and local government services, public accommodations, commercial facilities, and transportation. This includes providing accommodations for persons with disabilities for all public involvement activities, including access to meetings, as well as effectively communicating with people who have hearing, vision, or speech disabilities.

The Inter-modal Surface Transportation Efficiency Act of 1991 (ISTEA) and its 1998 successor, the Transportation Equity Act for the 21st Century (TEA-21), emphasize public involvement in the transportation planning and programming process. This legislation calls for early and continuing opportunities for the public to be involved in the identification of social, economic and environmental impacts, as well as impacts associated with the relocation of individuals, groups or institutions. TEA-21 requires states and Metropolitan Planning Organizations (MPOs) to involve constituents. Federal legislation also requires public involvement in developing and amending metropolitan and rural long-range transportation plans, Transportation Improvement Programs (TIPs), the Statewide Long-Range Transportation Plan (LRTP), the State Transportation Improvement Program (STIP), and project development.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) enacted August 10, 2005, includes new requirements for public involvement in the NEPA process for Environmental Impact Statements and for other environmental processes as appropriate.

A Presidential Executive Order on Environmental Justice (EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), issued on February 11, 1994, also focuses federal agencies' attention on reaching out to certain segments of the community. This Executive Order requires each federal agency to achieve environmental





justice by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States.

CDOT must comply with United States Department of Transportation's Final Order to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2[a]) and FHWA's Actions to Address Environmental Justice in Minority Populations and Low-income Populations (DOT Order 6640.23[a]). DOT Order 5610.2(a) specifically requires that "procedures shall be established, or expanded, as necessary, to provide meaningful opportunities for public involvement by members of minority and low-income populations during the planning, and development of programs, policies, and activities" even though concerns have been addressed through many federal mandates including Title VI of the Civil Rights Act of 1964 and the NEPA. DOT Order 6640.23(a) requires FHWA to implement the principles of DOT Order 5610.2(a) and EO 12898 by incorporating environmental justice principles in all FHWA programs, policies and activities. On December 16, 2011, DOT also published a new document entitled *Guidance on Environmental Justice and NEPA*.

These laws and orders serve to heighten the awareness and concern for identifying and addressing social and community impacts. Identifying community impacts is not a completely objective process because differing values and perspectives must be taken into consideration. These can only be discerned by active listening and respectful involvement by all parties.





ATTACHMENT 3: ADDITIONAL RESOURCES

FHWA Public Involvement Website

www.fhwa.dot.gov/environment/pubinv2.htm

International Association for Public Participation Website

www.iap2.org

IAP2 Public Participation Toolkit (different public involvement techniques) Website

http://www.iap2.org/associations/4748/files/06Dec_Toolbox.pdf

U.S. EPA Public Involvement Website

www.epa.gov/publicinvolvement/

CEQ Collaboration in NEPA: A Handbook for NEPA Practitioners Website

http://ceq.hss.doe.gov/ntf/Collaboration_in_NEPA_Oct_2007.pdf

Air Quality Planning for Transportation Officials, Interagency Consultation and Public Involvement Website

<http://www.fhwa.dot.gov/environment/aqplan/aqplan13.htm>

The Transportation Research Board's Committee on Public Involvement in Transportation has a special issue on Public Involvement Website

<http://www.trb.org/Main/Public/Blurbs/161053.aspx>

FHWA's A Citizen's Guide to Transportation Decision-making Pub. No. FHWA-EP-01-013 Website

<http://www.fhwa.dot.gov/planning/citizen/index.htm>

FHWA/FDOT Community Impact Assessment Website

<http://www.ciatrans.net/>

FHWA's Community Impact Assessment: A Quick Reference for Transportation Website

http://www.fhwa.dot.gov/environment/community_impact_assessment/index.cfm

FHWA and Florida Department of Transportation "Community Impact Mitigation: Case Studies" Website

http://www.ciatrans.net/Community_Impact_Mitigation/CIM_Introduction.html

FHWA Environmental Justice Website

<http://www.fhwa.dot.gov/environment/ejustice/facts/index.htm>

TRB's National Cooperative Highway Research Program (NCHRP) 532 Report, "Effective Methods for Environmental Justice Assessment" is designed to enhance understanding and to facilitate consideration and incorporation of environmental justice into all elements of the transportation planning process, from long-





range transportation systems planning through priority programming, project development, and policy decisions.

<http://www.trb.org/Main/Public/Blurbs/152430.aspx>

International Association for Impact Assessment Website

<http://www.iaia.org/>

National Civic League, Publications Website

http://www.ncl.org/index.php?option=com_content&view=article&id=147&Itemid=208

Transportation Planning Capacity Building Website

<http://www.planning.dot.gov/>

US Census Bureau FactFinder Website

<http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>



ATTACHMENT 4: STEPS FOR DEVELOPING A PROJECT PUBLIC INVOLVEMENT PLAN¹

Step 1. Identify the key issues or decisions that are relevant to the project

Activity 1: Identify the key process issues or decisions applicable to the project. This requires that some level of project scoping has been accomplished to identify the NEPA document that will be prepared (CE, EA, or EIS). The process can be broken down into key decisions that are critical to the successful completion of the NEPA process. For example: Purpose and Need, Screening Criteria, Alternatives Analysis, and Preferred Alternative Selection.

Activity 2: Identify the legal requirements that are applicable to the project. Each legal requirement should be further broken down into the key component issues or decisions that will affect the final decision on the permit or other legal requirement (i.e., satisfying Section 404 permit requirements).

Activity 3: Identify the key non-legal issues or concerns that may have a significant impact on the project development process. This includes those key community issues or other resource issues on which decisions will have to be made as part of the project development process. Each issue should be limited to issues or decision points relevant to the overall project decision.

Step 2. Gain internal commitment

Activity 1: Be prepared to explain who has final decision-making authority for each of the key decisions points in the process. Does the final decision-maker have any expectations for the public involvement process? What is the final decision-maker's previous experience with public involvement processes? How does the final decision-maker anticipate being involved with the public involvement process and the project as a whole? How well does the decision-makers interact with the various stakeholders? What decisions are the final decision-makers likely to need assistance to make?

Activity 2: Review prior public involvement strategies and stakeholder involvement programs to determine what will be the most effective way of doing public involvement. What tools and techniques is the Project team familiar with using? How have public involvement programs with stakeholders been conducted in the past? What processes, tools, and techniques have worked effectively with which stakeholders? Where have

¹ Based on the International Association for Public Participation: Planning for Effective Public Participation; www.iap2.org





they not worked well? Examine the pros and cons of the various public involvement techniques that are being contemplated. Are there differing opinions as to how the public involvement process should be run? What is the base cause of this difference?

Activity 3: Review key issues and concerns developed during Step 1 to assure decision-makers are in agreement and that any additional issues and concerns have been identified.

Activity 4: Begin identifying key stakeholders and their relationships to the key decision points in the process. How do the various issues and decisions rate in terms of importance to the decision-making process and also to the various stakeholders? What is the agency's, the Region's and the Project team's previous experience with the key stakeholders? Are any of the decisions likely to be controversial? How much? How important are these decisions to the overall decision-making process?

Activity 5: Determine CDOT's expectations on the level of public involvement as it relates to the various issues and decisions that will be made as part of the project. Are there differences of opinion? What degree of flexibility in changing the level of stakeholder involvement is the agency comfortable making as the process progresses? Under what circumstances are the decision-makers less inclined to change the level of public involvement established? Why?

Step 3. Learn from the stakeholders

Activity 1: Understand that the various stakeholders will perceive the issues surrounding the project and how decisions are to be made differently. This is the project team's first opportunity to start developing constructive relationships with the key stakeholders. Use key stakeholders to help identify other stakeholders who may have been overlooked.

Activity 2: Develop a comprehensive list of stakeholders. Do this by building upon the list of key stakeholders already developed to determine the stakeholders for the project. Determine what stakeholders may be particularly hard to involve in the public involvement process.

Activity 3: Correlate the various stakeholders to the various issues and decisions to be made as the project develops. From the perspective of the project team, how much impact will the issue/decision have on the overall project decision-making process? Then, do the same from the perspective of the different stakeholders. Are there differences between the perspective of the project team and the other stakeholders? Where do stakeholders have issues in common? Where do they differ? What are the potential alliances between stakeholders that may either support or oppose the project? Why?





What level of power does a stakeholder have in relation to a given decision?
How will this potentially affect the planned public involvement process?

Activity 4: Involve the stakeholders in refining the statement of the issues to be addressed or the decisions to be made. This is done to assure that all parties are discussing the same issues and working on the same decisions. It is not uncommon to have stakeholders refine or change the decisions/issues in terms which may be different from those intended by the project team. Make sure that all terms are being read with a common definition. While this may seem like an unnecessary step, it can help avoid problems arising later where different interpretations lead stakeholders to different expectations.

Step 4. Select the level of involvement

Activity 1: Review the internal expectations for the level of public involvement in light of the information gained from the stakeholders. What additional issues and decisions were identified? Who are the final decision-makers for any additional issues/decisions? Where is there disagreement in terms of the appropriate level of public involvement on an issue/decision? Select the level of public involvement that will be appropriate for the issue/decision and stakeholder. Craft the commitments being made to the stakeholders and be sure that the project has the resources (in time, staff, and funding) to keep the commitment.

Step 5. Identify how success will be evaluated

Activity 1: Define the factors that will be used to determine a successful public involvement program. What process requirements must be met? What type and levels of impact on the decision-making process by stakeholders does the project want to demonstrate? What is the ultimate outcome of the process that should be demonstrated?

Activity 2: Establish indicators that will measure success or failure of your program. Indicators are tied directly to the level of involvement and will influence the types of tools and techniques used in the public involvement process. For example, if the factor being evaluated is the project's ability to inform the stakeholders about the effects of the proposed project, an indicator might be the portion of stakeholders who indicated they understood the effects. If the factor being evaluated is the agreement of the participating agencies on the project scope, indicators might include: establishment of a clear purpose and need, signed by the participating agencies.

Activity 3: Define targets for each of the indicators being used. For each indicator, a successful target should be established. This could be a percentage (percent of community members surveyed who understood the





project impacts), specific actions (purpose and need statement is prominent on the project website and all printed materials), or numeric (number of people attending public scoping meeting). Targets will vary from project to project and must be achievable. Targets will define for a project when and how their public involvement program is complete and successful. If targets are not reached the project may need to consider if additional or different public involvement activities are necessary.

Step 6. Define the decision process and participant objectives

Activity 1: If a decision-making process related to an issue already exists or is required by legislation or regulations, document the process. Where a decision-making process has not already been established, work with the project management team to develop and document a process for addressing key issues for the project. Make the decision-making process clear and easily understood by internal and external stakeholders.

Activity 2: Set public involvement objectives for each step in the decision process. Each step in a decision-making process is a chance to either gain or lose stakeholder trust. Develop public involvement objectives that are appropriate and work towards developing better relationships with stakeholders based upon the public involvement level that has been selected for that decision, and the promises made to the various stakeholders.

Step 7. Develop the project public involvement plan

Activity 1: Develop the format for the public involvement plan. The exact format of the public involvement plan will vary depending on the complexity of the project and the various public involvement goals and objectives. The plan format may range from a brief outline, to a highly detailed manual. The plan format must provide adequate information to allow internal and external stakeholders to identify the activities, outcomes, and evaluation expectations for the public involvement processes.

Activity 2: Identify and integrate existing public involvement activities into the baseline of the plan. What activities have already occurred? What promises have been made to the stakeholders? How were those promises implemented? What other projects/programs are working with the same stakeholders?

Activity 3: Identify the techniques that will be used during the public involvement process. Review the promises being made to the stakeholders and the intended level of public involvement on the decisions. Review different public involvement techniques and choose techniques that are appropriate to the public involvement level. In selecting techniques, be





conscious of the potential benefits and drawbacks of the techniques selected. Choose techniques that are possible or can be modified to be successful given fiscal and time constraints for the project.

Activity 4: Identify the schedule and resources necessary for the public involvement plan to be successful. How much time is necessary for each of the techniques being used? What fiscal resources are available? Who has what roles and responsibilities? What additional resources may be necessary to engage stakeholders at the desired level?





ATTACHMENT 5: PUBLIC INVOLVEMENT PLAN DEVELOPMENT WORKSHEETS

Stakeholder Information

Group Name	Geographic Frame of Reference ¹	Contact Name	Contact Address	Contact Phone Number	Contact e-mail	Stakeholder Notes ²	Contact Notes

- L = Local
 R = Regional
 S = Statewide
 N = National
 Add Further Definition (for example: Main Street Park boundaries)
- Notes on role of stakeholder group as well as past interactions and other information known about the stakeholder such as relationships with other stakeholders





Stakeholder and Issue Assessment Worksheet

Issue	CDOT Evaluation of Level of Impact on Project: N = None L = Low M = Moderate H = High U = Unknown	Stakeholder	Stakeholder Level of Concern N = None L = Low M = Moderate H = High U = Unknown
1.			
2.			
3.			





Internal Expectations Worksheet
 (Complete for each issue for project)

Assessment Questions	Very Low	Low	Moderate	High	Very High	Notes
1. What is the minimum legally required level of public involvement?						
2. To what extent does internal staff believe that the public could help improve the outcome of this issue?						
3. At what level does internal staff perceive public interest in this issue as it relates to this issue?						
4. What is the potential for the public to influence the decision-making process for this issue?						
5. What level of media interest is anticipated on the issue?						
6. What level of media interest is anticipated on the project?						
7. What level of resources are likely to be available to support the public involvement process? (time, staff, funds)						
8. What is the likelihood that decision-makers will give full consideration to input received from the public?						
9. What is the anticipated level of public controversy?						
Count number of checks in each column						
Multiply number of checks by weight	x1	x2	x3	x4	x5	
Enter Column Score						
Sum columns, enter total						
Divide total score by the number of Questions	/9					
Average Score						

Average Score relationship with level of Public Involvement Expectations:

1-2: Very low to low: Inform

2-3: Low to Moderate: Recommend at least Consult

3-4: Moderate to High: Most likely Involve level

4-5: High to Very High: At least involve, identify opportunities to Collaborate or Empower

Note: Some stakeholders may require different levels of involvement depending on authority such as permitting agencies.





***Involvement Expectations Worksheet
(Complete for each issue for project)***

Assessment Questions	Very Low	Low	Moderate	High	Very High	Notes
1. What is the probable level of difficulty in addressing the issue/concern?						
2. What is the potential for public outrage related to the issue/concern?						
3. How important are the potential impacts of the issue/concern to the stakeholders?						
4. How much do major stakeholders care about the issue/concern to be addressed and the decision to be made?						
5. What degree of involvement does the public appear to want?						
Count number of checks in each column						
Multiply number of checks by weight	x1	x2	x3	x4	x5	
Enter Column Score						
Sum columns, enter total						
Divide total score by the number of Questions	/5					
Average Score						

Average Score relationship with level of Public Involvement Expectations:

1-2: Very low to low: Inform

2-3: Low to Moderate: Recommend at least Consult

3-4: Moderate to High: Most likely Involve level

4-5: High to Very High: At least involve, identify opportunities to Collaborate or Empower

Note: Some stakeholders may require different levels of involvement depending on authority such as permitting agencies.





Tool/Technique Evaluation Worksheet

Issue(s): _____

Stakeholders related to issue: _____

Level of Public Involvement Anticipated: _____

Promise made to Public: _____

Objective(s) for this tool/technique: _____

Evaluation Criteria	Tool/ Technique A	Tool/ Technique B	Tool/ Technique C
1. How will it meet the objective(s)?			
2. What will it cost and do we have adequate resources for implementation (time, money, staff)?			
3. How effective is this technique for reaching the right audience?			
4. Do we have access to the tools and personnel needed to implement this technique successfully or will we need additional support?			
5. Do we have access to the expertise to implement this technique successfully or do we need outside support?			
6. Is there sufficient time to successfully implement this technique?			
7. Does the technique have a proven track record of success in similar situations?			
8. Does the technique coincide with what you have learned about the public about how they want to be involved?			
9. Will it meet the legal requirements?			
10. Are there special circumstances that may affect the use of this technique?			
11. Can you get internal support for these techniques?			
12. Does the public have the ability to take advantage of this technique or do barriers to success exist?			





Roles and Responsibilities Worksheet

Role	Specific Individuals in these Roles, include Position	Responsibilities for Each Individual for this Role
1. Who are the ultimate decision-makers?		
2. Who has the overall management responsibility for public involvement?		
3. Who are the primary public involvement staff?		
4. Who are key technical staff for this project?		
5. Who are the key managers for this decision?		
6. Which individuals control important resources?		
7. What individuals outside of the decision process may be important to the credibility of the public involvement process?		
8. What internal resources with special expertise will be important to the process, such as graphics support?		
9. What outside resources with special expertise will be important to the process, such as independent technical experts?		





ATTACHMENT 6: ADDITIONAL PUBLIC INVOLVEMENT TECHNIQUES/EXAMPLES

Title: I-25 Pueblo Ice Cream Social

Issue: The project team was having difficulty getting community input on the trade-offs between the high noise walls and the noise reduction.

Tool: The project team held an ice cream social within the affected community. Large poles, representing the different sizes of the noise walls were erected so that they would be visible as people arrived. Attendees were able to assess for themselves how the different heights would impact their views and project team members working at the social captured participant comments and opinions.

Title: I-25 Parks Advisory Committee

Issue: The project team was having a difficult time identifying impacts and mitigation options for the Mineral Palace Park.

Tool: The project team developed a stakeholder committee that included local residents and members of the park management to identify and evaluate different impacts to Mineral Palace Park. The committee started with some basic examples of potential impacts and mitigation to start dialog. The committee then used an iterative process to identify how impacts could be minimized and developed appropriate mitigation activities.

Title: I-70B West Spanish Language Public Meeting

Issue: The project area included a high number of Spanish speaking residents who either did not speak English or were more comfortable communicating in Spanish.

Tool: A Spanish language public meeting was held within the community affected by the project. All materials and discussion were in Spanish. Comments were collected and used in the same fashion as comments from other public meetings for the project.

Title: I-70 East Community Outreach Program

Issue: Communities in the project area were heavily impacted by the original I-70 project. There were high levels of community distrust in government agencies and the DOT created problems with effective public involvement.





Tool: The project team established a nested program for public involvement that started with neighborhood canvassing aimed at direct person-to-person communication with each residence in the affected communities to develop a personal relationship with individuals in the communities. Canvassers received training on how to effectively communicate with residents as well as local customs and etiquette.

Residents were then asked to host block parties where information about the project could be shared with a group of residents. The host was responsible for providing a location while the project paid for all other items.

Neighborhood meetings took place that brought together residents at a larger scale. Meetings were held in times and locations that worked with non-traditional work schedules and included food and day-care facilities to encourage involvement.

Corridor meetings covered several different neighborhoods.

Public comments were accepted at all levels.

Title: SH 145 Pullout, Agency Coordination

Issue: The project team was having a difficult time identifying issues and concerns of the Bureau of Land Management (BLM) related to paving of a pullout area

Tool: A site visit with the BLM and project team to explain the project occurred. During that site visit, the team reviewed construction activities and identified issues that the BLM may have.





ATTACHMENT 7: SAMPLE COMMENT FORM AND NEWSPAPER NOTICE

Sample Comment Form

Project Name: _____
Public Hearing: _____
Date: _____
Time: _____

COMMENT SHEET

I have the following comments, questions, or concerns about this project:

Please use the back of this comment sheet for additional comments.

Contact Information

Name: _____

Address: _____

Phone: _____

E-Mail: _____

Leave this comment sheet tonight, or mail it to or drop it off at the address shown on the other side no later than Date. You may also fax your comments to (###) ###-### or e-mail them to ****@dot.state.co.us. Thank you.





Sample Newspaper Notice

South Broadway NEPA Process

Public Meeting #3

South Broadway NEPA Process

Tuesday, June 27, 2006
 5:00 PM to 7:30 PM
 Platt Park Senior Center
 1500 S. Grant Street (at Florida)

**Review Transportation
 Alternatives for
 South Broadway Corridor**

The City and County of Denver working with the community Consensus Committee, has identified and evaluated several transportation alternatives that address current and future travel demand and respond to transportation-related community interests in the South Broadway corridor. The study area includes the Cherokee and Lionstone redevelopment properties.

This Public Meeting is organized to provide information about these alternatives, and to receive and listen to public comment on them. As part of the process of identifying and evaluating alternatives, the City wants to hear from you. The meeting agenda includes:

5:00 PM Displays of project information
 5:30 PM Presentation of alternatives and evaluation process
 6:00 PM Public comment

- ✓ Do the alternatives meet your travel needs?
- ✓ Do the alternatives accommodate neighborhood interests?
- ✓ Do you have other ideas to be studied?

7:30 PM Wrap-up

Questions?
 Call Jason Longsdorf, City of Denver at 720-865-3162
 or Larry Gibson, Carter & Burgess at 303-222-5837

More information can be found on the project website:
www.denvergov.org/broadwaynepa/





ATTACHMENT 8: GUIDELINES FOR CONDUCTING OPEN FORUM PUBLIC MEETINGS AND HEARINGS

Format/Agenda

The open forum is a public meeting and hearing format in which the meeting is conducted like an "open house." Under normal circumstances, the hearing or meeting is not "called to order"; rather, the event begins at a predetermined time and citizens have the opportunity to review a variety of materials at their leisure, ask questions of experts and officials, discuss the issues with each other, and submit formal comments for the project record, if they so desire.

The sign-in lists compiled at public meetings/hearings may be made available upon request to outside parties in accordance with the Colorado Open Records Act (CRS 24-72-101, et seq.). This statement should be included at the top of the sign-in list along with a notice that the addresses and phone numbers will be removed and only the names and city of residence will be provided to others.

The event should be held in a large room such as a community center or school cafeteria where there is plenty of space for displays and tables and for people to move about freely. In selecting a facility for public meetings and hearings, ADA requirements must be met and special needs of stakeholders should be anticipated. People should be greeted as they enter the meeting room and given an information sheet showing how the forum is organized and where information can be found.

Basic displays should be placed at several stations around the room. These should focus on various aspects of the project for which the meeting is being held. For example, at a meeting to obtain public input on the Draft Environmental Impact Statement, copies should be made available at several locations. Other stations might highlight major design features, give right-of-way information, or feature information about how the impacts to a park or wetland area will be mitigated.

The meeting should last several hours and should provide opportunity for participation from people on different work schedules. For instance, a meeting might include both a mid-day session (from 11:00 – 2:00) and an evening session (4:00 – 7:00). When determining appropriate dates, project teams must be aware of and take into account other activities that may interfere with attendance.





Information and Handouts

At a minimum, each person should receive a meeting information sheet describing the purpose of the meeting and explaining where and how to obtain information and make comments (a room diagram might be helpful), and a summary sheet giving the names of the applicable transportation agencies and decision-making entities and their addresses and telephone numbers. All other information required by federal laws and regulations should be presented or included in handouts. All information to be given out should be provided in other languages as appropriate.

Citizen Comments

Those attending should have ample opportunity to discuss their concerns informally with agency officials and decision-makers and also be able to make formal comments. The meeting format should be designed to encourage an open exchange of information between the project development staff (i.e., CDOT and FHWA personnel, consultants hired to prepare the environmental studies and documentation, etc.) and the people who attend the meeting. Agency officials and staff should only answer questions for which they have the knowledge or technical expertise to be fully informed. When other questions arise outside these areas, the person interested in these issues should be escorted or directed to a staff member or agency official who can provide the correct information. The key to a successful meeting is to give citizens the feeling their concerns have been heard and their questions have been addressed honestly - even if the answer is "we don't know for sure." This open exchange can be much more effective in achieving good relations and developing trust with the public than is a sophisticated multi-media presentation facilitated by polished speakers. Therefore, it is extremely important that officials and staff members make themselves available, act like hosts and hostesses, and not cluster together, away from the public.

Comment sheets should be available in several locations, and boxes, marked for receipt of comments, should be provided at the exit and two or three other places in the room. In addition, individuals should be given an address and a date by which comments must be received. At public hearings, citizens may be given the opportunity to make oral comments for the record. If so, facilities must be available to record comments verbatim. A transcript of these comments must be made, and these comments must be included in and addressed in the project record. Translators, when necessary, should be provided so that everyone is able to be involved and provide comments.





CHAPTER 8: DOCUMENT REVIEW PROCEDURES

	<u>Page</u>
8.0 DOCUMENT REVIEW PROCEDURES	8-1
8.1 Review Process	8-1
8.1.1 Sequential Review	8-1
8.1.2 Concurrent Review	8-2
8.1.3 Team Review	8-2
8.2 Document Review Calendar	8-3
8.3 Document Review Transmittal Process	8-4
8.4 Review Period	8-9
8.5 Comment Resolution	8-10
8.6 Signature Process	8-10
8.7 EA Distribution	8-15
8.8 FONSI Distribution	8-16
8.9 Draft and Final EIS Distribution	8-17
8.10 ROD Distribution	8-18
8.11 NEPA Document Completion	8-18
8.12 References	8-19





LIST OF FIGURES

Figure 8-1	Consultant Certification Letter to RPEM Language-----	8-5
Figure 8-2	Example Transmittal Memo from RPEM to EPB NEPA Specialist-----	8-6
Figure 8-3	Standard CDOT Comment Matrix -----	8-7
Figure 8-4	Example Signature Page -----	8-11
Figure 8-5	Example Transmittal Memo from RTD to EPB Manager -----	8-12
Figure 8-6	Example Transmittal Memo from EPB Manager to Chief Engineer -----	8-13
Figure 8-7	Example Transmittal Letter from Chief Engineer to FHWA Division Administrator -----	8-14

LIST OF TABLES

Table 8-1	NEPA Document Distribution Requirements -----	8-15
-----------	---	------





8.0 DOCUMENT REVIEW PROCEDURES

This chapter establishes a procedure for review of documents prepared for Colorado Department of Transportation (CDOT) projects as defined under the National Environmental Policy Act of 1969 (NEPA) (NEPA, 42 United States Code (USC) § 4321 – 4347), such as documented (or non-programmatic) Categorical Exclusions (CatExs), Environmental Assessments (EAs), Findings of No Significant Impact (FONSIs), Environmental Impact Statements (EISs), Records of Decision (RODs), and Reevaluations. These review procedures also include individual chapters, technical reports, and Planning and Environmental Linkages (PEL) submittals. CatExs follow the processes discussed in **Chapter 5**. CDOT and the Federal Highway Administration (FHWA) will update this procedure as necessary.

8.1 Review Process

There are three review options that can be considered by the project team at the beginning of the NEPA project. The review option will be decided by the project team during the scoping process. For more information on the project team, please see **Chapter 3**. No matter which review process is selected by the project team, all documents will be reviewed by the CDOT Region, CDOT Environmental Programs Branch (EPB), and FHWA Colorado Division Office (at the Operations Engineer's (OE) discretion), and may involve a separate review by FHWA legal counsel or FHWA Headquarters. All comments must be addressed or resolved before the signature copy of the document can be produced. In addition, under all review processes, the consultant needs to have a good quality assurance (QA)/quality control (QC) plan in place (**Appendix D**). The QA/QC plan should be presented by the consultant to CDOT and agreed upon at the beginning of the NEPA project. Please see **Section 8.4** for a discussion of the necessary review periods.

8.1.1 Sequential Review

In a sequential review, the project team submits the document, individual chapter, or technical report to the Region for review after the consultant has completed its QA/QC review. After the Region comments are addressed, the document is sent by the Region to EPB for review. After the EPB comments are addressed, CDOT completes its QA/QC review and the Region submits the document to the FHWA OE for review. Sequential reviews are especially helpful for large, complex NEPA projects.

A comment resolution meeting(s) is recommended as an efficient method of resolving comments and expediting completion of documents. However, if



A QA/QC plan shall be prepared for each project. The intent of the QA/QC plan is to cover all QA/QC activities that will be implemented for work on the project.





comments received are relatively straight-forward, comment resolution can also be handled via email or a phone call among the parties. For more information on comment resolution, please see **Section 8.5**.

8.1.2 Concurrent Review

There are three options for a concurrent review. Option one is when the Region reviews the document, individual chapter, or technical report and then EPB and FHWA review at the same time.

Under option two, the Region and EPB review the document, individual chapter, or technical report at the same time. FHWA would review after the CDOT review.

Option three is when the Region, EPB, and FHWA all review the document, individual chapter, or technical report at the same time.

The intent of the concurrent review process is to shorten the review period, but it has not yet been proven to do so. Since so many parties are reviewing at the same time, a lot of comments can be made that require large revisions. Another full review is typically required to ensure that the revisions are acceptable to all reviewers. For this review technique to be best utilized, the project team should have confidence that the document from the consultant will require only minor revisions.

A combined comment resolution meeting is recommended as an efficient method of resolving comments. For more information on comment resolution, please see **Section 8.5**.

8.1.3 Team Review

In a team review, a team of selected individuals will be responsible for review of the document, individual chapter, or technical report submittal. The intent of this review process is to have only one full review cycle. This review option requires more of a “hands-on” approach from the team members. This team will include one lead person from either the Region or EPB for each resource of concern that was identified during scoping, a Region NEPA project manager, an EPB NEPA specialist, and the FHWA OE. The exact make-up of the team will depend on the complexity of the issues to be addressed. This team is typically smaller than the staff that reviews a document in either the sequential or the concurrent reviews.

Each team member will be responsible for their area of expertise including final review and input on the adequacy of the section pertaining to their expertise. If that team member is not an EPB resource specialist, it is their responsibility to work with the EPB resource specialist throughout the process to bring their issues and concerns into the NEPA project early on. If



There are three options for a concurrent review process.



a resource is not present in the NEPA project area and there is no team member for the resource area, the EPB NEPA specialist is responsible for coordinating with the appropriate EPB resource specialist.

Two options may be used for the team review. Option one is a combined CDOT/FHWA review. In option one; the FHWA OE participates as part of the team throughout the process, including review and concurrence on draft documents and sections of draft documents.

Option two consists of a CDOT review and then a FHWA review. In option two, the CDOT team reviews the document and the FHWA OE only participates on resolution of substantive issues. In this option, the CDOT team would get concurrence from FHWA on issues such as the purpose and need statement, alternatives to be evaluated, and the preferred alternative. FHWA would not review the document or sections of the documents until CDOT has completed a thorough internal review of the draft document. The approach is agreed upon during scoping.

A comment resolution meeting is recommended as an efficient method of resolving comments. Comment resolution will be decided by the decision-making team, which will be comprised of the Region NEPA project manager, the EPB NEPA specialist, and the FHWA OE. For more information on comment resolution, please see **Section 8.5**.

8.2 Document Review Calendar

EPB is responsible for maintaining the Master Document Review Calendar (calendar). As needed, the EPB NEPA specialist will request calendar updates from the Region Planning and Environmental Managers (RPEMs). The update includes review dates for documented (or non-programmatic) Cat Exs, EAs, Draft EISs, Final EISs, FONSI, RODs, Reevaluations, PELs, technical reports, and individual chapters that require EPB review and the review process that will be used (**Section 8.1**). No matter which review process is chosen, the document will still be listed on the calendar.

The calendar is used by EPB for workload scheduling. If a document is not on the calendar, the document is reviewed at the discretion of EPB. The Regions notify the EPB NEPA specialist as soon as possible if a document's schedule has changed. If more documents are received for review than can be handled, the documents are prioritized for review based on the information provided in the calendar and discussions with the Regions. During the major holiday weeks and conference weeks, the Regions are responsible for working with the EPB NEPA specialist to coordinate realistic review times.





EPB also uses the calendar to provide project updates at various meetings with agencies so that they are aware of when documents may be available for agency review. These meetings include the Transportation Environmental Resource Council (TERC), Environmental Protection Agency (EPA) quarterly meetings, etc. The agencies use this information for their workload scheduling as well. Therefore, it is important that the calendar be updated with the most realistic information possible.

8.3 Document Review Transmittal Process

Consultants are expected to complete an independent QA/QC review of all documents to ensure they are complete and comply with all state and federal regulations before submitting the documents for CDOT and FHWA review. Consultant members of the project team are required to submit a certification letter signed by a company officer attesting to the quality, accuracy, and completeness of documents submitted for review. This certification letter should also state the specific individual(s) who read the entire document to ensure consistency within the document. This QA/QC review and certification letter must accompany formal submittal of draft or final documents submitted to the Region, EPB, and FHWA for review. If this letter is not received, EPB will not release their comments to the project team. **Figure 8-1** includes sample certification letter language.





Figure 8-1 Consultant Certification Letter to RPEM Language

<Insert Firm Name and Address>

<Insert Date>

Subject: <Insert Subject – Example: Consultant Certification Letter for X Project>

Dear <Insert RPEM Name>:

Enclosed are <Insert Number> copies of the <Insert Type of Document - EA, FONSI, Draft/Final EIS, ROD> for <Insert Project Number, Project Name>. This document has been reviewed for compliance with all applicable federal, state, and local laws and regulations. It has been prepared in compliance with the Council on Environmental Quality Regulations for Implementing the Procedural Provision of the National Environmental Policy Act, 40 CFR § 1500-1508; 23 CFR 771; and FHWA Technical Advisory 6640.8A.

This document has been prepared by experienced, technically competent, and knowledgeable professionals. I can attest to its quality, accuracy, and completeness. An independent Quality Assurance review has been completed by <Insert Name, Title>. In my professional opinion, the quality of this document meets the standards expected by CDOT and FHWA.

Sincerely,

<Insert Firm Principal Name>

The RPEM will submit draft NEPA documents for review to the EPB NEPA specialist with a signed transmittal memo (Figure 8-2). The transmittal memo should include the NEPA project name and number, number of copies (paper/compact disc [CD]) submitted, Region contact for return of comments, and any special or unusual circumstances concerning the review including other CDOT offices or agencies that will be reviewing the document. EPB requires two hard copies and one CD of documents for review. Electronic files must be less than 50 megabytes (MB) each.





Figure 8-2 Example Transmittal Memo from RPEM to EPB NEPA Specialist

DATE: <Insert Date>

TO: <Insert EPB NEPA Specialist Name>

FROM: <Insert RPEM Name>

SUBJECT: Review of <Insert Project Number, Project Name with Type of Document (EA, FONSI, Draft/Final EIS, ROD)>

Attached for your <Insert Number such as First> review are <Insert Number> hard copies, <Insert Number> CD(s) of the above-referenced document. This document was prepared by <Insert Firm Name> and the consultant certification letter is attached.

Once I have received your comments, the NEPA project team will determine if a comment resolution meeting is necessary. If a meeting will be necessary, the consultant will provide the comment matrix, including responses and any issues that need to be discussed. I will then work with you to schedule this meeting.

Attachments



CDOT's standard comment matrix is available at <http://www.coloradodot.info/programs/environmental/resources/forms>

Comments should be submitted using CDOT's standard comment matrix (Figure 8-3). When submitting comments, commenters should be as specific as possible and include suggested text when requesting changes. Being clear helps the project team understand comments and will help make the response process more efficient. Responses to comments must be documented in the response column of the comment matrix and submitted back to the reviewers so that they can ensure their comments were adequately addressed. It is helpful if the response column includes the actual text changes and location in the document where the changes were made. If the response says "comment incorporated", it is sometimes very challenging for the commenters to determine how the comment was addressed. See Section 8.5 for information on the comment resolution process.





Figure 8-3 Standard CDOT Comment Matrix

ENVIRONMENTAL PROGRAMS BRANCH NEPA COMMENT SUBMITTAL FORM

Project Name							
YOUR NAME (last name, first name)	SECTION #	PAGE	LINE	COMMENT	S, R, E (Substantive, Requested, Editorial)	A, R, C (Accepted, Rejected with Explanation, Needs Clarification)	RESPONSE (by consultant)





When submitting documents for review, line numbers on each page should be used so that it is easier to identify where comments are located.

Watermarks tend to slow down computers and printers when electronic documents are being reviewed and should be avoided. Rather than using a watermark, it is suggested that "Draft" be put in the header or footer of the document.

Please double-check with the OE to determine the correct number and type of documents required. The FHWA OE has the discretion to request additional copies and to change the format (hard copy versus electronic). In general, FHWA requires three hard copies of a document for the Colorado Division Office review. Technical reports should only be provided electronically. For EAs and FONSIs that include a Section 4(f) evaluation and for Draft EISs and Final EISs, an additional round of review is required to allow for FHWA legal review or legal sufficiency review. Two hard copies are required for the legal review. One additional hard copy is required during the legal or legal sufficiency review if prior concurrence by the FHWA headquarters office is necessary. Prior concurrence is a step in the project development process at which the FHWA Colorado Division office obtains an approval from FHWA headquarters before proceeding with key approvals under NEPA. Prior concurrence is required for Tier 1 documents and may be required for projects that have impacts of unusual magnitude, high levels of controversy, emerging or national policy issues under development, or issues for which the division office seeks policy assistance.

For draft documents with draft Section 4(f) evaluations, the document will be submitted to the US Department of Interior (DOI) for review. If the document is available electronically, one electronic copy on CD and a URL for where it is available on the internet are required. The electronic media must be sent by Federal Express (FedEx) or United Parcel Service (UPS). The United States Postal Service (USPS) irradiates mail to agencies in Washington, DC, which destroys the information on the disk. If the document is not available electronically and on the internet, DOI requires 12 hard copies of draft documents and 9 hard copies of final documents.

As of October 1, 2012, the USEPA implemented an online EIS submittal tool called e-NEPA to eliminate the need for hard copy document submittals. EPA no longer accepts hard copy or CD submittals. A specified staff person at the FHWA Colorado Division Office will submit the electronic document via e-NEPA. All documents are required to be in pdf format. Each pdf file must be no greater than 50 MB. The EPA recommends that file names are formatted with the chapter or subchapter number first, followed by its name.



The DOI's current preference for review documents is available at http://www.doi.gov/pmb/oeqc/nrm/upload/Environmental_Review_Process.pdf





For example, Chapter 1 – Purpose and Need. All pdf files must be searchable and have bookmarks included for chapters and subchapters.

8.4 Review Period

The review period for the Regions varies depending on the project as well as the Region. Typically, the project team will establish the document review period as part of the project schedule.

The review period for EPB varies depending on the type of document. For documented (or non-programmatic) CatExs, EAs, FONSI, RODs, Reevaluations, PELs, technical reports, and individual chapters, the standard review period is 11 working days. For an EIS, the standard review period is 20 working days. The EPB NEPA specialist will notify the Region NEPA project manager early in the review period if problems are presented that may require additional review time.

Documents scheduled for review on the calendar have a higher priority than those unscheduled. Documents must be received in the morning (before noon) at the EPB office for that day to count as the first working day. Also, the required number of copies and required transmittals must be received for the review period to begin. Unless otherwise negotiated with the EPB NEPA specialist, incomplete documents will not be reviewed.

The RPEM and the EPB NEPA specialist may determine on a case-by-case basis that the designated review period is not sufficient or too long based on the complexity of the document and project and adjust the review period accordingly. The length of the review period may also be adjusted due to the number of other documents in for review at the same time, or for known schedule conflicts for EPB staff. Therefore, it is possible to negotiate a longer or shorter review period for all documents.

FHWA's goal is to review all documents in two (2) weeks. Some documents may take longer, depending on length and quality. EISs (Draft and Final) and Section 4(f) evaluations that require review by FHWA's legal department, document reviews by other agencies (e.g. the DOI requires 45 days), and prior concurrence review by FHWA headquarters will be longer. Typically, 30 days is the standard review period for any required legal and prior concurrence reviews.



For EIS EPA submittal requirements, see

<http://www.epa.gov/oecaert/h/nepa/submiteis/index.html#more>





8.5 Comment Resolution

Unless comments are relatively straightforward, it is recommended that a comment resolution meeting be held to clarify comments, resolve responses, and ensure that all of the appropriate parties are involved. For sequential and concurrent reviews, the meeting may include the following individuals: the Region project manager, the Region NEPA project manager, the FHWA OE, the EPB NEPA specialist, the reviewers, and any other project team members necessary. For sequential reviews, separate meetings with EPB and FHWA may be necessary. **Section 8.1.3** identifies comment resolution meeting attendees on Team reviews. This meeting will be scheduled as soon as possible after the comments are received to maintain the NEPA project schedule. However, depending on the complexity of the comments, the consultant may need additional time to review the comments before scheduling the meeting. **Section 8.3** discusses documenting responses to comments. Final comment resolution is the responsibility of the Region.

8.6 Signature Process

The Region NEPA project manager makes the determination through consultation with an EPB NEPA specialist, the FHWA OE, and any participating or cooperating agency(ies) that there are no outstanding issues and that all comments have been adequately addressed before beginning the signature process.

After determining the document is ready for signature, two originals of the signature page (**Figure 8-4**) and one (1) hard copy of the final document are sent to the EPB Manager with a transmittal memo from the Region Transportation Director (RTD) (**Figure 8-5**) and the consultant certification letter (**Figure 8-1**). The RTD's memo requests document approval through signatures; attests to the quality, accuracy, and completeness of the documents prepared by consultants; and states that CDOT, FHWA, and participating or cooperating agency comments have been addressed. The transmittal also indicates the method of delivery to FHWA (hand carry or mail).





Figure 8-4 Example Signature Page

**CDOT Project <Insert #>
<Insert Project Name and Document Title>**

**Submitted Pursuant to:
<List Applicable Regulations>**

**By the
U.S. Department of Transportation
Federal Highway Administration
and
Colorado Department of Transportation**

Submitted by:

<hr/> <Insert Name> Region 1 Transportation Director Colorado Department of Transportation	<hr/> Date
---	------------

Concurred by:

<hr/> <Insert Name> Chief Engineer Colorado Department of Transportation	<hr/> Date
---	------------

Approved by:

<hr/> <Insert Name> Administrator, Colorado Division Federal Highway Administration	<hr/> Date
--	------------





Figure 8-5 Example Transmittal Memo from RTD to EPB Manager

Date: <Insert Date>

To: <Insert EPB Manager Name>

From: <Insert RTD Name>

Subject: Submittal of <Insert Project Number, Project Name, Document Type (EA, FONSI, Draft EIS, Final EIS, ROD)> for Signature

The <Insert Document Type (EA, FONSI, Draft EIS, Final EIS, ROD)> is ready to be signed by CDOT and FHWA. Enclosed is one copy of the <Insert Document Type (EA, FONSI, Draft EIS, Final EIS, ROD)> and two copies of the original signature page. All CDOT and FHWA <Insert any other cooperating or participating agency as necessary> comments have been resolved, incorporated into the <Insert Document Type (EA, FONSI, Draft EIS, Final EIS, ROD)>, and I have signed the document.

Please contact <Insert Region Contact Name> at <Insert Telephone Number> once the signature page has been signed by the Chief Engineer. The Region <Insert will/will not> hand carry the signature page to FHWA.

Enclosures

An EPB NEPA specialist prepares a transmittal letter from the EPB Manager to the Chief Engineer indicating that EPB has reviewed the document and recommends that it be signed (**Figure 8-6**). The EPB NEPA specialist also prepares a transmittal letter from the Chief Engineer to the FHWA Division Administrator requesting signature (**Figure 8-7**). The EPB NEPA specialist will check on the Chief Engineer's availability, will obtain the Chief Engineer's signature, and will either forward the two signature pages and one hard copy of the document to FHWA for signature or contact the Region to hand carry the package to FHWA. The EPB NEPA specialist will let the Region know when the Chief Engineer has signed the document.





For planning purposes, it should be assumed that the Chief Engineer will take a couple of days to sign the document.

Once the document has been signed by the FHWA Division Administrator (or their designee), the FHWA OE will transmit the signed signature page to the office specified on the transmittal from the Chief Engineer. The original signature page will be kept by the Region.

Figure 8-6 Example Transmittal Memo from EPB Manager to Chief Engineer

DATE: <Insert Date>

TO: <Insert Chief Engineer Name>

FROM: <Insert EPB Manager Name>

SUBJECT: <Insert Project Number, Project Name, and Document Type (EA, FONSI, Draft EIS, Final EIS, ROD)> for Signature

The Environmental Programs Branch has reviewed this document and recommends the document be signed. Please sign the attached signature pages of the <Insert Document Type (EA, FONSI, Draft EIS, Final EIS, ROD)> for the above subject project. Also attached for your signature is the transmittal letter to the Federal Highway Administration. Thank you.

Attachments





Figure 8-7 Example Transmittal Letter from Chief Engineer to FHWA Division Administrator

<Insert Date>

<Insert Name>
 Division Administrator
 Colorado Division
 Federal Highway Administration
 12300 W. Dakota Avenue, Suite 180
 Lakewood, Colorado 80228

Dear <Insert Division Administrator Name>:

Transmitted herewith for your signature and approval is one copy of the <Insert Document Type (EA, FONSI, Draft EIS, Final EIS, ROD)> for <Insert > Project Number, Project Name (Subaccount)>.

Upon approval, please return the signed and dated title page to <Insert Name> with Region <Insert Region Number>. Thank you.

Sincerely,

<Insert Name>
 Chief Engineer

Attachment





8.7 EA Distribution

Typically, the Region will identify the number of copies and review locations that will be required during the Scope of Work process. The Regions are responsible for sending Administrative Services – Central Files one hard copy of signed documents. Each Region is also responsible for sending the other Regions a courtesy CD copy for each NEPA document completed.

See **Table 8-1** for distribution requirements. The FHWA OE has the discretion to request additional copies and to change the format (hard copy versus electronic). Please double-check with the OE to determine the correct number and format of documents required.

Table 8-1 NEPA Document Distribution Requirements

Agency	Document Distribution	Hard copies	Electronic copies (CD)
EPB	EA	1 copy for library	1 copy for library
	FONSI		
	Draft EIS		
	Final EIS		
	ROD		
	Reevaluation		
Region	EA	TBD by Region	TBD by Region
	FONSI		
	Draft EIS		
	Final EIS		
	ROD		
	Reevaluation		
FHWA	EA	1 EPA Region 8 3 FHWA CO Division 2 FHWA legal (if Section 4(f)) 12 max DOI (if Section 4(f) and if no CD and website available)	1 DOI (if Section 4(f))
	FONSI	3 FHWA CO Division 2 FHWA legal (if Section 4(f)) 1 EPA Region 8 9 max DOI (if Section 4(f) and if no CD and website available) 1 extra	1 EPA Region 8 1 DOI (if Section 4(f))





Agency	Document Distribution	Hard copies	Electronic copies (CD)
	Draft EIS	3 FHWA CO Division 2 FHWA legal 1 FHWA headquarters 3 EPA Region 8 12 max for DOI (if Section 4(f) and if no CD and website available)	1 EPA Region 8 1 DOI (if Section 4(f))
	Final EIS	3 FHWA CO Division 2 FHWA legal 1 FHWA headquarters 3 EPA Region 8 9 max DOI (if Section 4(f) and no CD and website available)	1 EPA Region 8 1 DOI (if Section 4(f))
	ROD	3 FHWA CO Division 2 FHWA headquarters 9 max DOI (if Section 4(f) and if no CD and website available) 1 extra copy	1 DOI (if Section 4(f))
	Reevaluation	3 FHWA CO Division	
State Library Repository	EA and FONSI	2 if no weblink (appendices on CD)	2 if no weblink
	Final EIS and ROD	2 if no weblink (appendices on CD)	2 if no weblink

The web link, if available, or copies for the State Library should be sent to:
 State Library
 201 East Colfax Avenue, Room 309
 Denver, CO 80203

Following distribution, the public review period for an EA is 30 days unless the EA incorporates a Section 4(f) evaluation, in which case the DOI review requires that 45 days be provided for their review of the evaluation. All document review locations must have documents in place by the time that the notice of availability (NOA) is published.

8.8 FONSI Distribution

Typically, the Region will identify the number of copies and review locations that will be required during the Scope of Work process. The Regions are responsible for sending Administrative Services – Central Files one hard





copy of signed documents. Each Region is also responsible for sending the other Regions a courtesy CD copy for each NEPA document completed.

See **Table 8-1** for distribution requirements. The FHWA OE has the discretion to request additional copies and to change the format (hard copy versus electronic). Please double-check with the OE to determine the correct number and format of documents required.

After the FONSI determination has been made by FHWA, an announcement of availability of the FONSI is sent by CDOT to the affected units of federal, state, and local government, and the FONSI is made available from CDOT and FHWA upon request by the public.

8.9 Draft and Final EIS Distribution

The number of copies of the signed document for the Regions varies on the NEPA project and also varies by the Region. Typically, the Region will identify the number of copies and review locations that will be required during the Scope of Work process. The Regions are responsible for sending Administrative Services – Central Files one (1) hard copy of signed documents. Each Region is also responsible for sending the other Regions a courtesy CD copy for each NEPA document completed.

See **Table 8-1** for distribution requirements. The FHWA OE has the discretion to request additional copies and to change the format (hard copy versus electronic). Please double-check with the OE to determine the correct number and format of documents required.

The FHWA OE will provide a signed letter on FHWA letterhead for the distribution with the published EIS. CDOT, or CDOT's consultant, will publish and distribute the EIS using a distribution list that has been reviewed and approved by the FHWA OE. All document review locations must have documents in place at the time that the NOA is submitted to the EPA for publication in the Federal Register, and cooperating and participating agencies must have received copies of the document by the NOA.

For the EIS, the NOA will be published by the EPA in the Federal Register. The EIS must be submitted via e-NEPA by 5:00 pm Eastern Standard Time on the Friday prior to the NOA publication, which occurs on a Friday. The designated FHWA Colorado Division Office staff member will submit the electronic EIS to e-NEPA. The comment period for Draft EISs is a minimum of 45 days from publication in the Federal Register. However, if there is a Section 4(f) evaluation included, the DOI has an additional 15 days for a



The notice of availability (NOA) is published each Friday in the Federal Register for those EISs filed during the preceding week.





total of a 60 day comment period. The availability period for Final EISs is a minimum of 30 days from publication in the Federal Register.

A minimum 30-day period is required after publication of a Final EIS before any ROD may be issued.

8.10 ROD Distribution

The number of copies of the signed document for the Regions varies on the NEPA project and also varies by the Region. Typically, the Region will identify the number of copies and review locations that will be required during the Scope of Work process. The Regions are responsible for sending Administrative Services – Central Files one hard copy of signed documents. Each Region is also responsible for sending the other Regions a courtesy CD copy for each NEPA project completed.

See **Table 8-1** for distribution requirements. The FHWA OE has the discretion to request additional copies and to change the format (hard copy versus electronic). Please double-check with the OE to determine the correct number and format of documents required.

CDOT public involvement procedures require that notice of a ROD be placed in local newspapers as identified by the Region; however, a NOA in the Federal Register is not required for an individual ROD unless it is to initiate the 150 day limitations of claims clause provided for in Section 1308 of Moving Ahead for Progress in the 21st Century (MAP-21). This submittal is normally combined with other project decision documents and submitted in groups by the FHWA Environmental Program Manager.

8.11 NEPA Document Completion

For information on completing the NEPA document, including legal records and shelf life, please see **Chapters 4 and 6**.





8.12 References

Council on Environmental Quality (CEQ). 1978. NEPA Regulations. 40 Code of Federal Regulations (CFR) § 1500 – 1508. Retrieved December 2012 from http://ceq.hss.doe.gov/nepa/regs/ceq/toc_ceq.htm.

Moving Ahead for Progress in the 21st Century (MAP-21). 2012. P.L. 112-141. Retrieved December 2012. <http://www.fhwa.dot.gov/map21/>

National Environmental Policy Act (NEPA). 1969, as amended August 9, 1975. 42 USC § 4321 – 4347. Retrieved December 2012 from <http://ceq.hss.doe.gov/nepa/regs/nepa/nepaegia.htm>.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). 2005. 23 USC § 1001 - 11167. Retrieved December 2012 from <http://www.fhwa.dot.gov/safetealu/index.htm>



CHAPTER 9: RESOURCE CONSIDERATIONS

	<u>Page</u>
9.0 RESOURCE CONSIDERATIONS	9-1
9.1 Geospatial Data	9-2
9.2 Air Quality	9-5
9.2.1 Air Quality Evaluation Process	9-5
9.2.2 NEPA Document Sections	9-14
9.3 Geologic Resources and Soil	9-17
9.3.1 Geologic and Soil Resource Evaluation Process	9-17
9.3.2 NEPA Document Sections	9-18
9.4 Water Quality	9-21
9.4.1 Water Quality Evaluation Process	9-21
9.4.2 NEPA Document Sections	9-25
9.5 Floodplains	9-31
9.5.1 Floodplain Evaluation Process	9-32
9.5.2 NEPA Document Sections	9-35
9.6 Wetlands	9-38
9.6.1 Wetland Evaluation Process	9-38
9.6.2 NEPA Document Sections	9-44
9.7 Vegetation and Noxious Weeds	9-47
9.7.1 Vegetation Evaluation Process	9-47
9.7.2 NEPA Document Sections	9-53
9.7.3 Noxious Weeds	9-55
9.8 Fish and Wildlife	9-62
9.8.1 Fish and Wildlife Evaluation Process	9-62
9.8.2 NEPA Document Sections	9-70
9.9 Threatened/Endangered (T&E) Species	9-72
9.9.1 T&E Species Evaluation Process	9-73





9.9.2	NEPA Document Sections	9-77
9.10	Historic Properties	9-80
9.10.1	Reasons for Evaluation of Historic Properties Under NEPA.....	9-82
9.10.2	Collection and Evaluation of Baseline Information Under NEPA and Section 106	9-82
9.10.3	Other Issues to Consider	9-90
9.10.4	NEPA Document Sections	9-98
9.11	Paleontological Resources	9-100
9.11.1	Paleontological Evaluation Process	9-100
9.11.2	NEPA Document Sections	9-104
9.12	Land Use.....	9-107
9.12.1	Land Use Evaluation Process	9-107
9.12.2	NEPA Document Sections	9-109
9.13	Social Resources	9-112
9.13.1	Social Resource Evaluation Process	9-112
9.13.2	NEPA Document Sections	9-118
9.14	Economic Resources	9-120
9.14.1	Economic Evaluation Process.....	9-120
9.14.2	NEPA Document Sections	9-123
9.15	Environmental Justice	9-127
9.15.1	NEPA Document Sections	9-137
9.16	Transportation Resources	9-140
9.16.1	Transportation Resources Evaluation Process	9-140
9.16.2	NEPA Document Sections	9-141
9.17	Residential/Business/Right-of-Way Relocation	9-155
9.17.1	Relocation and Acquisition Evaluation Process	9-155
9.17.2	NEPA Document Sections	9-159
9.18	Utilities and Railroads	9-162





9.18.1	Utilities and Railroads Evaluation Process	9-162
9.18.2	NEPA Document Sections	9-164
9.19	Section 4(f) Evaluation	9-165
9.19.1	Legislative Background	9-165
9.19.2	Section 4(f) Evaluation Process	9-166
9.19.3	Section 4(f) Documentation in NEPA Documents	9-173
9.19.4	Section 4(f) Evaluation Processing, Review, and Approval	9-177
9.20	Section 6(f) Evaluation	9-180
9.20.1	Reasons for Evaluation of Section 6(f) Under NEPA	9-180
9.20.2	Collection and Evaluation of Baseline Information Under NEPA	9-181
9.20.3	NEPA Document Sections	9-182
9.21	Farmlands	9-184
9.21.1	Farmland Evaluation Process	9-184
9.21.2	NEPA Document Sections	9-187
9.22	Noise	9-188
9.22.1	Noise Evaluation Process	9-188
9.22.2	NEPA Document Sections	9-194
9.23	Visual Resources/Aesthetics	9-198
9.23.1	Visual Resource/Aesthetic Evaluation Process	9-198
9.23.2	NEPA Document Sections	9-202
9.24	Energy	9-206
9.24.1	Energy Evaluation Process	9-206
9.24.2	NEPA Document Sections	9-208
9.25	Hazardous Materials	211
9.25.1	Hazardous Material Evaluation Process	212
9.25.2	Collection and Evaluation of Baseline Information	213
9.25.3	NEPA Document Sections	9-217





9.26 Cumulative Impacts9-220

 9.26.1 Cumulative Impact Process9-223

 9.26.2 NEPA Document Sections9-227

9.27 References9-229

ATTACHMENT A: WATER QUALITY TEMPLATE AND WATER QUALITY MODEL PROGRAM DECISION TREE

ATTACHMENT B: ENVIRONMENTAL JUSTICE CENSUS 2010 DIRECTIONS





LIST OF FIGURES

Figure 9-1	Air Quality and Transportation Planning Connection	9-8
Figure 9-2	Coordination Between NEPA and Section 106	9-81
Figure 9-3	Section 106 / NEPA Merger Process	9-89
Figure 9-4	Cultural Resource Survey Forms – Which Forms to Use When	9-94
Figure 9-5	Section 4(f) Evaluation Process	9-168
Figure 9-6	Completing the Farmland Protection Act Analysis	9-186
Figure 9-7	Visual Resource Evaluation	9-203
Figure 9-8	Mitigation Process for CDOT Projects	9-219
Figure 9-9	Determining Cumulative Impacts	9-221

LIST OF TABLES

Table 9-1	National Ambient Air Quality Standards (2011)	9-7
Table 9-2	Potential Contaminants from Transportation Projects that May Impact Water Resources	9-22
Table 9-3	CDOT Land Use Categories and Noise Abatement Criteria	9-191
Table 9-4	CDOT Hazardous Material Document Guidance Table	9-214





9.0 RESOURCE CONSIDERATIONS

This section provides Colorado Department of Transportation's (CDOT) preferences on how resources should be presented in the required chapters of National Environmental Policy Act of 1969 (NEPA) documents. Specific format and level of detail is discussed in **Chapters 4, 5, and 6**. The CDOT project team should decide which resources discussed in this chapter should be included in the NEPA document. The level of detail for each resource should be commensurate with the importance of the resource and the potential it has to affect the decision-making process for alternative decisions.

Each resource section in this chapter is subdivided into the following elements:

- ▶ Evaluation Process - Identifies who is responsible for evaluating a particular resource, what to evaluate, and where it should be considered (i.e., defines the study area for the project being proposed, and when they should evaluate it). Reasons for evaluating the resource under NEPA (why), how to collect and evaluate baseline information under NEPA and any other issues to consider are discussed.
- ▶ NEPA Document Sections - Identifies what should be included in the Affected Environment and Environmental Consequences chapter of a NEPA document for the resource, including mitigation measures. Mitigation measures for impacted resources should be included and tracked in CDOT's approved Mitigation Tracking Spreadsheet. The first seven columns of this spreadsheet should be filled out and included as the summary of impacts and mitigation table in all NEPA documents. Additionally within each resource section, cross-references are made as appropriate to other parts of this Manual where additional detail on these aspects of NEPA can be found.

The study area for non-mobile physical resources such as geology and soils may be the same as the project footprint because impacts to the resource will only occur where it is disturbed. The study area for non-mobile biological resources such as vegetation may be slightly larger than the project footprint because emissions or effluents from project activities may indirectly impact plants. The study area for mobile resources may be larger and shaped differently than the project footprint. For example, the water resource study area may extend to the edge of the watershed(s) that contain the project footprint; wildlife study areas may vary by species and extend to the boundary of species' home ranges which can be as large as several states. Note that the term "region of influence" (ROI) is typically used in NEPA



Presenting Resources in a NEPA Document

- When resources are not present or analyzed in the project area, briefly list those resources in the beginning of the affected environment chapter, along with reasons for their not being considered further.
- If the project alternatives have limited potential to impact the resource, state this in the NEPA document and provide a high-level description of the resource in the project area.



CDOT's Mitigation Tracking Spreadsheet can be obtained here

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view



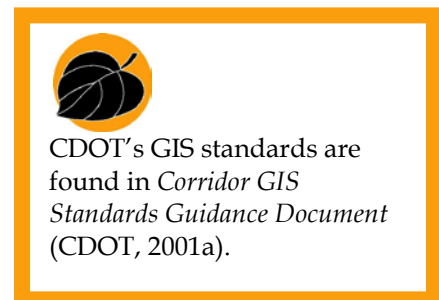


evaluations to denote the area within which cumulative impacts of the proposed project and other projects should be addressed.

9.1 Geospatial Data

Geographic information systems (GIS) assemble, store, manipulate, and display spatial data and have the ability to relate database information to reflect complex data relationships. GIS datasets are widely available from various federal, state, and local sources and can be utilized for numerous analyses throughout the NEPA process. GIS software is commonly used as a tool to convert datasets to-and-from Microstation, CDOT's design software platform, and to convert information between coordinate systems. The ability of GIS to relate database information to spatial locations is essential for performing overlay analyses. For example, a GIS user can determine the area of impact to property parcels from a proposed right-of-way footprint through overlay processes in GIS. GIS software has the ability to display data based upon database attribute information, allowing fast update of maps. Basic uses of GIS in the NEPA process (for transportation) include:

- ▶ Map production – Creation of digital and hardcopy maps for public displays and published documents.
- ▶ Evaluation of Environmental Impacts - GIS can be used to calculate environmental impacts (e.g., area of wetland impacts, volumes of material removed, numbers of historic properties, etc.)
- ▶ Simulating Environmental Impacts – Realistic, three-dimensional “before and after” simulations and modeling of environmental impacts of a given project that support decision-making.
- ▶ Measurements – Provides basic tools for measuring areas, distances, and volumes in addition to more complex measures, such as change detection through time.
- ▶ Static and Interactive Displays – Enhance public meetings, small group meetings, open houses, conferences, workshops, and websites by conveying complex information in graphic displays. GIS could also be set up as a stand-alone interactive display for meeting participants to review and comment on proposed plans.
- ▶ Data Management – Layers of environmental and design information can be stored in a single GIS database with associated metadata and documentation of how the layers were created and used for a project.



When collecting and developing GIS data during early project development, the following types of data also aid in environmental clearances:





- ▶ Baseline information, including locations of existing infrastructure, buildings, streams, jurisdictions, topography, vegetation, utilities and easements, wetlands, geologic hazards, soils, parks, and trails.
- ▶ Project design scenarios and alternatives

CDOT currently uses ESRI's ArcGIS software as their primary GIS platform. A number of online GIS applications have been developed by CDOT that provide useful spatial datasets and information for projects. These include:

- ▶ Project Locator Application (ProLo) – Allows users to find detailed information about Statewide Long Range Transportation Planning (SWLRTP) corridors and Statewide Transportation Improvement Program (STIP) projects throughout Colorado. The tool can be found at <http://dtdapps.coloradodot.info/projectlocator/>
- ▶ Data Access Application - Provides users with highway attribute information including geometrics, traffic counts, environmental information, and pavement information through multiple tools. Highway statistics, traffic reports, geographic data, and maps are also available for download. The application can be accessed at <http://apps.coloradodot.info/dataaccess/>

CDOT maintains its spatial data assets in Universal Transverse Mercator (UTM) projection, Zone 13. Commonly, corridor projects will utilize survey coordinate systems, created through modification of existing coordinate systems available in GIS. Where possible, survey control diagrams should be requested to allow GIS professionals to convert environmental and design layers between survey coordinates and standard GIS projections. This will help ensure the spatial accuracy of datasets and will allow design and environmental professionals to integrate the data into their respective analyses. This information should be documented and referenced in metadata for layers in survey coordinates.

Project managers should ensure that all information remains in separate layers to enable manipulation later in the project and to adhere to geospatial data specifications and protocols. To the extent possible, CDOT's standards for geospatial data and metadata are compliant with the US Federal Geographic Data Committee standards for quality, content, and transfer. CDOT's Corridor GIS Standards are to be referenced and utilized on all CDOT projects.

GIS servers host GIS resources, such as maps and aerial imagery, over an internet connection allowing layers to be accessed remotely without being downloaded locally. These services can be useful in providing the most up-





to-date information available from the data creator. Helpful GIS servers accessible in ArcGIS include:

- ▶ Federal Emergency Management Act (FEMA) National Flood Hazard Layer Web Map Service – Provides access to the National Flood Hazard Layer, which includes floodplain limits, letter of map revision (LOMR) locations, floodplain cross sections, etc. The web map service can be accessed through adding an ArcGIS web map server connection to <http://hazards.fema.gov/wmsconnector/wmsconnector/Servlet/NFHL?>
- ▶ U.S. Fish & Wildlife Service National Wetland Inventory Web Map Service – Supplies access to linear and polygon wetland data for the U.S. and U.S. territories, as well as riparian mapping where available. The web map service can be accessed through creation of a connection to the ArcGIS web map server, located at http://107.20.228.18/ArcGIS/services/FWS_Wetlands_WMS/maps/erver/wmsserver?
- ▶ Denver Regional Council of Governments (DRCOG) Web Map Service – Provides a multitude of transportation and environmental resource data, including current year municipal boundaries. The web map service can be accessed by establishing a connection to <http://gis.drcog.org/geoserver/wms?>
- ▶ Colorado Parks and Wildlife's (CPW) Natural Diversity Information Source Map Server – Displays data of species habitat, movement areas, critical range, riparian mapping, potential fen and wetland areas, biodiversity data, and various other environmental data layers. The map service can be accessed through creation of an ArcGIS Server connection to <http://ndis-flex.nrel.colostate.edu/arcgis/services>
- ▶ Natural Resources Conservation Service (NRCS) Web Map Service – Allows access to NRCS soil mapping for the US, where available. The web map service can be accessed by establishing a connection to <http://SDMDataAccess.nrcs.usda.gov/Spatial/SDM.wms>



9.2 Air Quality

Air quality discussions address the emissions of air pollutants from transportation systems that can be harmful to human beings, other living organisms, or man-made materials. Emissions may also contribute to regional haze and alter certain characteristics and benefits provided by the atmosphere and degrade visibility. In essence, to protect the health of humans and other organisms, the structural integrity of man-made materials, and preserve visibility of scenic vistas, it is important to prevent degradation of air quality.

The sections below provide guidance on the treatment of air quality for CDOT's NEPA projects. The first section discusses the process for evaluating air quality. The second section discusses air quality information that should be included in each NEPA document. Additional information can be found in CDOT's *Air Quality Procedures Manual* (CDOT, 2010).

9.2.1 Air Quality Evaluation Process

Air quality is primarily regulated under the 1970 Clean Air Act (Title 42 United States Code [USC] Chapter 85) and amendments from 1977 and 1990. The purpose of the Clean Air Act is to protect and enhance air quality to promote public health, welfare, and the productive capacity of the nation. The Clean Air Act addresses criteria air pollutants (regulated through the National Ambient Air Quality Standards [NAAQS]), the Prevention of Significant Deterioration (PSD) program, as well as Hazardous Air Pollutants (HAPs) added in the 1990 amendments.

The Clean Air Act provided the U.S. Environmental Protection Agency (EPA) the authority to designate "nonattainment" areas where air pollution levels were higher than the NAAQS. Areas that currently are or have been nonattainment are the subject of State Implementation Plans (SIPs) designed to move (or keep) the area into attainment of the NAAQS, which often places corrective requirements on the transportation sector and mobile-source pollutant sources. These areas are subject to the Transportation Conformity Rule (40 CFR 93.104), which directs that federally-supported transportation activities must be consistent with (i.e., "conform to") the purposes of a SIP. Transportation projects outside of nonattainment and maintenance areas are not subject to these regulations.

EPA promulgated regulations to address regional haze in 1999. Other relevant federal air quality legislation includes the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU, Public Law 109-59 § 1001 – 11167).





REASONS FOR EVALUATION OF AIR QUALITY UNDER NEPA

NEPA and its implementing regulations (40 CFR 1500) mandate that transportation decisions involving a federal nexus or federal funds adhere to the NEPA regulations. NEPA requires that federal agencies use a systematic, interdisciplinary approach to decision-making when federal actions may affect the quality of the human environment. In addition, CDOT has committed to complying with the intent and requirements of NEPA for state transportation activities, regardless of whether or not these activities are federally funded. These are described in CDOT's *Air Quality Program Book* (CDOT, 2012). Therefore, CDOT conducts air quality evaluations for its projects for a variety of reasons, including:

- ▶ To fulfill requirements of the Clean Air Act and amendments and EPA's Transportation Conformity Rule
- ▶ To protect the state's air quality
- ▶ To comply with CDOT's environmental stewardship policy, which ensures the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner

NAAQS NONATTAINMENT AREAS

Six "criteria" air pollutants have been identified that can be harmful to public health and the environment (**Table 9-1**). For each criteria pollutant, health-based (or primary) standards have been established to protect public health with an adequate margin of safety, and some welfare-based (or secondary) standards have been established to protect the public welfare (e.g., crops, vegetation, wildlife, buildings and national monuments, and visibility) from adverse effects of air pollution. The primary NAAQS represent a maximum pollutant concentration over a specific averaging time above which adverse effects on human health may occur. The NAAQS most directly related to transportation sources are: carbon monoxide; nitrogen dioxide; ozone (precursor emissions); and, particulate matter.

Under the Clean Air Act, EPA may designate areas that are found not to be in compliance with one or more of the NAAQS (**Table 9-1**) as nonattainment areas. When air quality improvement actions within these areas have been shown to be successful over time in meeting the NAAQS, EPA may re-designate the areas to attainment/maintenance for the specific NAAQS. In either case, these areas are subject to SIPs that are designed to move (or keep) the area into attainment of the NAAQS, which often places corrective requirements on the transportation sector and mobile-source pollutant sources. Therefore, projects within nonattainment or maintenance areas are





subject to greater scrutiny of potential air quality effects than projects outside these areas. Note that some types of projects are exempt from air quality conformity (40 CFR 93.126 and 93.127), regardless of location.

Table 9-1 National Ambient Air Quality Standards (2011)

Pollutant	Primary NAAQS		Secondary NAAQS	
	Concentration	Averaging Time	Concentration	Averaging Time
Carbon Monoxide	9 ppm	8-hour	None	
	35 ppm	1-hour	None	
Ozone	0.075 ppm	8-hour	Same as Primary	
Particulate Matter (PM ₁₀)	150 µg/m ³	24-hour	Same as Primary	
Particulate Matter (PM _{2.5})	12 µg/m ³	Annual	15 µg/m ³	
	35 µg/m ³	24-hour	Same as Primary	
Nitrogen Dioxide	53 ppb	Annual	Same as Primary	
	100 ppb	1-hour	None	
Sulfur Dioxide	75 ppb	1-hour	500 ppb	3-hour
Lead	0.15 µg/m ³	3 Months	Same as Primary	

ppb = parts per billion
 ppm = parts per million
 µg/m³ = micrograms per cubic meter

Each SIP establishes air pollutant emissions budgets for the affected nonattainment or maintenance area. The budget is the overall air pollutant emissions limit for the regulated area and consists of several source categories. To demonstrate that the SIP will achieve the emission levels necessary for compliance, limits are established on the amount of emissions that any single source category can emit. For the on-road mobile source category (i.e., transportation projects) this limit is referred to as the motor vehicle emissions budget. The SIP may also contain corrective actions, such as vehicle emissions testing requirements.

The responsible Metropolitan Planning Organizations (MPOs) or Transportation Planning Regions (TPRs) for the nonattainment or maintenance areas are required to demonstrate that the transportation systems within their jurisdictions will stay within these budgets and to implement any related corrective action commitments. Transportation improvements in these areas are subject to the Transportation Conformity





Rule, which requires that any proposed changes to the transportation system must first be shown to comply with (“conform” to) the purposes of the SIP by keeping the overall system within the vehicle emissions budget and not impeding any of the corrective programs.

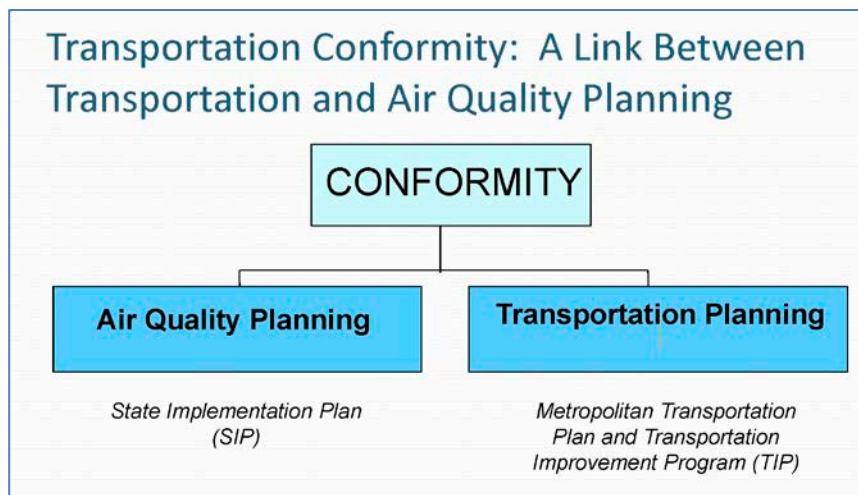
At the time of writing, Colorado has 13 non-attainment or attainment/maintenance areas.

TRANSPORTATION PLANNING AND CONFORMITY

CDOT is not directly responsible for the transportation planning that must occur for the nonattainment and maintenance areas—that is the responsibility of the relevant MPOs or TPRs. However, CDOT does sponsor transportation improvement projects and thereby partners with the MPOs in identifying future changes to the regional transportation network that must be planned and analyzed as part of the regional planning process. The overall objective of this work is to ensure that transportation plans and projects, and their associated air pollutant emissions, are consistent with the purpose, goals and methods of the relevant nonattainment and/or maintenance SIPs.

The regional transportation plans and programs must be found to “conform” to the SIP before these plans and programs can be approved and implemented. Individual projects within the SIP areas cannot proceed unless they are contained in a conforming plan and program. Therefore, the two branches of the conformity process (Figure 9-1) must work in concert in that planned transportation improvements must not have adverse air quality consequences and air quality improvements must be important considerations in planning transportation improvements.

Figure 9-1 Air Quality and Transportation Planning Connection





There are two levels of analysis needed to demonstrate conformity for roadway improvements. The first level is regional, which means the project must be included in a fiscally constrained, air-quality-conforming plan or program to address potential long-term and regional air quality impacts from modifying the transportation system as described above. The second level is local, which means an individual project cannot create new, increase the frequency of or exacerbate the severity of air quality violations.

AIR QUALITY ANALYSIS

There are several steps involved in a typical CDOT air quality analysis for NEPA. It should be noted that air quality analysis for NEPA purposes are distinct from air quality conformity analyses that may be required for areas subject to EPA designated non-attainment (and attainment/maintenance) status. These steps are not fixed because the required analyses can vary by project type and location. Typically, an analysis would be limited to a subset of air pollutants specifically related to transportation sources. The major steps include, and are described in more detail below:

- ▶ Determination of need for air quality analysis
- ▶ Scoping of analyses and methods
- ▶ Evaluation of project setting
- ▶ Conformity evaluations (regional and local/hot-spot)
- ▶ Other non-NAAQS pollutant analyses
- ▶ Emissions from construction
- ▶ Cumulative and/or indirect effects

Determination of Need for Analysis – The nature, scope and location of the proposed project should be reviewed to determine whether an air quality analysis is needed. Some projects are exempt from air quality conformity obligations (40 CFR 93.126 and 93.127). Projects outside designated nonattainment and maintenance areas may not require an analysis. Some projects can be screened out of a detailed air quality analysis because they are not a “project of concern” or do not meet basic selection criteria (such as no poor intersection Levels of Service [LOS]). When applicable, the reason(s) a project was screened out of a detailed air analysis should be documented in the NEPA document.

Scoping of Analyses – When it has been determined that an air quality analysis is needed, formal scoping with the relevant air quality regulatory agencies may be needed to define the content, geographic footprint and methods of the analyses. The requirements of NEPA air quality analyses are



Is the project exempt from conformity determination?

Projects Requiring Analysis

- Projects funded and/or approved by FHWA or FTA
- Regionally significant projects (as determined by the MPO)

Exempt Projects

- State and locally funded projects
- Projects that are not regionally significant (as determined by the MPO)
- Categorically exempt under 40 CFR 93.126 or 93.127





a dynamic environment and change regularly. Typically, scoping will include Colorado Department of Public Health and Environment's Air Pollution Control Division (APCD), but may include EPA, the MPO/TPR or other agencies—the scoping should be customized to the needs of the project.

Evaluation of Project Setting – This consists essentially of reviewing existing conditions data for the project location. The data may include regional NAAQS status, historical weather data and NAAQS pollutant monitoring data. Air quality information required for a NEPA document includes both general and project-specific information that is required to evaluate compliance with the regulatory standards discussed above. NAAQS status data for the region is available from EPA, APCD and (typically) the MPO. Data should be assembled for nearby air quality monitoring stations to display past trends in pollutant concentrations in the project vicinity and/or the air quality region. Nearby historical weather data may or may not be readily available—the location of the project is an important consideration. However, the University of Utah's MesoWest website is a useful resource for data from numerous weather stations from across Colorado, including CDOT's. A windrose is a common example of the summarized weather data. These data are needed to characterize the general project setting with an emphasis on air quality aspects that are likely to be impacted by the project.

Conformity Evaluations – This consists of the primary analytical tasks for the project. In most cases, the analyses are performed for both regional and local situations. The primary transportation-related NAAQS pollutants are carbon monoxide, particulate matter (both PM₁₀ and PM_{2.5}) and ozone. Carbon monoxide and particulate matter (only PM₁₀ is an issue in Colorado currently) can be concerns at both the regional and local levels and must be analyzed for impacts at both levels. Due to the nature of ground-level ozone pollution, it is a regional concern and is not analyzed at the local level.

The regional conformity evaluations are not performed by CDOT nor are they performed for individual CDOT projects. The regional evaluations are done by the MPO/TPR and APCD as part of the formal approval process for the regional transportation plans and programs described above. These are regularly updated to include new projects. To demonstrate regional conformity, a proposed project must be included in the fiscally constrained, air-quality-conforming plan and program for the region. This must be accomplished before a formal conformity finding can be made and the final NEPA decision document can be signed for a project. For this to happen, project construction funding must be arranged. Sometimes, project planning or NEPA evaluation needs to occur before the funding is identified. In such cases, the planning/evaluation activities for the project may proceed with regional conformity evaluation coming later when the funding has been





resolved. However, inclusion in a fiscally constrained, air-quality-conforming plan and program is still required before construction-related activities (e.g., right-of-way purchases or construction) can occur. In the case of multi-phase projects, only those components with approved funding can be cleared.

The local, or hot-spot, conformity analyses are performed by CDOT for individual projects. The analyses are needed because an individual project cannot create new, increase the frequency of, or exacerbate the severity of air quality violations. A Memorandum of Agreement between APCD and CDOT governs the hot-spot evaluation process. Currently, these analyses apply only to carbon monoxide and PM₁₀ emissions. Individual projects proposed within the relevant nonattainment or maintenance areas are reviewed to see if it may be a “project of concern” (i.e., location where pollutants may accumulate) and warrant a hot-spot analysis. For carbon monoxide, these tend to be projects with congested intersections. For PM₁₀, these tend to be projects with high percentages of heavy trucks (e.g., interstate highways or multimodal facilities). The analyses include computerized dispersion modeling of the air pollutant to assess whether any locations may violate the relevant NAAQS due to the proposed project. If not, the project meets the local conformity requirements. If it appears violations may occur, modifications and/or mitigations must be made to the project so that the potential violations are eliminated—violations of a NAAQS by a project are not permitted. Once the potential air quality problems have been resolved, the project meets the local conformity requirements.

A formal conformity concurrence for the project, covering both regional and local conformity, complying with the APCD/CDOT agreement is needed before the final NEPA document can be signed.

Non-NAAQS Pollutant Analyses – In some cases, particularly large or controversial projects, project scoping may lead to analysis of non-NAAQS air pollutants, such as mobile-source air toxics, greenhouse gases or nitrogen deposition. Typically, these are pollutants that do not have established regulatory thresholds like a NAAQS. The methodologies for each of these analyses may vary between projects and should be resolved during scoping. These analyses are often performed for informational or disclosure purposes and formal impacts from a project, like violating a NAAQS, from these pollutants are unlikely; however, pollutant reduction recommendations may be part of a project.

There are six priority mobile-source air toxic pollutants, which are organic chemicals often present in the exhaust of petroleum-fueled vehicles: benzene, acetaldehyde, formaldehyde, diesel exhaust, acrolein, and 1,3-butadiene. The primary greenhouse gas associated with transportation is





carbon dioxide. Nitrogen deposition (i.e., fertilization) is primarily a concern for certain sensitive (primarily mountain) ecosystems.

Emissions from construction – Most of CDOT's projects involve some form of construction. Construction emissions differ from regular traffic emissions in a number of ways. Construction activities may be sources of temporary emissions from fugitive dust or equipment exhausts. Adjoining properties in the project area would be near construction activities when the proposed project is built and may be affected. Analysis of these emission sources and effects may be included in a project through scoping, and the methodologies should be selected at that time. These analyses tend to be qualitative rather than quantitative.

Cumulative and indirect effects – NEPA requires assessment of the proposed action in combination with other actions that could result in cumulative environmental impacts. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions." Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Indirect effects are changes not caused as part of the proposed action, but are reasonably foreseeable and can be linked together to estimate future consequences, such as incremental population growth or land use changes. Climate change and greenhouse gas evaluations belong here.

AIR QUALITY CONFORMITY CONCURRENCE DOCUMENTATION

CDOT has an agreement with APCD regarding procedures for determining project-level conformity. The consultation process results in an Air Quality Concurrence Letter, signed by APCD.

Project air quality conformity clearances are documented according to one of the procedures discussed below. The results of the regional and project-level conformity analysis are incorporated into the NEPA document, at which point EPA and FHWA review the conformity determination. EPA must approve the final conformity determination.

Exempt project – The Environmental Programs Branch (EPB) or Region Air Quality Specialist sends a brief memo or email to the CDOT project manager stating that the project is exempt from a conformity determination according to the conformity regulation.

Categorical Exclusion (CatEx) projects that pass the LOS screening test – The EPB or Region Air Quality Specialist writes a memo to the project file stating that all intersections affected by the project will operate at LOS C or





better during both the opening and future years, and hot spot modeling is not required. The project must be included in the fiscally constrained, air-quality-conforming plan and appropriate funding identified in the approved program before the clearance can be finalized and before the project can be advertised for construction. A copy of the memo should be sent to the CDOT project manager. Coordination/concurrence with APCD is not required.

Modeled CatEx projects – The EPB or Region Air Quality Specialist writes a memo to the project file summarizing the results of the hot-spot analysis and stating that the project will not cause or contribute to a violation of a NAAQS. An air quality clearance cannot be issued if the hot-spot analysis shows that there would be an exceedence of a NAAQS. The project must be included in the fiscally constrained, air-quality-conforming plan and appropriate funding identified in the approved program before the clearance can be finalized and before the project can be advertised for construction. A copy of the memo should be sent to the CDOT project manager. Coordination/concurrence with APCD is required to obtain pollutant emission factors and background concentrations.

Environmental Assessment (EA)/Environmental Impact Statement (EIS) projects that pass the LOS screening test – All EA/EIS projects in nonattainment and maintenance areas require coordination with APCD. If the project passes the LOS screening test (for CO) or is found not to be a “project of concern” (for PM₁₀), the EPB or Region Air Quality Specialist sends a letter to APCD stating this fact and requests concurrence that the project complies with the conformity provisions of the Clean Air Act. The project must be included in the fiscally constrained, air-quality-conforming plan and appropriate funding identified in the approved program before the clearance can be finalized and before the project can be advertised for construction.

Modeled EA/EIS projects – For EA/EIS projects in non-attainment and maintenance areas having intersections that do not pass the LOS screening test (for CO) and/or is found to be a “project of concern” (for PM₁₀), CDOT and APCD will jointly determine the appropriate level of hot-spot modeling and other analyses needed. The EPB or Region Air Quality Specialist or project consultant, as appropriate, prepares a technical report describing the project and summarizing the results of the hot-spot modeling and other analyses. The technical report and a letter requesting concurrence are sent to APCD. The project must be included in the fiscally constrained, air-quality-conforming plan and appropriate funding identified in the approved program before the clearance can be finalized and before the project can be advertised for construction.





9.2.2 NEPA Document Sections

When a formal analysis of air quality is required for a project, it is typically documented in a technical report as well as in a NEPA document. All CDOT projects that include an air quality analysis require a stand-alone report or memorandum that will be summarized in the main NEPA document. Air quality topics for the Affected Environment and Environmental Consequences chapter of NEPA documents are discussed below.

TECHNICAL REPORT

The air quality technical report must describe the methods and findings from the project air quality impacts analysis and the findings from any abatement action evaluations. Different levels of air quality reports are acceptable—an EIS would require a more thorough report than a CatEx—but technical documentation is required if a formal air quality analysis is performed. More information is available in CDOT's *Air Quality Procedures Manual* (CDOT, 2010).

The technical report must include discussion of each of the steps of the air quality analyses and the findings for each analysis. A project is considered "cleared" when a final analysis has been submitted and reviewed by the EPB and/or Regional Air Specialist. All comments submitted during these reviews must be resolved before the analysis can be finalized.

AFFECTED ENVIRONMENT

Documentation needs for the Affected Environment chapter of EAs and EISs are discussed in this section. The level of detail will vary with the importance of the airshed that the project affects. At a minimum, the Affected Environment chapter should contain a discussion of the following three elements:

General Project Setting – Identify the local setting of the project with respect to air quality. For example, is the project located in an urban versus rural or a light industry versus heavy industry area, and what are the major sources of emissions generated from those settings?

Climate and Meteorological Parameters – Parameters such as maximum, minimum, and average temperatures and precipitation; annual distribution of temperature and precipitation; wind speed, direction, and seasonal distribution; likelihood of inversion and dispersion; and nearest Prevention of Significant Deterioration Class I areas (if relevant to the project) should be reviewed to assess how air quality may be affected by the project.





Sensitive Receptors – Identify and discuss the nearby receptors that may be sensitive to air quality conditions. This includes places such as homes and schools.

Status of the Airshed – Determine whether the project is located in a nonattainment or maintenance area, and if so, which one(s). Identify whether the problem pollutants are carbon monoxide, PM₁₀, and/or ozone and how the project could affect the airshed. Describe the historical regional air quality trends and outlook. Determine whether the project is in a fiscally constrained, air-quality-conforming plan and program.

ENVIRONMENTAL CONSEQUENCES

Documentation for the Environmental Consequences section of EAs and EISs are discussed in this section. The content will vary with the scope of the project, the nonattainment or maintenance area it is located in (if any), and the pollutants analyzed. At a minimum, the Environmental Consequences section should compare the air quality effects of each alternative carried forward for detailed analysis and address the following:

- ▶ Summarize the proposed changes to transportation and traffic circulation
- ▶ Discuss if the proposed action(s) are exempt or were screened out of detailed air quality analysis
- ▶ Summarize the air quality impact analyses performed
- ▶ Describe whether the relevant NAAQS calculations/results were found to be in conformity
- ▶ Discuss predicted future trends in concentrations for each of the project alternatives
- ▶ Summarize any non-NAAQS evaluations that were performed
- ▶ Discuss potential pollutant emissions from project construction
- ▶ Discuss any project mitigation actions or emission reduction commitments

The air quality mitigation discussion typically focuses on mitigation measures available during the construction and operation phases, such as:

- ▶ Dust suppression during construction
- ▶ Equipment typically installed to reduce emissions from construction vehicles and vehicles using a project roadway
- ▶ Sand sweeping as part of winter maintenance practices





Other types of mitigation that may be incorporated to improve air quality include transportation control measures (TCMs). TCMs include any measure that is specifically identified to reduce emissions or concentrations of air pollutants from transportation sources. TCMs are typically targeted at reducing vehicle use or changing traffic flow or congestion conditions. Examples include:

- ▶ Traffic signal optimization projects designed to improve traffic flow
- ▶ Transportation demand management options such as High Occupancy Vehicle lanes
- ▶ Multimodal transportation options and programs to encourage their use
- ▶ Agreements with major corporations for promotion of flexible work schedules
- ▶ Fringe and transportation corridor parking facilities serving multiple-occupancy vehicle programs or transit service
- ▶ Any actions intended to reduce the number of vehicles on the roads or improve the LOS by spreading peak time traffic over a longer time span

Some of these mitigation approaches may be incorporated into the project alternatives at the time of their design, while others, such as the transportation system management mitigation options, may be added as post-design mitigation or during project operation.

Appendix F contains required language and guidance for analyzing mobile source air toxics (MSAT). This appendix should be referenced for all projects.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.3 Geologic Resources and Soil

Geologic features include outcrops; unique rock formations; and potential mining and energy resources. Mineral ores, petroleum, natural gas, sand, and gravel are resources related to geologic features. Impacts to geologic and soil resources from transportation projects must be assessed, as well as impacts from these resources on the project. To the extent possible, CDOT projects are designed to avoid areas containing unique geologic features and to blend into the landscape. This is to ensure the sustainability and stability of the project, as well as the preservation of these features for their value to society. Geologic features that may impact the project include formations that are unstable or erode easily, extreme topography, areas of former or active underground mining, and faults or areas of seismic activity. Soil resources include soil types and mining resources such as sand and gravel. Soil features that may affect the project include soil erodability and permeability.

The two sections below provide guidance on the treatment of geologic and soil resources for CDOT's NEPA projects. The first section discusses the process for evaluating geology and soil. The second section discusses geology and soil information that should be in each NEPA document.

9.3.1 Geologic and Soil Resource Evaluation Process

The evaluation of the geology and soils in the proposed project area is initiated by the CDOT Project or Geotechnical Engineer. Geologic and soil resources should be evaluated at all locations where they will be disturbed by the project, including cut-and-fill locations and construction staging areas. These resources should be evaluated early in design and again at approximately the 30 percent design phase.

REASONS FOR EVALUATION OF GEOLOGIC/SOIL RESOURCES UNDER NEPA

CDOT evaluates geologic/soil resources to:

- ▶ Ensure that geologic/soil resources are identified and that their natural and economic values, as well as their visual aesthetics, are protected
- ▶ Identify potential negative impacts that the geology or soils could have on the project if not identified and included in the design
- ▶ Comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner



Baseline Geologic/Soil Information to Include in NEPA Documents

- Extreme topography
- Unique geologic features
- Engineering properties of soil and geologic formations (e.g., expanding or erodible soils)
- Faults and seismic activity
- Resources that result from the geology/soils in the project area, for example, minerals (coal), energy (petroleum or natural gas), sand and gravel, and so on.
- Rockfall activity
- Snow avalanche potential
- Potential visual/aesthetic values of geologic features can be acknowledged in the Soils and Geology Affected Environment discussion, but the related impacts should be addressed in the Visual Resources/Aesthetics discussion.





There are no state or federal laws that apply specifically to geologic or soil resources, although some local agencies may have restrictions regarding building on certain types of soils, such as expanding soils.

COLLECTION AND EVALUATION OF BASELINE INFORMATION

The baseline information for geologic resources is provided in the Foundation Investigation Report (FIR), and the baseline information for soils is provided in the preliminary soil survey and Pavement Design Report. The FIR and Pavement Design Report are prepared at approximately the 30 percent design phase. Other information sources that describe geologic and soil resources include:

- ▶ Natural Resource Conservation Service (NRCS) soil survey reports
- ▶ US Geologic Survey (USGS) or Colorado Geologic Survey reports of geologic investigations
- ▶ Geotechnical reports prepared for the project
- ▶ Assessments of mineral and energy resources

Baseline information that is necessary for conducting the impact assessment is shown in the sidebar. This information should be used to evaluate both the potential impacts of the project on the geologic/soil resources and the potential impacts of the geologic/soil resources on project features.

Whenever possible, project features will be moved or altered to avoid adverse impacts to geologic/soil resources or to avoid adverse impacts from these resources on project features. If project features cannot be moved, CDOT will attempt to modify the project features or modify the design of the project to account for geologic/soil features that may impact the project. Required mitigation measures may be discussed in the FIR or Pavement Design Report.

OTHER ISSUES TO CONSIDER

Construction of a transportation project does not require any permits related to the geology or soils, nor are any consultations with other state or federal agencies necessary.

9.3.2 NEPA Document Sections

The content of the sections on geologic resources in the Affected Environment and Environmental Consequences chapter is discussed below.



AFFECTED ENVIRONMENT

The Affected Environment chapter of the NEPA document describes the existing conditions and uses of the geologic/soil resources within the project area. A discussion of the following should be included as necessary:

- ▶ A general description of the physical setting of the project area such as topography and geomorphology
- ▶ A graphic using a geologic column to help emphasize any recent seismic activity, major outcrops, and surface or important strata
- ▶ A general statement regarding the soil types and thickness, hydrologic soil types, and permeability, with focus on geologic or soil units relevant to project
- ▶ A description of how and where these geologic or soil features interface with project features, using one or more maps to illustrate the project features and the attributes of interest
- ▶ A discussion and description of any unique features present (such as Garden of the Gods in Colorado Springs), cross-referenced to **Section 9.23 (Visual Resources and Aesthetics)**

The level of detail in this discussion should be consistent with the extent of anticipated impacts to or from the geologic and soil resources. If the project alternatives will not affect any geologic/soil resources this should be clearly stated in the document; no additional discussion of geologic and soil resources is required.

ENVIRONMENTAL CONSEQUENCES

In this chapter, describe how the proposed road construction or other project features may impact or be affected by the geologic/soil resources described in the NEPA document. Examples of potential impacts to geologic resources include:

- ▶ Places where unique outcrops may have to be re-graded and will no longer provide the same view of geologic strata
- ▶ Areas containing sand and gravel deposits that will not have mining capability once the road is constructed

Geologic resources could also impact the project. This information can be illustrated easily on maps that show an impact where features such as expansive soils, unstable geologic formations, old mine tunnels, and/or seismically active areas overlap with proposed project features. Examples of such impacts include:



Mitigation Planning Information to Include in NEPA Document

- Mitigation required for each alternative
- Basis for the mitigation decisions and flow chart of the decision process
- Appropriateness, reasonableness, and timing of the mitigation measures relative to project planning and implementation
- Coordination required to obtain agreement on mitigation measures
- Implementation and monitoring of mandated mitigation measures
- Reasonableness and reliability of the mitigation measures





- ▶ Unstable slopes that may adversely affect proposed project features, such as road design and alignment
- ▶ Old mine tunnels that could collapse as a result of the project

Include tables showing the engineering properties of soils in the project area and their appropriateness for the various types of construction planned for the project.

After evaluating where the project may affect geologic/soil resources or where the geology or soils may impact project features for each alternative, discuss the types of mitigation measures available to alleviate these potential impacts. Examples of mitigation measures can include moving a project feature to avoid expansive soils or redesigning the roadbed in an area to account for the expansive soils. Visual quality mitigation methods might include various methods of blasting rock so that drill marks are not left visible or creating planting pockets for landscaping to provide a visual (and possibly even a safety-enhancing) screen in front of exposed rock surfaces. Review the FIR or Pavement Design Report for mitigation measures identified during project design. Include the information shown in the sidebar in the NEPA document, as appropriate.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.4 Water Quality



Evaluation of water quality includes consideration of surface water, groundwater, climate, topography, geology, land use and beneficial uses as defined by the Water Quality Control Commission (WQCC). Because these components are complex and interrelated, their assessment is best accomplished by evaluation on a watershed scale. Although floodplains and wetlands are also considered water resources, these important resources are discussed separately in **Chapter 9** of this Manual: floodplains are discussed in **Section 9.5** and wetland resources are discussed in **Section 9.6**.

Transportation projects can impact water resources used for drinking, recreation, agriculture, and wildlife habitat. These impacts can occur during both the construction and maintenance/operation phases. Potential contaminants that may impact water resources from transportation projects are shown in **Table 9-2**.

This section discusses how and why CDOT evaluates water quality as part of NEPA projects and outlines information that should be included in the Affected Environment, Environmental Consequences, and Mitigation sections of NEPA documents.

9.4.1 Water Quality Evaluation Process

The evaluation of water resources is initiated by the CDOT Region Planning and Environmental Manager (RPEM) in consultation with the Project Engineer. Depending upon the project, the RPEM may conduct the water resource evaluation in-house or contract with a consultant to prepare the evaluation. CDOT evaluates water quality impacts for each proposed alternative, including the No Action Alternative.

The water resources evaluation should begin shortly after project scoping to identify sensitive surface water, groundwater, and/or drinking water supplies. It is very important to include CDOT maintenance personnel in the evaluation early on to accurately disclose effects from maintenance practices, identify existing conditions that require correction and to assist in determining the type, need and maintenance access for permanent best management practices (BMPs).





Table 9-2 Potential Contaminants from Transportation Projects that May Impact Water Resources

Construction Phase	
Source	Pollutants
Adhesives	Phenols, formaldehydes, asbestos, benzene, naphthalene
Cleaners	Metals, acidity, alkalinity, chromium
Plumbing	Lead, copper, zinc, tin
Painting	VOCs, metals, phenolics, mineral spirits
Wood	Biological Oxygen Demand (BOD), formaldehyde, copper, creosote
Masonry/concrete	Acidity, sediment, metals, asbestos
Demolition	Asbestos, aluminum, zinc, dusts, lead
Yard operations and maintenance	Oils, grease, coolants, benzene and derivatives, vinyl chloride, metals, BOD, sediment, disinfectants, sodium arsenate, dinitro compounds, rodenticides, insecticides
Landscaping and earthmoving	Pesticides, herbicides, fertilizers, BOD, alkalinity, metals, sulfur, aluminum sulfate
Materials storage	Spills, leaks, dust, sediment
Operation Phase	
Source	Pollutants
Leaks, spills, accidents	Oil, gasoline, diesel, grease, VOCs, chemicals, other potentially hazardous materials
Vehicle traffic	Oils, grease, gasoline, diesel, benzene and derivatives, aromatic hydrocarbons, coolants, rust (iron), heavy metals (lead, zinc, iron, chromium, cadmium, nickel, copper), rubber, asbestos
Winter sanding	Sediment
Deicing	Calcium, sodium, magnesium, chloride
Landscape maintenance	Herbicides, pesticides, fertilizers, BOD, alkalinity, metals, sulfur, aluminum sulfate
Adhesives	Phenols, formaldehydes, asbestos, benzene, naphthalene
Cleaners	Metals, acidity, alkalinity, chromium
Painting	VOCs, metals, phenolics, mineral spirits

REASONS FOR EVALUATION OF WATER QUALITY UNDER NEPA

CDOT conducts water resource assessments to:

- ▶ Comply with CDOT’s Environmental Stewardship Policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner





- ▶ Comply with Federal Acts and Executive Orders, State Laws, and FHWA technical guidance

The regulations and certifications applicable to water resource evaluations are summarized below.

Clean Water Act (401, 402)

The Clean Water Act (CWA) established the basic structure for regulating discharges of pollutants into navigable waters. It provides the statutory basis for the National Pollutant Discharge Elimination System (NPDES) permit program and the basic structure for regulating the discharge of pollutants into waters of the US.

Safe Drinking Water Act (40 CFR Parts 141–143)

The Safe Drinking Water Act (SDWA) protects public health by regulating the nation's public drinking water supply and protecting drinking water and its sources. CDOT is a stakeholder in the Colorado Source Water Assessment and Protection (SWAP) program mandated by the SDWA.

Erosion and Sediment Control on Highway Construction Projects (25 CFR 650 Subpart B)

All highways funded in whole or in part by FHWA must be designed, constructed, and operated according to standards that will minimize erosion and sediment damage to the highway and adjacent properties and abate pollution of surface and groundwater resources.

Colorado Water Quality Control Act (Colorado Revised Statutes (CRS) Title 25, Article 8)

The Colorado Water Quality Control Act protects and maximizes the beneficial uses of state waters and regulates water quality.

EPA has delegated authority for enforcement of the CWA and SDWA to the CDPHE. Under this authority, the Colorado Water Quality Control Act was passed and the WQCC was created to provide regulations to be implemented by CDPHE that keep Colorado in compliance with the CWA.

Based on requirements promulgated under Section 402 of the CWA, the WQCC has implemented Regulation 61 identifying CDOT as a regulated Municipal Separate Storm Sewer System (MS4). By definition a separate storm sewer system is comprised of a storm drainage system but also includes ditches, gutters, or other similar means of collecting and conveying stormwater runoff that do not connect with a wastewater collection system or wastewater treatment facility.



A complete list of Colorado's water quality regulations are contained on the CDPHE WQCC's website at:

<http://www.cdphe.state.co.us/op/wqcc/index.html>

The webpage contains links to common sources of information utilized in CDOT NEPA documents such as: Surface Water Classifications and Standards, Groundwater Classifications and Standards, Point Source Discharge Regulations, Watershed Protection Regulations, Drinking Water Regulations, and Implementation of the Clean Water Act Section 303(d) Requirements.





COLORADO DISCHARGE PERMIT SYSTEM (CDPS)

Section 402 of the CWA outlines the regulations for complying with the NPDES (implemented by Colorado as the Colorado Discharge Permit System or CDPS). Under NPDES, states were required to “phase in” EPA regulations that were aimed at reducing point source pollution to Waters of the State. These regulations encouraged states to develop a variety of programs to reduce point source and stormwater runoff pollution from construction projects during both the construction and operation phases of those projects. In 1990, EPA issued the Phase I MS4 Permit. Under the Phase I regulations, a MS4 that served greater than 100,000 people was required to obtain a permit. CDOT was included in Phase I as a MS4 permittee. The area covered by the Permit included the roadways owned and operated by CDOT that were located within the cities that served greater than 100,000 people (i.e. Denver, Lakewood, Aurora and Colorado Springs).

The CDOT *New Development and Redevelopment Program* provides direction, criteria, and procedures to ensure that permanent BMPs are incorporated, as appropriate, into CDOT projects. Projects that will fall within CDOT jurisdiction, but are initially constructed by others, such as local governmental entities, also must comply with BMP requirements. It should be noted that some construction projects may occur in areas where multiple MS4 permits apply. If this is the case, the MS4 with the most stringent requirements apply.

In 1999, MS4s serving urbanized areas were required to obtain Phase II MS4 Permits that required them to develop a program to reduce point source pollution to Waters of the State. CDOT’s MS4 Permit area of coverage was expanded to include Phase II permits. Phase II also reduced the minimum size of construction projects requiring a CDPS permit from five acres of disturbed area to one acre or more of disturbed area.

Construction projects that disturb one acre or greater or are part of a larger common plan of development require a CDPS Construction Stormwater Permit from the Water Quality Control Division (WQCD) and a Stormwater Management Plan (SWMP). The SWMP is prepared in the final design phase of the project prior to the submission of CDPS construction permit application submitted to the WQCD at least 30 days prior to construction.

Sites that must discharge groundwater from a construction site to a surface water body also require a CDPS Dewatering Permit. If a project feature will require permanent dewatering, the Project Engineer and RPEM should coordinate the necessary permits through CDPHE’s WQCD.



The CDOT MS4 Permit *New Development and Redevelopment Program*, current Phase I/II CDPS permit, SWMP preparation guidance, *Erosion Control and Storm Water Quality Guide*, *Drainage Design Manual*, and a map illustrating the locations of the Phase II areas in Colorado are available on the CDOT Water Quality website at:

<http://www.coloradodot.info/programs/environmental/water-quality>





9.4.2 NEPA Document Sections

Water quality modeling and documentation in the Affected Environment and Environmental Consequences chapter of EAs and EISs is discussed below. The requirement for permanent BMPs must be considered in Phase I/II MS4 areas for Categorical Exclusions (CatEx) that disturb greater than one acre or are part of a larger common plan of development. SWMPs must be prepared for every CatEx, regardless of the size of the disturbance area. CatExs that are expected to disturb one acre or more or are part of a larger common plan of development must have a SWMP and apply for a CDPS Construction Permit with the WQCD at least 30 days prior to construction.

AFFECTED ENVIRONMENT

Documentation needs for the Affected Environment chapter of EAs and EISs are discussed in this section. The level of detail will vary with the importance of the watershed that the project affects and the potential impact. At a minimum, the Affected Environment chapter should contain a discussion of the following elements:

Introduction and Table of Common Highway Runoff Pollutants – The introduction should contain a brief description of why water quality is analyzed in NEPA documents. Areas to focus on include WQCC regulations and CDPS. A table of common highway pollutants should be included that is similar to **Table 9-2**.

General Watershed Information – This includes the name of receiving waters and the larger tributaries. Lakes, reservoirs, and special basins under WQCC Regulations 71-75 in the project area should also be identified. Flow regimes should be discussed for all surface waters. If available, a reference to the sub-basin map should be made if that work is completed as part of the hydraulic or floodplain report. The presence of a Wild and Scenic River also needs to be mentioned. Percent impervious surface, percent agricultural land, topographic relief and any other land accounting for 20 percent or more of the total watershed area should be noted. Topographic relief and all areas of impervious surface and agricultural land uses should be noted regardless of size. All land uses that affect water quality at the project location should be noted.

Scoping Summary – Federal, state, and local agencies provide very useful information regarding drinking water sources, wastewater treatment facility locations, water quality monitoring data, MS4 permit requirements, and fish and wildlife habitat during the scoping phase. This information should be summarized in this section.





Soils – Soil types should be mentioned if there is a history of erosion or deposition problems in the project area. To encourage infiltration of stormwater, certain highly permeable soil types should be flagged for infiltration BMPs.

Historic and Current Development – Mining, industrial sites, agriculture, water diversions, and stream channelization are important topics to cover in this part. If most of this information is contained in the Land Use section of the NEPA document, a simple reference can be made.

WQCC Regulations – The author should list all the WQCC regulations that apply to the watershed in the study area. This includes Surface Water Classifications and Standards, Groundwater Classifications and Standards, Point Source Discharge Regulations (CDPS), Watershed Protection Regulations, Drinking Water Regulations, and Implementation of the CWA Section 303(d) Requirements (impaired waters list and monitoring list).

CDOT New Development and Redevelopment Program Requirements – Waters that meet the definition of sensitive waters in CDOT's Phase I/II MS4 Permit must be identified. These are defined as:

- ▶ Water quality segments listed on the CDPHE's most recent 303(d) list (WQCC Regulation #93) or for which a total maximum daily load (TMDL) has been developed that limits the amount of the specified pollutant that is likely to be present in discharges from CDOT activity
- ▶ Water quality segments listed on the CDPHE's most recent Monitoring and Evaluation List (WQCC Regulation #93) for a pollutant that is likely to be present in discharges from CDOT activity
- ▶ Water quality segments designated as outstanding waters, including wetlands
- ▶ Water quality segments classified as Aquatic Life Class 1
- ▶ Water quality segments designated for Water Supply use where the potential exists for the CDOT discharge to impact this use
- ▶ Water quality segments designated by federal or state agencies as a Threatened or Endangered (T&E) Species Habitat

It should also be noted if the project falls into one of the Phase I/II and expanded permitted areas listed in CDOT's MS4 Permit. A brief discussion regarding the construction and post construction requirements of CDOT's New Development and Redevelopment Program should be provided. A conclusion on whether or not to investigate permanent BMPs as part of the project should be made. When the project is joint lead (i.e. with Regional Transportation District [RTD]), or a local agency project, the author should





briefly disclose the requirements of their MS4 Permits and make a determination of which permit has the most stringent requirements.

Drinking Water Sources, Wellhead Protection Areas – General locations of these resources should be identified if they occur in the study area or could be affected by the project action. The best source of information on these resources is from local governments or water supply agencies. They are also covered in WQCC Regulations 41 and 42.

Fish and (T&E) Species Habitat – The presence of Gold Medal Trout Streams and Wild Trout Waters should be discussed. Also, the presence of T&E habitat within any stream or riparian corridor needs to be disclosed.

Groundwater – Depth below ground, private wells used for drinking water, and protected groundwater areas listed in WQCC Regulation 42 should be discussed for this topic. The CDOT project team should decide on the radius to utilize for those wells that should be considered. Typically wells within the project study area should be considered.

Graphics – The Affected Environment chapter should include a map of all surface water and important groundwater features in the vicinity of the project. This map should be of sufficient scale to include important segments of surface waters upstream and downstream of the project. Labels for Use Classification, Impairment, monitoring and evaluation (WQCC Regulation 93), Gold Medal Trout Streams, Wild Trout Waters, and T&E habitat should be included with each segment. The map should also illustrate the boundaries of Phase I/II and expanded MS4 Permit areas. Features such as drinking water supplies, wastewater treatment facilities, and wellhead protection areas can be added with the consent of the agency with jurisdiction.

ENVIRONMENTAL CONSEQUENCES

Documentation needs for the Environmental Consequences section of EAs and EISs are discussed in this section. The level of detail will vary with the importance of the watershed that the project affects. At a minimum, the Environmental Consequences section should compare the effects of each alternative carried forward for detailed analysis in the following 11 categories:

Impervious Surface – Impervious surface is calculated for each alternative, including the No Action Alternative. Percentages or acres should be compared in a graph or table. Other dominant land uses should be analyzed along with impervious surface. If possible, include a measure of the connectedness of the impervious surface areas and their configuration and proximity within the watershed landscape. Long narrow areas oriented





perpendicular to surface flow will have a different effect than an area of the same configuration oriented parallel to surface flow. Discuss the potential for downstream and upstream increases in backwater elevations from increased impervious surface areas (volume) and increased velocities of discharge (rate), including increased potential for and effects of flash floods.

Stream Modifications – Stream channelization, relocation, and bank stabilization for each alternative is discussed. The author should disclose any major differences in stream segment impacts (linear feet). Changes in flow regimes (temporary or permanent) as a result of the project need to be discussed. Discuss the potential for increased erosion of streambeds and drainage areas causing increased sediment loads, both of these effects from higher discharge velocities in drainage channels and streams that are caused in-turn by larger impervious surface areas to be drained.

Stream Crossings – The number of stream crossings for each alternative is analyzed. Special attention should be given to new crossings.

Fish and T&E – Effects to Gold Medal Trout Streams, Wild Trout Waters, and T&E species are disclosed. References to the Fish and T&E sections of the NEPA document should be made.

Drinking Water Supplies and Wastewater Treatment Facilities – Pollutant loading from roadway runoff that has the potential to affect downstream drinking water supplies and wastewater treatment facilities needs to be addressed for each alternative. Address the potential for impairment of any designated uses of receiving streams, especially “aquatic life class 1” uses, which will most always be adversely affected by very low levels of heavy metals and polyaromatic hydrocarbons (PAHs) in highway runoff.

Use Classifications, Impairment/Monitoring Status – Possible changes in stream segment Use Classifications, TMDL, and monitoring status due to highway runoff need to be discussed.

Water Quality Modeling – In certain instances, water quality modeling will be utilized to evaluate relative differences in pollutant loading among alternatives. The need to use a model is determined on a project-by-project basis. The decision to model is made by the RPEM in consultation with EPA, FHWA, and EPB. Written concurrence from EPA and FHWA on whether or not to model is suggested.

Monitoring Needs – It is rare to conduct water quality monitoring for CDOT projects during the NEPA phase. In instances where the RPEM determines that it is necessary, this information should be included in the Environmental Consequences section. Conclusions from the monitoring data should be documented regarding expected effects from each alternative on the





receiving water. Monitoring data may also be necessary when determining the need to use a water quality model.

Construction – The area of disturbance should be discussed for each alternative when there are noticeable differences between alternatives.

Maintenance – The effects of maintenance practices for the study area should be covered. Any major differences between the alternatives should be discussed.

Conclusion of Effects – The conclusion should restate the biggest water quality concerns associated with each alternative and identify the alternative with the least expected impact on water quality.

Once effects are assessed in the Environmental Consequences section, mitigation measures need to be evaluated. BMPs eliminate or reduce the identified impacts during construction, as well as during operations and maintenance. When BMPs are installed and maintained correctly, they are very effective at mitigating water quality effects resulting from highway runoff. BMPs expected to be part of a proposed action or alternative as a mandate or requirement, can be set forth as part of the proposed description of the proposed action or alternative.

In an attempt to streamline the NEPA process and to assure EPA that potential water quality impacts were given due consideration during planning of highway construction projects, FHWA, EPA and CDOT established a committee to develop a template for water quality sections of NEPA documents. The template is presented in **Attachment A**.

The Water Quality Model Program Decision Tree (**Attachment A**), also developed by FHWA, EPA, and CDOT, is a standardized method of assessing whether or not a given project is broad enough in scope that it would require modeling to determine the potential for adverse impacts to water quality and what remediation may be required. If your project does not fit into a category on the Decision Tree, talk to your Region and/or EPB Water Quality staff and project stakeholders (for example, FHWA) to determine the appropriate path.

The Decision Tree has yet to be tested in real world situations and thus is still in the development stage and will not be finalized until a 2-year trial period has been completed.





Permanent BMPs

The New Development and Redevelopment Program Manual outlines a process for determining the need for and type of permanent BMPs. Refer to the Manual for details in determining the need for and type of permanent BMPs. The process should be followed in close coordination with CDOT's regional hydraulic engineer, CDOT Maintenance, the RPEM, and CDOT's Landscape Architect. General locations and possible types of permanent BMPs are described in the mitigation section of the EA and EIS. Special attention should be given to site access for regular maintenance needs. Detailed design for BMPs is not necessary for a FONSI or ROD. For CatExs, exact locations and design details are usually provided in Final Office Review (FOR) plans and prior to RPEM signature of CDOT's Form 128.

Construction BMPs

Construction BMPs and a SWMP to address erosion and sedimentation on construction sites are needed for every project in CDOT right-of-way (including access permits). There is no requirement to list all the construction BMPs for a project in an EA, EIS, or CatEx. These BMPs, along with project specifications, are included as part of the FOR plan set in final design. If the project disturbs one acre or more or is part of a larger common plan of development, the project will also require a CDPS construction permit from the WQCD. The permit should be applied for at least 30 days prior to construction. The mitigation section of EAs and EISs should simply state that temporary BMPs will be included in the final design phase of the project.

Maintenance

Mitigation for maintenance activities should also be evaluated and discussed in the EA or EIS. Interviews with CDOT maintenance personnel that are responsible for the project area are very useful in determining sweeping, trash collecting, plow training, technology advances in deicing applications, and product storage practices.

Mitigation

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.



Design criteria relating to permanent BMPs are also addressed in the following documents:

CDOT *Drainage Design Manual*

<http://www.coloradodot.info/programs/environmental/water-quality/documents/drainage-design-manual>

Urban Storm Drainage Criteria Manual, Volume 1 & 2 & 3.

http://www.udfcd.org/downloads/down_critmanual_home.htm





9.5 Floodplains

A floodplain is the lowland adjacent to water bodies such as a river, creek, stream, or lake. Floodplains are designated by the size and frequency of floods large enough to cover them. Flood frequency is often described by the potential occurrence in a given year (percentage probability of flooding each year). For example, the 100-year flood has a one percent chance of occurring in any given year. Following are a few important definitions related to floodplains (Modified from: *Metropolitan Sewer District, Louisville, KY* and Federal Emergency Management Agency (FEMA) General Provision Definitions (44 CFR 59.1).

Regulatory or base flood – The flood having a one percent chance of being equaled or exceeded in any given year. The 100-year flood has become the accepted national standard for regulatory purposes. For regulatory purposes, the floodplain is divided into two areas based on water velocity: the floodway and the flood fringe.

Floodway or regulatory floodway – The floodway is the area of the floodplain that should be reserved (kept free of obstructions) to allow floodwaters to move downstream.

Flood Fringe – The flood fringe is the portion of the floodplain outside of the floodway, which usually contains slow-moving or standing water. Because development in the fringe will not normally interfere as much with the flow of water, floodplain regulations typically allow development in this area but require that structures are protected.

Encroachment – An activity within the floodplain or floodway including fill placement, new construction, substantial improvements.

Floodplains possess significant natural values and serve numerous important functions. These include water resources (natural moderation of floods, maintenance of water quality, and groundwater recharge), living resource services (fish, wildlife, and plant resources), cultural resource services (open space, natural beauty, scientific study, outdoor recreation), and cultivated resource services (agriculture, aquaculture, and forestry).

The two sections below provide guidance on the treatment of floodplains for CDOT's NEPA projects. The first section discusses the process for evaluating floodplains. The second section discusses floodplain information that should be in each NEPA document.



9.5.1 Floodplain Evaluation Process

CDOT evaluates the potential footprint of the alternative for all transportation projects to ensure that they would not encroach upon or alter floodplains and cause future flooding or other adverse impacts.

The floodplain evaluation should be completed when alternatives for the proposed action are first being designed and developed. Baseline information about floodplains should be obtained and addressed prior to initiating the NEPA process.

REASONS FOR EVALUATION OF FLOODPLAINS UNDER NEPA

CDOT conducts floodplain assessments to:

- ▶ Ensure that floodplains are identified and their services and functions are protected to the maximum extent possible
- ▶ Comply with CDOT’s Environmental Stewardship Policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ Comply with federal acts and executive orders
- ▶ The regulations, advisories, and orders listed in the sidebar are directed toward the treatment of floodplains under NEPA. The intent of these regulations is to avoid or minimize highway encroachments within 100-year (base) floodplains, where practicable, and to avoid supporting land use development that is incompatible with floodplain services. Under the requirements of Executive Order 11988 *Floodplain Management* (Executive Order 11988, 1977), all federal-aid projects must make diligent efforts to:
 - Avoid support of incompatible floodplain development
 - Minimize the impact of highway actions that adversely affect the base floodplain
 - Restore and preserve the natural and beneficial floodplain services
 - Be consistent with the standards/criteria of the National Flood Insurance Program (NFIP) of FEMA.



Significant Impacts:
 If a preferred alternative includes a significant impact of floodplain encroachment refer to Executive Order 11988 *Floodplain Management* (Executive Order 11988, 1977).

In addition to federal and state laws and regulations, local jurisdictions may have ordinances and regulations that must be followed. The CDOT Project Engineer must coordinate with counties, cities, and other jurisdictions in the study area to ensure any proposed encroachment or alteration of a floodplain meets their requirements.





COLLECTION AND EVALUATION OF BASELINE INFORMATION

Early collection of baseline floodplain information ensures that alternatives that may encroach on or alter floodplains are identified early. The alternatives can then be designed to avoid such areas or minimize impacts to them. The CDOT Hydraulic Engineer will prepare a Hydraulic Study (FHWA, 23 CFR 650A), which will include the following information commensurate with the significance of the flood risk or environmental impact:

- ▶ Practicality of alternatives to any longitudinal encroachments
- ▶ Risks associated with implementation of the action
- ▶ Impacts of incompatible floodplain development
- ▶ Measures to minimize floodplain impacts
- ▶ Measures to restore and preserve the natural and beneficial floodplain services impacted

The magnitude of the study will vary depending upon the level of significance of the base floodplain encroachments, which are described briefly below.

Significant encroachment – May result in a high probability of loss of human life, will likely cause future damage that could be substantial in cost or extent (including interruption of service or loss of vital transportation facilities), or will cause a notable adverse impact on natural and beneficial floodplain services.

Minimal encroachment – There is floodplain involvement but the impacts on human life, transportation facilities, and natural and beneficial floodplain services are not significant and can be resolved with minimal efforts.

No encroachment – There are floodplains in the vicinity of the proposed alternatives, but there is no floodplain encroachment.

No involvement – There are no floodplains in the vicinity of the proposed alternatives.

If a proposed project will involve a regulatory floodway, the CDOT Hydraulic Engineer or designee must work with local agencies and FEMA to ensure the project is developed consistent with local floodway plans and floodplain management programs. This coordination effort must be documented in the CatEx, EA, or EIS. An additional requirement for projects is coordination with the appropriate US Army Corps of Engineers (USACE) district regulatory office. For example, when a project might encroach on a regulatory





floodplain, the CDOT RPEM or resource specialist must contact the local floodplain authority early in the planning process to enable USACE's floodplain management concerns to be addressed and incorporated into the initial project design (prior to platting).

A transportation project may affect floodplains by encroaching upon or altering the floodplain. CDOT's policy on floodplains is to prevent unnecessary use and development of floodplains or use that may result in hazards.

CDOT's specific procedures for evaluating impacts to floodplains are discussed in Section 2.09 of the CDOT Project Development Manual (CDOT, 2001b).

Design solutions should minimize impacts to the floodplain and be developed cooperatively with USACE, FEMA, and the affected communities. Once the alignment of the project alternatives is available, the CDOT project engineer must determine if one or more of the project alternatives could impact a regulatory (100-year) floodplain or increase flood risks in a NFIP community. Circumstances that would require coordination with the affected NFIP community and FEMA include the following (FHWA, 1982):

- ▶ A proposed crossing encroaches on a regulatory floodway and would require an amendment to the floodway map
- ▶ A proposed crossing encroaches on a floodplain where a detailed study has been performed but no floodway is designated and the maximum 1-foot increase in the base flood elevation would be exceeded
- ▶ A local community is expected to enter into the regular (non-emergency) flood insurance program within a reasonable period and detailed floodplain studies are underway
- ▶ A local community is participating in the emergency flood insurance program and base flood elevation in the vicinity of insurable buildings is increased by more than one foot.

If insurable buildings are not affected, it is sufficient to notify FEMA of changes to base flood elevations as a result of highway construction. Once the impact analysis is complete, evaluate the potential mitigation measures available to eliminate or reduce the impacts.

9.5.1.3 OTHER ISSUES TO CONSIDER

Along the Colorado Front Range, USACE has also determined that an unacceptable cumulative degradation of floodplain functions and services is occurring and it is working to reduce this problem. Therefore, it is unlikely



For information regarding the USACE's role in floodplain management, please refer to the USACE Water Resources Management website at: <http://www.iwr.usace.army.mil/floodcontrol/default.htm>





that USACE will approve a Section 404 permit that fills part of an existing 100-year floodplain to increase developable land along the Colorado Front Range.

9.5.2 NEPA Document Sections

The content of the sections on floodplains in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

The floodplain description and map should have sufficient detail to allow determination of whether the project alternatives may, or will encroach upon or impact these floodplains. If a preliminary evaluation of potential impact shows that no project impact on floodplains could possibly occur, no further information on floodplains is required in the Affected Environment chapter.

If the project may or will encroach on or alter a floodplain, more detailed information must be provided in the NEPA document's Affected Environment chapter, as follows:

- ▶ Discuss the uses of the floodplain, such as flood control and groundwater recharge; cross-reference uses by other resources to their respective sections.
- ▶ Provide a map showing the floodplain within the project area, including all locations where the project may cross these floodplains. All 100-year (base) floodplains should be identified, if present.
- ▶ Illustrate the base (100-year) floodplain by using Federal Insurance Administration (FIA) maps and studies, including Flood Insurance Rate Maps (FIRM) and flood hazard boundary maps, if available. Other sources include the USGS, USACE, the NRCS, the Bureau of Land Management (BLM), and the US Forest Service (USFS) if previously mentioned maps are not available.
- ▶ Summarize information from the project hydraulic engineer on hydraulic studies conducted for the alternatives and hydrologic factors that affect the floodplains in the area crossed by the proposed project.

If no impacts were identified in relationship to the CDOT project, state this in the NEPA document and conduct no further analysis.

ENVIRONMENTAL CONSEQUENCES

Summarize the results of CDOT's project location hydraulic study briefly in the NEPA document. Discuss alternatives that have the same floodplain impacts together and contrast those that differ so that similarities and differences in alternative floodplain impacts are clear. The Environmental



Affected Environment Chapter of NEPA Document

- Summary of natural services, uses, and functions of floodplain
- Map showing floodplains within project area and alignment of project alternatives, specifically identifying boundaries of 100-year floodplain
- Summary of information from hydraulic or hydrologic studies conducted by CDOT or others





Consequences section of the NEPA document for floodplains should identify the number and location of encroachments, as well as any incompatible floodplain developments and their potential impacts. Both direct (construction and operational) and indirect impacts must be assessed.

If any proposed alternative supports incompatible floodplain development or results in a floodplain encroachment that significantly affects the human environment (EIS only), has impacts for which the significance is not clearly established (EA), or requires a commitment to a minimum structure size or type, the EA or EIS should include an evaluation and discussion of practicable alternatives to the significant encroachment or proposed structure. If an alternative encroaches upon a floodway, the following questions must be addressed in the NEPA document:

- ▶ Can the encroachment be located so that it is consistent with the floodway/floodplain?
- ▶ Can the floodway/floodplain be revised to accommodate the proposed project?
- ▶ Can the floodway/floodplain be avoided?

For each alternative encroaching on a designated or proposed regulatory floodway, the draft NEPA document should provide a preliminary indication of whether or not the encroachment would be consistent with or require a revision to the regulatory floodway. If any alternative results in a floodplain encroachment or supports incompatible floodplain development having significant impacts, or requires a commitment to a particular structure size or type, include an evaluation and discussion of practicable alternatives to the structure or encroachment in the NEPA document.

If the preferred alternative includes a floodplain encroachment having significant impacts, the final NEPA document must include a finding that this alternative is the only practicable alternative and refer to Executive Order 11988 *Floodplain Management* (Executive Order 11988, 1977), and National Flood Insurance Act (23 CFR 650, Subpart A). This finding should be included in a separate subsection entitled "Only Practicable Alternative Finding." The discussion in this section must include the following information:

- ▶ Reasons why the proposed action must be located in the floodplain
- ▶ Alternatives considered and why they were not practicable
- ▶ Statement indicating that the action conforms to applicable state or local floodplain protection standards



Environmental Consequences Section of NEPA Document

- Summarize results of Hydraulic Study
- If there is no impact, state this and conduct no further analysis
- Identify number, location, and impacts of encroachments and incompatible floodplain developments
- Provide more detailed information on location and impacts for encroachments or incompatible development having significant impacts
- Include exhibits showing alternatives, base floodplains, and where applicable, regulatory floodways





Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.



Impact Mitigation Section of NEPA Document

- If an alternative encroaches on a regulatory floodway/floodplain, indicate if it would require revision to the regulatory floodway (impacts to floodplains may require a CLOMR)
- For alternatives with significant impacts, provide a discussion of practicable alternatives. Discuss common mitigation measures for impacts.
- Include a section in final EIS discussing the "only practicable alternative" if the preferred alternative includes an encroachment having significant impacts.



9.6 Wetlands



Based on the definition used by USACE in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), the term “wetlands” is defined as: “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Wetlands are important because, among other roles, they support aquatic organisms, act as water reservoirs, and trap the particulates and chemicals that might be present in surface sheet flows before they can directly enter streams and rivers. They also serve as a source of water for terrestrial organisms, enhance ecosystem diversity, and provide an ecotone between aquatic and terrestrial environments.

The two sections below provide guidance on the treatment of wetlands for CDOT’s NEPA projects. The first section discusses the process for evaluating wetlands. The second section discusses wetland information that should be in each NEPA document.

9.6.1 Wetland Evaluation Process

The EPB or regional wetland specialist, depending on availability, is responsible for wetland evaluation. The EPB wetland specialist is responsible for USACE consultation and FHWA coordination, development of CDOT process and policy relative to wetlands, wetland evaluation within certain CatEx projects, reviewing NEPA documents, and supporting the regional wetland specialists, as needed. The regional wetland specialists are responsible for wetland evaluation on most project development activities. The regional wetland specialist coordinates with the EPB wetland specialist for policy and process decisions, for document review, and for permitting and coordination with other agencies.

Wetlands within the watershed(s) that are affected by a project are studied on a case by case basis. Those that may be impacted directly (e.g., crossed by a road alignment, or spanned by a bridge with footings in the wetland) or indirectly (e.g., down drainage from project activities and the potential recipient of silt or chemicals transported by surface water flow) by any of the project alternatives should be delineated and their jurisdictional status determined in coordination with USACE. This means collection of information on the hydrology, soils, and vegetation of a wetland to define its boundaries.



Wetlands are:

- Important to aquatic and terrestrial organisms
- Key components of hydrologic systems as reservoirs and for filtration
- Wetland Attributes
- Highly regulated
- Type
- Acreage
- Plant/animal inhabitants and uses
- Potential uses by humans
- Jurisdictional status
- Water quality
- Functions



Wetlands should be identified as early in project development as possible so alternatives can be designed to avoid and minimize impacts. Wetland delineation should be done during the growing season; winter and drought conditions should be avoided. Once a wetland is delineated, the jurisdictional status of each wetland and its boundaries must be approved by USACE, often as part of a field visit to the site with the wetland specialist. If the project impacts require an individual permit, USACE should be involved under the NEPA/404 merger process and agreement for transportation projects in Colorado (FHWA, USACE, CDOT, 2008) in all EISs and certain EAs. Therefore, wetlands should also be delineated as early in the process as possible so that involvement of USACE will be timely.

REASONS FOR EVALUATION OF WETLANDS UNDER NEPA

CDOT evaluates wetlands for several reasons:

- ▶ Wetlands provide important habitat components for many aquatic, avian, and wildlife species, including state and federally listed T&E species
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ Federal agencies have a responsibility under Executive Order 11990
- ▶ To enable compliance with several legal mandates that pertain to the protection of wetlands and water quality under the CWA
- ▶ To satisfy the CDOT NEPA/404 Merger process

Because of their importance, wetlands are protected under the CWA, which requires that the jurisdictional status of wetlands be determined and a Section 404 permit be obtained if jurisdictional wetlands are to be impacted by a discharge. Section 401 and 402 certifications may also be required if wetlands would potentially receive specified discharges. USACE is responsible for determining whether a wetland is jurisdictional or non-jurisdictional and for issuing the appropriate Section 404 permit.

As part of their CWA responsibilities and before issuing a permit, USACE must ensure compliance with the CWA. The CWA guidance requires, among other things, that the NEPA preferred alternative be the Least Environmentally Damaging Practicable Alternative (LEDPA). The purpose of Executive Order 11990 *Protection of Wetlands* (Executive Order 11990, 1977), is to "minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial services of wetlands." It



Wetland Legislation

Clean Water Act

*Department of Transportation
Order 5660.1A,*

Colorado Senate Bill 40

Executive Order 11990,
Protection of Wetlands

23 CFR 771

23 CFR 777

Technical Advisory T6640.8A





requires federal agencies, in planning their actions, to consider alternatives to wetland sites and limit potential damage if an activity affecting a wetland cannot be avoided. Project alternatives that avoid wetland impacts are to be selected for further consideration to the exclusion of project alternatives that do not avoid wetland impacts based on Executive Order 11990. FHWA has similar requirements (FHWA, 23 CFR 777).

Because of the need to fulfill requirements of both NEPA and CWA when wetland impacts are expected, the NEPA/404 Merger process was developed. This merger process serves to facilitate early and ongoing integration and coordination of CWA and NEPA requirements.

COLLECTION AND EVALUATION OF BASELINE INFORMATION

The study area considered for wetland resources should include where ground disturbance actually occurs. Wetlands and drainages located downstream or in the vicinity of the project should also be included in the study area. In some cases upstream reaches of drainages should be considered if they might be affected by downstream uses (i.e. damming). This wetland study area should be presented on a figure in the NEPA document. The location of the project within the watershed (upper or lower) should be noted.

To be responsive to wetland-specific regulations, all wetlands within the project area should be identified, characterized (e.g., according to wetland type based, acreage, plant/animal inhabitants and uses of special interest, and functions and services [Cowardin, 1979]), and mapped. In addition, wetland jurisdictional status should be determined in consultation with the USACE. Sources of wetland information and mapping include:

- ▶ National Wetlands Inventory (planning level)
- ▶ Colorado Natural Heritage Program (CNHP)
- ▶ USGS National Wetlands Research Center
- ▶ Topographic maps
- ▶ Aerial photographs of the project area
- ▶ Conversations with local agency personnel and adjacent land owners familiar with the wetland project area.

The jurisdictional boundary of wetlands in the project area must be determined by field survey if not previously completed. The survey should be conducted in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987). Supplements to the *Corps of Engineers Wetlands Delineation Manual* are being developed and must be



USACE Coordination

- Early and frequent communication and coordination to ensure mutual informational needs are met
- Delineation of wetlands at a seasonally appropriate time
- USACE determination of jurisdiction
- Incorporation of sufficient data to ensure LEDPA is among alternatives considered in detail





used in the appropriate Region concurrently with the 1987 manual. Based on these protocols, the extent and location of each wetland within the project area must be mapped and described. The presence or absence of wetland-affiliated T&E species or critical habitat will be a component of consultation with US Department of Interior (DOI) Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA) (Section 9.9).

Because wetland delineations should be performed when the ground is clear of snow and wetland vegetation is well developed, it is best that the delineation be done in the late spring and early to mid-summer. Once the field work is complete, a report and map of the wetlands must be submitted to USACE for their approval. In addition, a USACE representative typically reviews the delineation report in the field to determine the jurisdictional status for each wetland.

The final determination of whether an area is a wetland and whether the proposed activity requires a permit must be made by the appropriate USACE District Office. Because this may be a lengthy process and because unavoidable project impacts on wetlands must be mitigated, it is important to complete the wetlands delineation as early in the project process as possible. Avoidance of impacts to all wetlands is always an important factor in identifying and selecting project alternatives, as well as in identifying potential impacts from alternatives that are carried through the NEPA process.

Once USACE has approved the delineation report, including any required modifications, the wetland impacts of the project may be assessed. Direct impacts are typically quantified on the basis of acreage and functions disturbed. Precise acreages must be determined for any wetlands that would be impacted by a discharge because complete avoidance is not possible. These data are best determined by overlaying project alternatives with the wetland locations and displayed in tabular form.

In addition, the potential for indirect impacts to wetlands from surface runoff, eroded soil, or chemicals must be identified and discussed. This includes the types, extent, and timing of earth disturbances that could result in surface runoff and erosion and any chemicals that will be present in the project area during construction and operation. This can be determined by overlaying the project alternatives, wetland locations, and topography and drainage patterns.

In conducting the analysis of wetland impacts, the following FHWA guidance should be incorporated (FHWA, 1987):



Functional Assessment of Colorado Wetlands (FACWet) website at:

http://rydberg.biology.colostate.edu/FACWet/index_files/Page387.htm

National Wetlands Inventory website at:

<http://www.fws.gov/wetlands/index.html>

Colorado Natural Heritage Program website at:

<http://www.cnhp.colostate.edu/>

USGS National Wetlands Research Center website at:

<http://www.nwrc.usgs.gov/>





- ▶ In evaluating the impact of the proposed project on wetlands, address the importance of the impacted wetland(s) and its severity. Merely listing the number of acres taken by the various alternatives of a highway proposal does not provide sufficient information upon which to determine the degree of impact on the wetland ecosystem.
- ▶ In evaluating the importance of the wetlands, consider the primary functions of the wetlands (e.g., flood control, wildlife habitat, groundwater recharge, etc.), the relative importance of these functions to the total wetland resource of the area, and uniqueness that may contribute to the wetlands' importance.
- ▶ In determining the wetland impact, show the project's effects on the stability and quality of the wetland(s) by considering the short- and long-term effects on the wetlands and the importance of any loss such as: flood control capacity, shore line anchorage potential, water pollution abatement capacity, and fish and wildlife habitat service.
- ▶ Use the FACWet method to conduct the functional analysis.

Wetland functions should be determined by applying the Functional Assessment of Colorado Wetlands (FACWet) method, a CDOT- and USACE-approved wetland functional assessment method. The three USACE districts in Colorado require or recommend use of FACWet for all permits involving permanent wetland impacts of 0.5 acre or more. CDOT requires a FACWet analysis for all projects with proposed permanent wetland impacts of 0.1 acre or more.

Knowing the functions of the wetlands proposed for impacts and the degree of the impact, CDOT and FHWA will be in a better position to determine the mitigation efforts necessary to offset the potential harm to these wetlands. The options for addressing potential impacts to wetlands are avoidance, minimization, and mitigation, in decreasing order of their desirability. CDOT's policy is to mitigate unavoidable impacts to all wetlands, not just those considered jurisdictional under Section 404. Guidance on these approaches includes the following:

- ▶ Avoidance, the preferred option, is typically built into the design of an alternative by siting the roadway or facility where it will not impact any wetlands. When this has occurred, it must be clearly stated as part of the alternative description so it is clear that any future project modifications cannot alter this facet of the design.
- ▶ Avoidance of indirect impacts can often be achieved by employing BMPs during construction and operation. BMPs include such actions as properly installing silt fencing around the perimeter of a construction



Wetland Impacts/Mitigation

- Accurately predicted acreages of disturbance
- Identified importance of and impact severity for impacted wetland(s)
- Avoidance whenever possible
- Minimal disturbance when not avoidable
- USACE approval of mitigation required, with mitigation banking preferred
- Best management practices necessary to minimize indirect impact



Numerous BMPs are available and can be found at:

<http://www.bmpdatabase.org/>





site, installing perimeter berms and liners in areas used for storage of chemicals, including petroleum products, and designing roadway shoulders and drainage systems so that roadway runoff is directed to areas where it can infiltrate the soil rather than running directly into waterways. The EPA evaluated the effectiveness of various BMPs in 1999 (EPA, 1999).

- ▶ Minimization of impacts typically occurs when only partial avoidance can be accomplished. It may be that siting and design constraints necessitate impacting part of a wetland, or that BMPs are not totally effective. Whatever the reason, impacts to wetlands should always be as small as possible, given other constraints of a project.
- ▶ Compensatory mitigation measures that should be considered include wetland mitigation banking, establishment of new wetlands, restoration, enhancement, and preservation (33 CFR Parts 325 and 332, 2008). The Compensatory Mitigation for Losses of Aquatic Resources, 2008 (Final Rule) contains guidelines for choosing a mitigation strategy and specific requirements under section 404 of the Clean Water Act for developing a compensatory mitigation plan. All project wetland mitigation decisions should be made after ensuring the Final Rule guidance is followed.
- ▶ Establishment of wetlands within the project area or vicinity or, in certain situations, the purchase of credits from wetland mitigation banks are options for compensatory mitigation. The use of such measures was mandated in 16 USC Chapter 29 - Water Bank Program for Wetlands Preservation and facilitated when the ISTEA Sections 1006 and 1007, made such purchases available for federal-aid funding. The use of wetland banks by transportation projects is implemented through FHWA guidance (FHWA, 2003). The use of mitigation banks is limited to project impacts that occur in a bank's primary or secondary service area. Several wetland banks currently exist in Colorado. Examples include the Middle South Platte River Mitigation Bank, the Limon Mitigation Bank (CDOT owned and utilized), the Mile High Wetland Bank, and the Finger Rock Preserve. A preference for mitigation banking exists when impacted wetland functions are low or right-of-way conditions prohibit onsite mitigation.
- ▶ Prescribed monitoring requirements to ensure that wetland mitigation commitments are installed and continue to function properly. A monitoring plan should be completed that requires thorough documentation of compensatory mitigation and establishes success criteria and the duration and frequency of monitoring.



Examples of Avoidance and Minimization: upland buffers, retaining walls, guardrails, shifting roadway, maintaining hydrology

Affected Environment Section of NEPA Document

- Describe the general project setting with regard to wetlands
- Focus on acreage, functions, and values of any wetlands that may be directly or indirectly impacted
- Provide sufficient detail so that project impacts to wetlands may be fully evaluated



OTHER ISSUES TO CONSIDER

Impacts to wetlands may be addressed by CDOT, FHWA, and USACE through the NEPA/404 Merger process (mandatory for EISs; discretionary for EAs) and are also subject to comment by EPA and USFWS as participating agencies. USACE will only issue an individual permit if the preferred alternative is also the LEDPA. Information on wetland impacts and their mitigation must be included in the Wetland Finding and must be approved by CDOT or FHWA as appropriate based on their current MOA. A Wetland Finding is required when there are greater than 500 square feet of permanent impacts or 1,000 square feet of temporary and permanent impacts combined.

9.6.2 NEPA Document Sections

The content needed for the wetlands sections in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

The wetlands section of the Affected Environment should include:

- ▶ An introduction that explains the importance of wetlands and the regulatory climate; a methods section that gives the details on how and when the wetlands were mapped/delineated
- ▶ The study area and results of the functional assessment; a brief summary of the vegetation, soils, hydrology, and functions of each wetland or group of wetlands identified
- ▶ A discussion of other water features (other waters of the US); and maps showing all features discussed
- ▶ The types of wetlands that are found within the general project setting (Are the wetlands ephemeral or permanent, concentrated in one particular locale or setting, fresh or alkaline?)
- ▶ The general abundance of wetlands in the project area (Are the wetlands abundant [cattail ponds] or scarce [fens]?)
- ▶ The wetlands' importance regarding function and service (Are the wetlands sufficient for flood attenuation or as a wildlife habitat?)





A few paragraphs should be sufficient to “paint a picture” of local wetlands. The wetland section should also address how the project wetlands generally relate to transportation corridors in the project vicinity. Address such questions as:

- ▶ Do the transportation corridors typically run in lowland areas and cross a disproportionately high percentage of the wetlands?
- ▶ What is the hydrogeological history of the project wetlands and will it affect the transportation corridor in the future?

ENVIRONMENTAL CONSEQUENCES

The Environmental Consequences section for wetlands should clearly address the:

- ▶ Acreage of potential direct and indirect impact to wetlands
- ▶ Impact to functions. Support the text discussion with a map showing the location and extent of anticipated project impacts on wetlands for each of the alternatives. Summarize the text discussion focusing on the wetland functional assessment and impact severity. This information should be presented as a tabulation of data so that it can be readily assimilated and compared. Remember that wetland impacts must be described and alternatives compared without compensatory mitigation to comply with the CWA (b)(1) guidelines and so that identification of the LEDPA can be supported.
- ▶ Methods section that explains how the impacts were calculated
- ▶ Discussion of what specific direct (filling, dredging, etc) and indirect impacts (erosion, sedimentation, shadowing, hydrologic modification, noxious weed invasion, etc) are expected.

For each type (indirect/direct and temporary/permanent) of wetland impact, present the proposed mitigation measures. Describe how the proposed mitigation measures were selected and how they would address the impacts identified.

In accordance with FHWA Technical Advisory 6640.8A (FHWA, 1987) requirements, if the preferred alternative affects wetlands, the Final EIS needs to contain the finding required by Executive Order 11990 that there are no practicable alternatives to construction in wetlands. Where the finding is included, approval of the Final EIS will document compliance with the Executive Order 11990 requirements (23 CFR 771.125(a)(1)). The finding should be included in a separate subsection entitled ‘Only Practicable Alternative Finding’ and should be supported by the following information:



Environmental Consequences Chapter of NEPA Document

- Provide the protocol used to select mitigation measures
- Discuss types of impacts, comparing and contrasting alternatives within each impact type
- If the preferred alternative impacts wetlands, thoroughly document why this could not be avoided





- ▶ A reference to Executive Order 11990
- ▶ An explanation why there are no practicable alternatives to the proposed action
- ▶ An explanation why the proposed action includes all practicable measures to minimize harm to wetlands
- ▶ A concluding statement that “Based upon the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.”

A separate wetland finding should be included as an appendix to the NEPA document or as a technical report. Refer to the *Checklist - CDOT Wetland Findings and Wetland Finding Amendments* (CDOT, 2010b) to enable compliance with the above requirement.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT’s Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.7 Vegetation and Noxious Weeds



Vegetation is a term that encompasses the diverse plants that grow in soil and water. These plants can be grouped on the basis of their genetic similarity (e.g., ponderosa pine, limber pine, and lodgepole pine), their structural similarity (peach-leaved willow and narrow-leaved cottonwood, or squaw bush and golden currant), or in communities (riparian forest, upland grassland, or alpine forest) because they grow together in the same ecological setting. A plant community is any assemblage of populations living in a prescribed physical habitat; it is loosely organized and has characteristics in addition to its individual and population components. Plant communities serve as animal habitats. Collectively, the plants and animals create a biotic community. GIS maps often show land cover types, which are generally comparable to plant communities at a coarse scale of definition.

Vegetation is important because it holds soil in place and prevents erosion; removes carbon dioxide from the atmosphere and releases oxygen; provides diverse materials that are used by people and other animals as food, for structures, and other products; and contributes to shade, aesthetic views, and recreation. Plant communities support diverse species and provide particular niches for specialized plants and animals.

Some plant species that readily move beyond their native habitat and invade new habitats are considered undesirable. Invasive species, or alien species, are defined "with respect to a particular ecosystem" in Executive Order 13112 *Invasive Species* (Executive Order 13112, 1999) as, "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem." Transportation activities provide a means for potentially invasive species to move beyond existing habitats. Such species may severely disrupt ecosystem balance because they can quickly become abundant in a community and displace native species that are not adapted to the invasive species presence.

The three sections below provide guidance on the treatment of vegetation for CDOT's NEPA projects. The first section discusses the process for evaluating vegetation. The second discusses vegetation information that should be in each NEPA document. The third specifically focuses on noxious weeds.

9.7.1 Vegetation Evaluation Process

The CDOT RPEM, resource specialist, or environmental project manager is responsible for early identification of vegetation communities, their critical





uses, and important species. In fulfilling this responsibility, they may be supported by consultants who collect, evaluate, and summarize data on vegetation.

Vegetation communities should be identified throughout the project area that encompasses all alternatives. The study area should be at least large enough to contain all direct physical disturbance related to the project (e.g., the project footprint, haul roads, plus construction staging areas, etc.), as well as surrounding areas that could be indirectly impacted by the project through erosion, chemical/fuel and other pollutants, deicing operations, and roadside emissions. The surrounding area beyond the right-of-way fence should also be surveyed for the presence of noxious weeds that could readily move into the disturbed soils within the study area. If the presence of noxious weeds is noted, care must be taken to protect the project area and the surrounding habitats, particularly sensitive habitats or open water areas that are highly susceptible to the spread of invasive plants. The presence or potential uses of vegetation communities and whether they might include T&E species must also be determined.

Vegetation communities within the study area, their functions and component species must be identified as early as possible during project planning. This should be done before alternative corridors are selected if possible, and must be done before alternative alignments are finalized. Field review is required to determine whether particular plant species are present within the study area, and such data may need to be collected when the species is flowering and therefore most obvious to an observer. Planning of vegetation surveys is critical, especially with noxious weeds. Timing for field studies should be determined early in the NEPA process so that they can be conducted at the proper season, in spring, summer, or fall, without undue delay to the project.

REASONS FOR EVALUATION OF VEGETATION UNDER NEPA

CDOT evaluates vegetation for several reasons:

- ▶ Vegetation is an important component of the natural and human community
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To enable compliance with several legal mandates that pertain to particular vegetation species and their uses





Early identification of the vegetation communities present within the study area provides determination of the likelihood that sensitive plant or animal species might be present. It enables determination of the need for supplemental field studies so that these can be initiated at the proper time. It enables timely identification of biological red flags that might warrant development of additional or altered project alternatives.

Protection of vegetation that is not legally listed as T&E is determined by the importance of that vegetation to the surrounding ecosystem. Riparian vegetation and wetlands are protected under regulations specific to those communities. Plants that serve specialized functions for the animals that inhabit them (e.g., raptor nest trees, or elk calving ground vegetation) may be protected under regulations that are specific to the animal species involved.

Transportation project managers must pay special attention to vegetation because the project may include the reclamation of long stretches of roadside habitat disturbed by construction and their operation can contribute to the spread of noxious weeds. The use of native wildflowers (using at least 0.25 percent of 1 percent of the landscaping budget) during reclamation is required on federal-aid projects as noted in FHWA's *Landscape and Roadside Development* (FHWA, 1978) and *Landscaping and Scenic Enhancement* (FHWA, 23 USC Part 319).


Additionally, vegetation on public lands through which a transportation project passes (e.g., BLM, USFS, National Park Service (NPS), or USFWS land, or land owned or managed by a state or regional agency) may also be protected by the mandates of the managing agency. All such agencies should be contacted when the study area for a transportation project includes lands they manage.

In addition to the legal protection of vegetation, vegetation that provides important shade, or contributes to an aesthetic vista should be protected to the extent that this does not interfere with implementation of the project or result in inappropriate project costs. Further, since nearly all vegetation provides habitat for fish and wildlife, disturbance of vegetation should be kept to a minimum whenever this is reasonably possible.

COLLECTION AND EVALUATION OF BASELINE INFORMATION

Collection of Baseline Information

To collect baseline information on vegetation, start first with the information from the Colorado Gap Analysis Project (GAP) from which 100,000 block datasets depicting vegetation can be downloaded. These data can be characterized as follows:



The Colorado Department of Agriculture Noxious Weed Management Program is available at:

<http://www.colorado.gov/cs/Satellite/Agriculture-Main/CDAG/1174084048733>





- ▶ GAP data is GIS spatial data
- ▶ Data is provided in GIS formats and GIS software is required to view the data
- ▶ This data is in Universal Transverse Mercator Zone 13, North American Datum 1927 projection, and provided by 30 by 60 minute blocks
- ▶ Metadata is viewable on-screen and downloadable separate from the data
- ▶ All files are zip files, which can be uncompressed using WinZip

GAP data represent the most comprehensive statewide spatial information on vegetation. However, note that while 80 percent accuracy was the goal of GAP mapping, the 52 land cover types in Colorado were initially mapped at an accuracy of 31 percent. Nonetheless, because of their comprehensive and consistent coverage, GAP data are an excellent starting place to determine the vegetation present in the vegetation study area.

CPW's Natural Diversity Information Source is also a good data source. It contains links to downloadable GIS data on riparian and wetland mapping and the Colorado Vegetation Classification Project, as well as to the GAP webpage. Additional information is provided on riparian areas and wetlands because these could not be accurately mapped with the imagery used for the overall GAP analysis.

Further sources of spatial information on vegetation include the following:

- ▶ GIS Data Depot
- ▶ US Department of Agriculture (USDA) Data Gateway
- ▶ NatureServ
- ▶ Other sites that are listed in aggregate at the USFWS Geographic Information System and Spatial Data portal.

Ultimately, a single source of spatial data will need to be chosen to depict the vegetation in the vegetation study area. However, other data sources may provide additional, specific information that is more precise for a specific area or location.

More precise information on sensitive vegetation species can be found with the CNHP. The CNHP tracks rare species, some of which are legally protected and some of which are not. It provides data on the county and USGS quadrangle in which the tracked species occur; more precise data can be obtained by request with payment of a fee. The presence of a



Sources of vegetation spatial include:

Colorado Gap Analysis Project at <http://ndis1.nrel.colostate.edu/cogap/>

CPW's Natural Diversity Information Source <http://ndis.nrel.colostate.edu/exploring.asp>

GIS Data Depot <http://data.geocomm.com/>

USDA Data Gateway <http://datagateway.nrcs.usda.gov/>

NatureServ <http://www.natureserve.org/getData/plantData.jsp>

USFWS Geographic Information Systems and Spatial Data <http://www.fws.gov/data/>





tracked species in the county or quadrangle where a project is planned necessitates obtaining detailed information along proposed alignments, and may be cause for realignment of one or more alternatives. Information on noxious weed species can be obtained from the Colorado Department of Agriculture. Links on the Colorado Department of Agriculture webpage provide contact information for county weed supervisors and also provide information on how to inventory noxious weeds if field data must be collected.

Vegetation communities are also of importance to fish and wildlife species. For example, if a vegetation community serves as an elk calving ground or heron rookery or provides a raptor nest site, it may need to be protected to maintain adequate breeding sites, as well as forage or feeding areas. Riparian areas are another example of an important and sensitive vegetation community. Not only is the vegetation important, but many sensitive, T&E fish species rely on healthy, intact riparian vegetation for their continued survival, not to mention the importance of the riparian forest on water quality. Therefore, good communication between CDOT's plant and fish and wildlife specialists is essential.

Evaluation of Baseline Information

To evaluate baseline information, first finalize the vegetation study area, then identify the types of impacts the project could have on vegetation and the types of measures that could be used to mitigate these impacts if they cannot be avoided. More specifically:

- ▶ Include within the vegetation study area all potential areas of direct disturbance (e.g., where the ground will be disturbed, tree/shrub branches broken or removed) and areas of indirect disturbance (e.g., where erosion might disturb the plant cover or deposition of eroded soil might cover lowland vegetation; where deicer impacts might retard plant growth, species may be altered due to hydrology, or the soil may be vulnerable to noxious weeds)
- ▶ Prepare a matrix of vegetation land cover types within the vegetation study area and types of project impacts on vegetation by alternative
- ▶ Prepare a matrix of the impacts that could occur as a result of any of the project alternatives and the measures that could be used to mitigate each

This information will inform the project-specific analysis of impacts and how they might be mitigated. Impacts of the proposed project alternatives on vegetation should be evaluated in three primary ways.



Colorado Natural Heritage Program's website at:

<http://www.cnhp.colostate.edu/>





- ▶ Map the most precise spatial data that cover the vegetation study area with the expected areas of disturbance for each of the project alternatives. As needed, develop different GIS layers for areas of project disturbance that are expected to occur at different times (e.g., for temporary disturbance during construction and permanent disturbance during operation) and as a result of different types of disturbance (e.g., direct and indirect). Using the GIS software, tabulate the acreage of each land cover type that intersects with the areas of disturbance shown on each GIS layer. Use the calculated acreages to quantitatively compare the impacts of the project alternatives.
- ▶ In addition to this quantitative comparison of acreage impacts by vegetation land cover type, the relative importance of each vegetation land cover type should be determined, compared, and discussed. Include in the discussion the national, regional, and local importance of each vegetation type that would be impacted, as well as the importance at these three levels of the fish and wildlife habitat it provides.
- ▶ The level of detail provided should not be excessive relative to the magnitude of the anticipated impact. In all cases, the goal should be to provide the level of detail necessary to clarify the difference between the alternatives and the magnitude of that difference.

Development of a list of past, present, and reasonably foreseeable future projects that should be addressed for all resources in the consideration of cumulative impacts is discussed in **Section 9.26**. Locate these projects on a vegetation land cover map to see what vegetation land cover types they will impact. Discuss cumulative impacts to vegetation in more general terms, noting which vegetation land cover types will be most impacted, their relative importance, and the degree to which impacts from the transportation project considered in the current NEPA document will contribute to the cumulative impacts.

OTHER ISSUES TO CONSIDER

Other agencies may have information or guidance that will affect a particular CDOT project. Coordinate with the various agencies having resource oversight to obtain any site-specific data they may have, and talk to resource specialists who know the study area to determine whether they know of vegetation that should not be disturbed or have guidance that could constrain the project. The resource agencies that would have information or guidance on vegetation impacts include CPW, USFWS, and NRCS as well as USFS, BLM, NPS, and Colorado counties and state parks, when they manage lands that are traversed by a transportation project.





In addition to information on vegetation species and communities, very specific information on T&E plant species that may occur in the study area will need to be analyzed with regard to project impacts.

9.7.2 NEPA Document Sections

The content of the vegetation sections in the Affected Environment and Environmental Consequences chapter is discussed below. The level of detail will vary with species composition, the presence of T&E species, and the value of the vegetation habitat and the potential project impact.

AFFECTED ENVIRONMENT

The description of vegetation in the Affected Environment chapter of the NEPA document should:

- ▶ Include an introduction to vegetation and the importance of protecting it in and around the project area
- ▶ Present an overview of the vegetation land cover types that are present in the project region
- ▶ Define the vegetation study area for the project
- ▶ Describe how the vegetation land cover types within the study area fit within the regional context (agriculture, forestry products, open space)
- ▶ Include a map of the vegetation land cover types within the vegetation study area and provide a cross-reference to the T&E species and wetland section of the NEPA document

If no vegetation will be impacted (e.g., the project is entirely within a highly developed urban area without any surrounding vegetation), no further detail is required in the Affected Environment chapter on vegetation. Remember, even in an urban area there may be some landscaping using sod or other irrigated landscape that could be susceptible to noxious weeds. If impacts to vegetation may, or will occur, also include the following:

- ▶ A description of each vegetation land cover type, including the locations where it occurs, its general appearance, the species that comprise it, and its importance as a plant community (fish and wildlife habitat, visual aesthetic, economic value, recreation, etc.)
- ▶ A note showing the proximity of any special use areas such as national or state forest areas, recreation areas, or parklands
- ▶ A description of areas of contiguous habitat
- ▶ A description of land uses, if any, within or nearby the proposed project alternatives (developed, agriculture, forest products)



Affected Environment Chapter of NEPA Document

- Map of the vegetation communities or land cover types in the vegetation study area
- Description of each vegetation community, land cover type, or surrounding area, when dealing with noxious weeds, that is expected to be impacted by the project
- Cross-reference the T&E species section so that such plant species will not be overlooked by the reader





- ▶ The scoping summaries from the federal, state, and local agencies. These agencies have expert knowledge of the project areas and will provide important insights to special vegetation issues.
- ▶ Identification of any noxious weeds that are within or surrounding the vegetation study area
- ▶ A statement of the likelihood of sensitive species presence and cross-reference to the T&E species discussion
- ▶ A discussion of the importance of the vegetation land cover type as habitat for fish and wildlife species cross-referenced to further discussion of this topic in the fish and wildlife section of the NEPA document

ENVIRONMENTAL CONSEQUENCES

In the impact analysis section of the NEPA document, show the map of vegetation land cover types overlain with the project areas of direct disturbance. Include the tabulation of acreages of disturbance of each land cover type by alternative. Compare and contrast the project alternatives as to their relative vegetation impacts on the basis of their acreage of disturbance, and the relative importance of each of the vegetation land cover types. Note which impacts to vegetation will be temporary, in that they occur only during construction, and which will be more permanent and last throughout the project's operation. Differentiate between direct and indirect impacts, and discuss each. Prepare the vegetation input for a tabular summary of impacts by alternative and the consideration of cumulative impacts.

Include how the actions in each alternative could affect each land cover type. Impacts could be something that enhances the vegetation habitat, such as mitigation, or the impacts could result in degradation of the vegetation cover, such as tree removal. Discuss measures to mitigate impacts to vegetation only after the impacts have been clearly documented and quantified. The preferred approach toward impacts is to first, avoid them or, if that is not possible, then to minimize them, and then to mitigate them. In the NEPA document:

- ▶ Discuss steps that were taken and/or will be taken in the final design of alternatives to avoid impacts to vegetation
- ▶ Discuss steps taken to minimize impacts
- ▶ Discuss the types of actions taken to avoid specific patches of vegetation or to minimize the overall acreage of vegetation disturbance, such as:





- Rerouting alternative alignments
 - Narrowing the right-of-way
 - Elevating a portion of the right-of-way
 - Minimizing the size of construction staging areas or confining them to previously disturbed sites
- ▶ For impacts that cannot be avoided, discuss such mitigation measures as:
- Seeding with a native grass/forb mix
 - Planting trees and shrubs per Senate Bill 40 commitments (1:1 trees, sod fragmentation shrubs)
 - Transplanting (moving particularly important plant populations to areas where they would not be disturbed)
 - Employing BMPs during construction by using erosion and sediment control BMPs, implementing phased seeding, and containing potential pollutants

9.7.3 Noxious Weeds

As defined by the Colorado Noxious Weed Act, the term “noxious weed” means any non-native plant or parts of a non-native plant that have been designated by rule as being noxious or have been declared a noxious weed by the state of Colorado or a local advisory board, and meets one or more of the following criteria:

- ▶ Aggressively invades or is detrimental to economic crops or native plant communities
- ▶ Is poisonous to livestock
- ▶ Is a carrier of detrimental insects, diseases, or parasites
- ▶ The direct or indirect effect of the presence of this plant is detrimental to the environmentally sound management of natural or agricultural ecosystems

Why are noxious weeds important?

- ▶ Noxious weeds constitute a threat to the economic and environmental value of land, as hundreds of acres of crop, rangeland, roadside, and natural resources, such as habitat for wildlife and native plant communities, are being displaced by noxious weeds each year
- ▶ The spread of noxious weeds can be partially attributed to the movement of seed and plant parts on motor vehicles, and because



noxious weeds are becoming an increasing maintenance problem on highway right-of-way in Colorado, and because the ground disturbance caused by construction projects are often colonized by noxious weed species preventing the establishment of native vegetation

- ▶ FHWA and CDOT policy and environmental ethic

REGULATIONS

The Colorado Noxious Weed Act (CRS 35-5.5) requires the control of designated noxious weeds. The Colorado Noxious Weed List categorizes noxious weeds as one of three categories. This list is updated annually and maintained by the Colorado Department of Agriculture in the following document: *Rules Pertaining To The Administration And Enforcement Of The Colorado Noxious Weed Act* (Colorado Department of Agriculture Plant Industry Division 8 CCR 1206-2). The list is also accessible on the website of the Department of Agriculture's Noxious Weed Management Program.

The noxious weed list categories and their management guidelines are:

- ▶ **List A.** All populations of List A species in Colorado are designated for eradication.
- ▶ **List B.** All populations of List B species in Colorado should be managed to stop their continued spread. For some of these species, a state noxious weed management plan has been created; in these cases, the management plan must be followed.
- ▶ **List C.** Populations of List C species are already widespread. The goal of management of List C species will not be to stop their continued spread but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species.

The following additional regulations are also related to noxious weed management:

- ▶ The Weed Free Forage Crop Certification Act (CRS 35-27.5)
- ▶ Rules and Regulations Pertaining to the Weed Free Forage Crop Certification Act
- ▶ State of Colorado Executive Order D 06 99 – Development and Implementation of Noxious Weed Management Programs
- ▶ State of Colorado Executive Order D 002 03 – Directing State Agencies To Coordinate Efforts for the Eradication of Tamarisk on State Lands





- ▶ Federal Executive Order 13112 – Invasive Species

AFFECTED ENVIRONMENT

The Affected Environment chapter must include areas adjacent and near the project area, not just the project footprint. The existing vegetative conditions in and adjacent to the project area should be described. The following information should also be provided:

- ▶ Plant communities in the project area
- ▶ Plant and animal species that occur in the area (including those special status species that have specific regulatory protections and cross-referencing T&E topics)
- ▶ Distribution of plant species or plant communities (maps may be useful)
- ▶ Sensitive areas that occur in the region
- ▶ Agriculture use in the area

Describe where affected environment information can be obtained and what field work may need to be conducted (and when). Describe what tools are appropriate at what time, for example, when aerial photography can be used and when field surveys may need to be conducted. Also describe any specific reports that may need to be developed and cross-reference or provide links to more detailed information (if it exists). Cross-reference other resource topics, such as water resources, vegetation, wildlife, T&E, and floodplains, as necessary. Tie regulatory requirements to noxious weed information where appropriate.

ENVIRONMENTAL CONSEQUENCES

The project should address the identification and approximate distribution of all noxious weed species in the study area and analysis of the impact of those noxious weeds on relevant resources in and adjacent to the study area, as follows:

Identification and mapping of existing noxious weeds - The first step in the process is to identify, inventory, and map the location of noxious weeds. If possible, it may be practical to combine the weed mapping with an existing vegetation or wetland survey. The weed survey should include:

- ▶ All species designated as List A, B, or C noxious weeds and any other species determined through consultation with county, parks, forest service, BLM, CDOT, and state weeds lists, inventories, and/or weed managers



Affected Environment

The level of detail provided in the Affected Environmental discussion should be relevant and related to the level of detail needed in the environmental consequences discussion. If there are no impacts, the Affected Environment discussion should be limited.





- ▶ Geographical location and extent of infestation (size and density of patch) for each patch of noxious weeds identified
- ▶ The results of weed identification presented as both a map and a table, which includes species of weeds, extent, density, regulatory status, and any specific issues related to each weed

Potential impacts from invasive species – Analysis of impacts should include area disturbed by construction and area adjacent to the project. Other questions to consider include: What are the impacts if the weeds spread within the project or adjacent to the project? Will ground disturbance result in an increase in weeds? Will the impacts affect wetland, riparian, or other sensitive habitats? Are there impacts associated with weed control methods i.e. herbicides? The potential for spreading invasive species or noxious weeds from the project into agricultural areas or sensitive ecological areas should also be addressed.

Public land impacts – Most of the local, state, and federal agencies have a policy addressing noxious weeds. If federal land is adjacent to the project, then the list of prioritized noxious weeds for that agency should be obtained. The impacts of the additional weeds should be addressed in the document.

T&E species – The document must address the impacts to the identified T&E species. Will the presence of noxious weeds displace the listed plant or compete with desirable habitat vegetation? The presence of T&E species in a given area will limit the method of control for noxious weeds. Furthermore, more stringent management practices may be required in a T&E area, such as delineation via signing for controlled application and use of herbicides.

Wetlands and open water – The document must address the potential for contamination of herbicides adjacent to wetlands and open water. This requires special attention to recommended aquatic-use only herbicides due to potential leaching of chemicals into the groundwater table and sensitivity to fish and wildlife habitat.

Agricultural – Due to the toxicity of certain noxious weeds to livestock (including horses), bees, or adjacent croplands, address the potential impacts of the weed and use of herbicides on adjacent agricultural lands.

This section in the NEPA document should also describe the predicted environmental impacts of project alternatives on resources in the project area from the continued or further spread of noxious weeds. Impacts to be considered include direct (construction and operational) and indirect impacts. Cumulative impacts should also be considered and included in the Cumulative Impact section of the NEPA document, if necessary, and give examples of the types of impacts caused by the spread of noxious weeds.





The level of detail included in the NEPA document should be commensurate with the extent and nature of the impacts.

RESOURCE MITIGATION AND PREVENTATIVE CONTROL MEASURES

Measures to eradicate and prevent the establishment and spread of invasive and noxious weeds should be included in all projects, as appropriate. The impact of noxious weeds on other resources in the area (e.g., wetlands, T&E species, etc.) should be mitigated according to strategies specific to those resources.

The NEPA analysis should reference potential noxious weed preventative control measures that will be incorporated into the scope, design, and construction processes. As defined in the Environmental Consequences section, the method of control can have an adverse effect on the sensitive environments containing the noxious weeds. The document should address potential impacts of the chemical, biological, and/or mechanical control methods to the surrounding ecosystem. These methods are outlined below:

- ▶ Minimize soil disturbance – By far the most likely place for noxious weeds to take hold will be areas that have been recently cleared of vegetation
- ▶ Use of fertilizer – Fertilizers should not be used on most projects because of their propensity to increase the growth of noxious weeds. This should be determined in consultation with a landscape architect.
- ▶ Native plants – The use of native grasses and forbs will be used on all CDOT right-of-way for revegetative purposes. Transplanting and purchasing of native plant material (trees and shrubs) from nurseries is encouraged whenever feasible.
- ▶ Weed Free Forage Act – The environmental document must address that materials used for the project must be inspected and regulated by the Weed Free Forage Act, Title 35, Article 27.5, CRS.
- ▶ Topsoil Management – When salvaging topsoil from on-site construction locations, the potential for the spreading of noxious weeds shall be considered. Topsoil should never be salvaged if contaminated by noxious weeds or seeds. Importing topsoil onto the project site should not be allowed unless it is certified weed free.
- ▶ Equipment Management – Equipment should remain on designated roadways and stay out of weed-infested areas until they are treated. All equipment shall be cleaned of all soil and vegetative plant parts prior to arriving on the project site.





- ▶ Stakeholder Coordination – Weed management efforts should be coordinated with local jurisdictional agencies and adjacent landowners to the extent possible.
- ▶ Cross-reference other resource topics, such as water resources, vegetation, wildlife, T&E, and floodplains, as necessary.

Integrated Noxious Weed Management Plan

The NEPA document should commit to the creation of an Integrated Noxious Weed Management Plan (INWMP) to be completed during design. Generally the NEPA document is too early in the process (given the likelihood of weed occurrences to change significantly in a few years) to write a comprehensive weed plan unless project construction is imminent. The INWMP must address the control methods (chemical, biological, preventative, etc.) that will be put in place to stop the continued spread of List B species and to eliminate the occurrences of any List A species.

This section must discuss the practical efforts CDOT can routinely undertake to mitigate or control impacts from noxious weeds. Describe typical mitigation or control measures corresponding to specific typical impacts. Cross-reference any appendices or websites with more detailed mitigation information, if necessary. Discuss what mitigation plans or reports are necessary, and under what conditions. The NEPA document should include mitigation measures in the Impact/Mitigation Summary table as well.

NOXIOUS WEEDS – OTHER ISSUES TO CONSIDER

Noxious weeds are present on most projects. The following are some additional ideas to keep in mind concerning the control of noxious weeds with pesticides:

- ▶ Pesticides and herbicides present an additional environmental hazard that must be analyzed
- ▶ Any individual who applies pesticides or herbicides must be licensed by the state as a Commercial Applicator, Qualified Supervisor or Certified Operator and must take continuing education courses to maintain their qualification.
- ▶ Some pesticides/herbicides may not be used near water or other sensitive areas
- ▶ Always follow the pesticide label for instructions on proper application





Noxious weed surveys cannot be performed in the winter because accurate identification of species and patch size will be impossible when plants are not in the correct growth stage. Coordination with local agencies should help target which noxious weed species are priorities for control. Many noxious weed species are already so widespread that effective control is difficult. Moreover, large patches of common noxious weeds are not as important to control as small infestations of rare noxious weeds. Cross-reference other permit sections or appendices if necessary.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.8 Fish and Wildlife



The term “fish and wildlife” is typically used to identify aquatic (“fish”) and terrestrial (“wildlife”) animal species that are of interest. Typically in a NEPA document, species of interest are confined to selected species of vertebrates (i.e., fish, amphibians, birds, and mammals) and T&E species.

The vertebrate species discussed are typically those that are of particular interest to the recreating public (e.g., fishermen, hunters, and bird watchers), are particularly abundant (e.g., mice, squirrels, blue jays, and robins), are at the top of food chains (e.g., coyotes, foxes, cougars, hawks, eagles, and owls), and/or have populations that are in some jeopardy (e.g., prairie dogs and sage grouse). An exhaustive discussion of all fish and wildlife species and/or other species would not be especially practical, of much interest, or be of much value.

Fish and wildlife are a vital component of ecosystems and contribute to their diversity, provide a source of enjoyment for recreationists, and provide a source of food for people and other animals. It is important that populations of fish and wildlife species and the habitats that support them remain healthy.

The two sections below provide guidance on the treatment of fish and wildlife for CDOT’s NEPA projects. The first section discusses the process for evaluating fish and wildlife. The second discusses fish and wildlife information that should be in each NEPA document.

9.8.1 Fish and Wildlife Evaluation Process

The CDOT RPEM, resource specialist, environmental project manager, EPB, regional biological specialists, or wildlife biologists are responsible for early identification of fish and wildlife species and their habitats. They are also responsible for determining whether sensitive species may be present in the project area. In fulfilling this responsibility, they may be supported by consultants who collect, evaluate, and summarize data on fish and wildlife.

Fish and wildlife populations should be identified throughout an area that encompasses all project alternatives.

Knowledge regarding how fish and wildlife populations use the habitat in the project vicinity and how these populations are used by humans will help define the fish and wildlife study area. Thus, the study area identified for animals is typically larger than that identified for plants, because animals are mobile.



CDOT has a Black-tailed Prairie Dog Policy, which can be found at:

<http://www.coloradodot.info/programs/environmental/wildlife/guidelines>





Whether the species present might include T&E species must also be determined. These species are discussed further in **Section 9.9**.

Fish and wildlife species, their populations, and their habitat within the study area must be identified as early as possible during project planning. This should be done before alternative corridors are selected if possible, and must be done before alternative alignments are determined. This enables project designers to try to avoid any critical fish and wildlife impacts before they have progressed too far in developing the alternatives.

The need for field studies should also be determined early in the NEPA process so that they can be conducted at the proper season without undue delay. If field data are required to determine whether particular animal species are present within the study area, such data may need to be collected when the species are most obvious to an observer (e.g., early in the breeding season to hear the singing of song birds; before deciduous trees have leafed out to detect raptor nests).

REASONS FOR EVALUATION OF FISH AND WILDLIFE UNDER NEPA

CDOT evaluates fish and wildlife resources for several reasons:

- ▶ Fish and wildlife are a vital component of ecosystems and contribute to their diversity, provide a source of enjoyment for recreationists, and provide a source of food for people and other animals.
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner.
- ▶ To enable compliance with numerous legal mandates that pertain to fish and wildlife.

There are numerous other federal laws that protect fish and wildlife (e.g., Waterfowl Depredations Prevention Act, Fish and Wildlife Conservation Act, Wild Bird Conservation Act) or their habitat (Duck Stamp Act, Wetlands Loan Act, Emergency Wetlands Resources Act, Migratory Bird Conservation Act, North American Wetlands Conservation Act), in addition to Senate Bill 40 Wildlife Certification (CRS Title 33, Article 5). The Colorado Senate Bill requires any agency of the state to obtain wildlife certification from CPW when the agency plans construction in "any stream or its bank or tributaries."

In addition, there are state laws that govern how fish, game birds, game mammals, non-game wildlife, and other species can be handled and otherwise impacted. For the most part, these laws govern the handling and intentional take of such species rather than unintentional take or habitat



Primary Fish and Wildlife Regulations and Guidance

- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- Bald and Golden Eagle Protection Act
- Executive Order 13112 (Invasive Species)
- Executive Order 12962 (Recreational Fisheries)
- Senate Bill 40 Wildlife Certification

Note: There are numerous additional federal and state regulations and extensive guidance for protection of fish and wildlife resources.





disruption. In addition, CPW has recommendations on buffer zones and seasonal restrictions for Colorado raptors that are viewed as guidance rather than official policy.

COLLECTION AND EVALUATION OF BASELINE INFORMATION

Collection of Baseline Information

Baseline information on fish and wildlife are needed to generally describe the species that are common and thereby characterize the project vicinity. Baseline information is also necessary to describe in detail the species to which impacts from the project would be of concern.

Because of the mobility of fish and wildlife, the habits and behaviors of potentially impacted species need to be described, as well as their populations and habitats. To provide sufficient information to enable a thorough assessment of project impacts, information must be known for each species present, such as:

- ▶ Migration behavior
- ▶ Known migration routes and timing
- ▶ Breeding locations, behaviors, timing, and cycle length
- ▶ Rearing periods for young
- ▶ Particular habitats uses for particular life cycles
- ▶ Factors that limit the species' population
- ▶ Areas of contiguous habitat
- ▶ Aspects of a species' habitat that are critical for its survival

The first step in the acquisition of information on fish and wildlife is to determine what species are likely to be present in the project vicinity. Such information can be obtained from a number of sources, such as:

- ▶ GAP data - include information on numerous vertebrate animal species that are typically associated with the land cover types identified in the state
- ▶ Latilong reports, published originally by CPW in the 1980s and available in some libraries, indicate the presence/absence of mammals (Bissell and Dillon, 1982), birds (Kingery, 1987), and reptiles/amphibians (Hammerson and Langlois, 1981) in 1 degree latitude and longitude blocks across the state
- ▶ Publications such as Birds of Colorado (Bailey and Niedrach, 1965), the Colorado Breeding Bird Atlas (1998), Mammals of Colorado



Sources of fish and wildlife data include:

Colorado Gap Analysis Project at
<http://ndis1.nrel.colostate.edu/cogap/>

CPW's Natural Diversity Information Source
<http://ndis.nrel.colostate.edu/exploring.asp>

Colorado Herpetological Society
<http://www.coloherps.org/>

Colorado Natural Heritage Program
<http://www.cnhp.colostate.edu/>

FHWA Critter Crossing
<http://www.fhwa.dot.gov/environment/wildlifecrossings/index.htm>

USFWS Invasive Species
<http://www.fws.gov/invasives/>

NatureServ
<http://www.natureserve.org/getData/plantData.jsp>





(Fitzgerald, Meaney, and Armstrong, 1994), and Amphibians and Reptiles in Colorado (Hammerson, 1982), as well as other publications on animal distribution

- ▶ Distributional data from the Colorado Wildlife Species Database (Schrupp and Cade, 1989)
- ▶ Distributional information from local CPW personnel, who should always be consulted
- ▶ CPW's Natural Diversity Information Source, which provides data on numerous animal species in the state
- ▶ Online data on reptiles and amphibians Colorado Herpetological Society's website
- ▶ Colorado Natural Heritage Program website, which tracks and ranks Colorado's rare and imperiled species and habitats, not all of which are T&E
- ▶ FHWA Critter Crossing website
- ▶ FHWA Invasive Species website
- ▶ USFWS Invasive Species website

A number of the above data sources contain information on the populations, behavior, and habitat use of species, as well as information on their distribution and abundance. Further information can be found online by species-specific searches on such sites as NatureServ Explorer, or additional scientific sites such as The Birds of North America online. Highly scientific data should be needed only for species that are biologically sensitive or of high public interest and that could be severely impacted by the project.

Evaluation of Baseline Information

Once data have been collected on the fish and wildlife species documented or likely to be present in the study area, map their likely distribution relative to project components. For many species, this is best done by evaluating them in assemblages that use a common habitat or land cover type. Greater specificity in the assessment of impacts can be gained by assessing how particular species use their habitat, and how the project will impact the habitat. Identification of the types of impacts that should be considered can best be understood through a series of examples.

For example, all the species that are likely to use ponderosa pine forests may be assumed to be impacted if project facilities disturb ponderosa pine habitat. Therefore:



- ▶ Small mammal species that forage and breed in ponderosa pine habitat are likely to be substantially impacted by road construction because a road will disturb the ground used for all of the mammals' activities.
- ▶ Small bird species that forage and nest in the ponderosa pine trees will be impacted by the loss of individual trees along the road right-of-way, and may also be subject to road kill, particularly if they feed by darting into the air to catch flying insects, but less so if they feed by gleaning insect larvae from the tree bark.
- ▶ Large bird species that require large unbroken expanses of forest for successful breeding may be impacted by fragmentation of their habitat, even if the percentage of their home range that is disturbed is very small.
- ▶ Species such as big game that migrate seasonally along traditional corridors may suffer considerable impacts if roads cut across this corridor. This can result in considerable road kill, particularly if the cross road is in an area with poor visibility for both the game animal and the driver of the car, and if a safe means for the game animal to cross the road is not provided and its use encouraged.
- ▶ Species that are constrained by roadside fences may avoid road kill impacts but be prevented from reaching traditional use areas. If these use areas are crucial for the species' survival, such as critical winter use areas, animal mortality could be high.
- ▶ Populations of amphibians that traditionally breed in a particular pond and disperse uphill from that pond after metamorphosis may be severely impacted if a road is placed on the uphill side of the pond.
- ▶ Aquatic species that move upstream or downstream for particular portions of their life cycle may be constrained from doing so if natural stream beds are replaced by culverts that are not conducive to their passage.
- ▶ Spawning beds used by aquatic species may be covered with silt or excessively scoured if surface flows are substantially altered by a transportation project.

The above examples are intended to encourage thoughtful evaluation of baseline data collected on fish and wildlife species. During this evaluation, consider what species are present, when they are present, what they are doing while present, and how important this activity is to the survival of healthy populations of the species. Also consider what would be happening on the ground, throughout each day during the construction and operation of





the project, as well as the permanent impacts the project would have on the surrounding landscape. Mentally combine these two types of activities in time and space to envision project impacts.

Use of multiple GIS layers can enable calculation of acreages of impact from different project activities on various species groups. However, to be complete, impact evaluation must also thoroughly consider the type and importance of the impact to individual species or species groups. To determine the importance of impacts, consult regional information that may provide context for the project-specific impacts.

Use species-specific guidance to evaluate impacts when it is available. For example, CPW guidance on Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors (Craig, 2002) provides species-specific distance recommendations for avoiding surface occupancy near bald eagle, golden eagle, osprey, ferruginous hawk, red-tailed hawk, Swainson's hawk, peregrine falcon, prairie falcon, goshawk, and burrowing owl nest sites, and near bald eagle winter night roosts and hunting perches.

Once impacts to fish and wildlife species have been thoroughly identified, they should be avoided to the maximum extent possible. This can primarily be accomplished by changing the location of project components or by constructing the project during times of the year when particular impacts can be avoided (e.g., construction during fall and winter could avoid impacts to an active raptor nest that might be disrupted by excessive human construction activity but could tolerate passing vehicles during project operation). Mitigation measures that enable passage of fish and wildlife to more successfully cross the road will help to avoid road kill. Many such measures are presented on the FHWA Critter Crossing website. They should be implemented to minimize project impacts whenever feasible.

Mitigation measures employed to minimize impacts to other resources (e.g., air quality (Section 9.2), geologic resources and soil (Section 9.3), water quality (Section 9.4), floodplains (Section 9.5), wetlands (Section 9.6), and vegetation and noxious weeds (Section 9.7)) often benefit fish and wildlife because they mitigate impacts to ecosystem components.

In addition to evaluating the impacts on fish and wildlife from the proposed project, the cumulative impact of that project and other projects must also be assessed. Locate projects that may affect similar fish and wildlife habitats (i.e., land cover types with which species groups are associated) and major traditional use areas (e.g., calving grounds, migration corridors, brood rearing areas, leks, traditional roost or nesting sites). Discuss cumulative impacts to fish and wildlife in general terms, noting which fish and wildlife species, habitats, and activities would be most impacted, their relative



CDOT follows the American Ornithological Society's guidance that every word in the common name of a bird is capitalized (i.e. Yellow-headed Blackbird).





importance, and the degree to which impacts from the transportation project considered in the current NEPA document would contribute to the cumulative impacts.

OTHER ISSUES TO CONSIDER

Wildlife Crossings

When roads cross routes traveled by fish and wildlife species, individuals of some species are sometimes killed or they may be prevented from crossing and perhaps from completing some aspect of their life cycle. Roads that cross wildlife corridors can also pose a safety hazard for drivers that may result in damage to a vehicle and injury or death to its occupant(s). Section 1119(n) of SAFETEA-LU mandates a study of methods to reduce collisions between wildlife and motor vehicles, as well as preparation of a report and training on the results of this study. The FHWA Critter Crossings website addresses this issue. As traffic on roadways increases in volume and density, wildlife/vehicle collisions become an increasingly important adverse impact to drivers, as well as wildlife species.

Consideration shall be given to the connectivity of wildlife habitat in the project area, especially connectivity of habitat for large ungulates that constitute an important safety hazard for the traveling public when roads bisect otherwise connected portions of their range, or lie between spring and fall ranges. Some tools for connectivity planning include:

- ▶ Land ownership maps
- ▶ Vegetation maps
- ▶ Topographic maps
- ▶ Aerial photos
- ▶ Wildlife habitat or range maps
- ▶ Roadkill data

Wildlife crossing structures or other mitigating techniques, such as the following and others, can serve to reconnect wildlife habitat divided by a road and reduce the incident of animal vehicle collisions:

- ▶ Warning signs
- ▶ Box culverts
- ▶ Large arched culverts
- ▶ Open-span bridges
- ▶ Wildlife overpasses



▶ Wildlife fencing

Senate Bill 40 Wildlife Certification (CRS Title 33, Article 5)

Colorado Senate Bill 40 requires any agency of the state to obtain wildlife certification from the CPW when the agency plans construction in “. . . any stream or its bank or tributaries . . .”

In addition to CDPS requirements, CDOT must also evaluate the project for potential impacts to “any stream or its banks or tributaries...” as specified in Colorado Senate Bill 40. If a project meets any of the criteria in Senate Bill 40, CDOT must obtain a Senate Bill 40 Wildlife Certification from the Colorado Division of Natural Resources (CDNR) or CPW before construction begins. Under a MOA between CDOT and CDNR, CDOT projects that do not meet any of the criteria outlined in Section III A of the MOA remain under the jurisdiction of Senate Bill 40 but are granted a Programmatic Senate Bill 40 Certification. This Programmatic Certification gives CDOT the authority to proceed with a project after a letter of notification is sent to CPW by CDOT RPEM.

For projects that require a Senate Bill 40 Wildlife Certification, the CDOT RPEM must submit an application at least 60 days prior to planned construction or maintenance activities, and CPW will complete its review of the application within 30 days and issue the Senate Bill 40 Certification or request additional information. The application is provided in the MOA.

Other Factors

Other factors that should be considered when evaluating baseline data include any regulatory or mitigation actions that may have an effect on a project. These could include things such as officially recognized block clearances for certain species, applicable mitigation banks, such as CDOT's Plum Creek Preble's Meadow Jumping Mouse Habitat Bank, specialized initiatives like the Shortgrass Prairie Initiative or CDOT/FHWA policies that may be more restrictive than a regulation. Applicable Memoranda of Understandings with other entities should be sought out and strictly adhered to as well.



Shortgrass Prairie Initiative

<http://www.coloradodot.info/programs/environmental/resources/environmental-cards/wildlife/03-0013-11.pdf/view>





9.8.2 NEPA Document Sections

The content of the sections on fish and wildlife in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

The Affected Environment chapter of the NEPA document should:

- ▶ Briefly characterize the important fish and wildlife species in the project vicinity and note whether any expect impacts from the project
- ▶ Justify how a species will or will not be impacted

Impacts could include, but are not limited to such things as:

- ▶ Disturbance of habitat due to fragmentation, connectivity or human encroachment
- ▶ Decrease or removal of prey base or foraging opportunities, including changes in the vegetation community
- ▶ Decrease or removal of sheltering opportunities either as part of a lifecycle (e.g. a den) or avoidance of predators
- ▶ Disruption of historic migration routes
- ▶ Increase in water contaminants that may affect species onsite or downstream
- ▶ Increase in barriers including widened highways, guardrails, cement barriers, increased speed or number of vehicles, or increased lighting and noise
- ▶ Disruption or alteration of spawning beds
- ▶ Disruption or alteration of water regimes, temperature, or chemical make-up
- ▶ Disruption or disturbance to known lambing, fawning, or rutting areas
- ▶ Removal or depletion of water from either the Upper Colorado, San Juan, or Platte River basins, which will affect species hundreds of miles downstream (Standard Platte River Depletion Language is in **Appendix F**)
- ▶ Increased competition from species that may not otherwise be a factor

If no impacts are anticipated, the section on fish and wildlife should end there. If impacts to particular species or species groups are expected, the fish and wildlife section must be expanded to include:



Impact/Mitigation Section of NEPA Document

- Discuss impacts by type for species or species groups
- Compare and contrast alternatives within impact type
- Summarize impacts by alternatives for inclusion in final summary of impacts by alternative
- Also consider cumulative impacts by type for species or species groups



- ▶ A description of how the species being considered were selected and the basis for any species groups has developed, since every fish and wildlife species cannot be discussed
- ▶ Detailed information on distribution, populations, habitat features, and habitat use of these species or species groups
- ▶ The timing of particular types of habitat use and behaviors
- ▶ A discussion of the importance of maintaining a healthy and sustainable population
- ▶ A map of species habitats linked to a tabulation of important species

ENVIRONMENTAL CONSEQUENCES

In the Environmental Consequences section of the NEPA document, discuss project impacts to the species or species groups. Each impact must be described, as it is exhibited in each alternative, as it affects each species or species group. For example, discuss road kill impacts and describe the effects of the impact and how it may differ among species or species groups as it pertains to each alternative. Then discuss alternatives that have the same road kill impacts together and contrast those that differ so that similarities and differences in alternatives as to their road kill impacts on fish and wildlife is clear. Include information on the importance of the impacts to the species or species groups. Impacts on fish and wildlife may be helpful to species, such as mitigation, or harmful, such as removal of high-value habitat.

Senate Bill 40 (SB 40) Certification

Mitigation for SB 40 impacts generally requires creation, restoration, and/or enhancement of impacted riparian (streamside) areas and a SWMP to address construction-related erosion/sedimentation effects. The CatEx must contain a SWMP, mitigation plan, and signed certification from CPW before the RPEM can sign Form 128. However, EAs and EISs usually provide a conceptual mitigation plan and commit to completing the SB 40 application during final design. Wetland and T&E mitigation usually applies to SB 40 and it is helpful to cross-reference the wetland and/or T&E sections of the NEPA document when this is the case.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:
http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.9 Threatened/Endangered (T&E) Species

T&E species are species that have been listed pursuant to the Endangered Species Act (ESA). The ESA prohibits unauthorized take of listed species and prohibits federal agencies from funding or authorizing projects that jeopardize the continued existence of listed species or adversely modify designated critical habitat.

- ▶ An endangered species is an animal or plant species in danger of extinction throughout all or a significant portion of its range.
- ▶ A threatened species is an animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
- ▶ A proposed species is an animal or plant species proposed in the Federal Register for listing under Section 4 of the ESA.
- ▶ A candidate species is an animal or plant species defined by the USFWS as “plants and animals for which the Fish and Wildlife Service has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development or a proposed listing regulation is precluded by other higher priority listing activities. Conservation of these species is important because they are by definition species that may warrant future protection under the ESA.”
- ▶ Critical habitat, based on the physical or biological features essential to the conservation of the species, may be included with the listing of a wildlife or fish species; such as the Colorado River Basin for razorback sucker, Colorado pikeminnow, humpback chub, and bonytail chub.

Additional terms are used to describe species that have low populations, but may or may not be formally listed. T&E species and other species with low populations can serve as indicator species that are particularly sensitive to adverse impacts to the environment and thereby are indicators of environmental problems. Their gene pool also contributes to biological diversity, uniqueness, and potential. These additional species include:

- ▶ Species of concern - An informal term referring to a species that might be in need of conservation actions ranging from periodic monitoring of populations and threats to the species and its habitat to the necessity for listing as threatened or endangered. Such species receive no legal protection and use of the term does not necessarily imply that a species will eventually be proposed for listing.





- ▶ Species at risk - Any species with status under the ESA and a state's ESA. Other species at risk are those on a state's Fish and Wildlife Department's sensitive species list, and a state's Department of Agriculture lists.
- ▶ Imperiled species - Any species that is listed as threatened or endangered by the ESA, considered a candidate for listing, or its population is in steep decline

The two sections below provide guidance on the treatment of T&E species for CDOT's NEPA projects. The first section discusses the process for evaluating T&E species. The second section discusses information on T&E species that should be in each NEPA document.

9.9.1 T&E Species Evaluation Process

Because T&E species are plants or animals that have low populations, they have requirements placed on their evaluation that are in addition to the requirements for their evaluation as plants or animals, have limited habitat availability or other barriers. As for plants and animals in general, the CDOT RPEM, resource specialist, or environmental project manager are responsible for early identification of T&E species and their habitats and may be supported by consultants. It should be noted that some projects will have far-reaching effects that may impact listed species well outside the construction zone. For example, water depletions can adversely affect species such as greenback trout or humpback chub hundreds of miles from the highway project's location.

Similarly, the study area for T&E species should be defined on the basis of direct and indirect impacts that any individuals of these species might incur from a project. Even more so for these species, the study area should be large enough to enable consideration of all possible direct or indirect project impacts.

Species that are T&E are more rigidly protected than other plant and animal species, their potential presence in the vicinity of a project must be known early. Impacts to T&E species and their designated critical habitat must be minimized to ensure compliance with the ESA. Early knowledge that T&E species and any critical habitat may be present enables project designers to avoid and minimize impacts to any species before they have progressed too far in developing the alternatives. It also enables any field studies needed to determine the presence/absence of T&E species to be conducted at the correct time.





REASONS FOR EVALUATION OF T&E SPECIES UNDER NEPA

CDOT evaluates T&E species for several reasons:

- ▶ Unauthorized take of listed species is subject to both civil and criminal penalties.
- ▶ T&E species and their designated critical habitat are ecologically important.
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner.
- ▶ To comply with several legal mandates that pertain to T&E species
- ▶ T&E plant and animal species are subject to all of the regulations identified in **Section 9.7** for vegetation and in **Section 9.8** for fish and wildlife. They are also subject to protection under the ESA and subsequent amendments (Endangered Species Act, 16 USC § 35).
- ▶ Section 7 of the ESA requires that "each federal agency . . . in consultation with and with the assistance of the Secretary [of the Interior] insure that any action authorized, funded or carried out is not likely to jeopardize the continued existence of endangered species or threatened species or result in the destruction or adverse modification of habitat of such species . . . which is determined to be critical . . . unless such agency has been granted an exemption for such action."
- ▶ Section 9 lists those actions that are prohibited under the ESA. Unauthorized take of a species listed in accordance with the ESA is prohibited. However, there are processes whereby take is allowed when it is incidental to an otherwise legal activity.
- ▶ Whereby an action without a federal nexus but with a potential to result in the take of a listed species could be allowed under an incidental take permit.

Regulations governing interagency cooperation for T&E species can be found in the Joint Counterpart ESA Section 7 Consultation Regulations (Joint Counterpart Endangered Species Act, 50 CFR 402). FHWA Technical Advisory T6640.8A guidance (FHWA, 1987) includes T&E species among the potentially significant impacts most commonly encountered by highway projects. The state of Colorado also protects T&E species under Non-game and Endangered Species Conservation, Colorado Revised Statutes (CRS), Title 33, Article 2 (Non-game and Endangered Species Conservation, CRS 33 § 2).





COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

For T&E species, two parallel processes require collection and evaluation of baseline information—compliance with NEPA and with ESA. For CDOT and FHWA, compliance with ESA means initiating consultation with the USFWS when it has been determined that a proposed project may affect one or more federally listed species. If the project is likely to adversely affect one or more federally listed species, formal consultation will be required. FHWA or another federal agency must then prepare a Biological Assessment (BA). A BA is a document prepared for the Section 7 process to determine whether or not a proposed major construction activity under the authority of a federal action agency is likely to adversely affect listed species, proposed species, or designated critical habitat. The BA must be submitted to USFWS in order to obtain their Biological Opinion (BO) as to whether the project jeopardizes a listed species or its habitat. A BO is a document stating the opinion of USFWS as to whether or not a federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. Further information on the USFWS consultation process can be found in the *Endangered Species Consultation Handbook Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act* (USFWS and National Marine Fisheries Services, 1998).

Collection of Baseline Information

The first step in addressing T&E species is to determine whether such species are impacted by the project. Use online data to obtain information on the following, at a minimum:

- ▶ Federally listed T&E species in Colorado (USFWS)
- ▶ State listed T&E species (CPW)
- ▶ County-specific species lists from the Natural Diversity Information Source (CPW)

Additional information and GIS data on listed species can be found on the following web sites:

- ▶ USFWS website
- ▶ CPW (additional data may be obtained through area biologists)
- ▶ Colorado Natural Heritage Program (additional data may be requested via a prescribed process)



T&E Online Resources

USFWS Colorado Listed Species
http://ecos.fws.gov/tess_public/StateListing.do?status=listed&state=CO

CPW Species of Concern
<http://wildlife.state.co.us/WildlifeSpecies/SpeciesOfConcern/>

CPW's Natural Diversity Information Source
<http://ndis.nrel.colostate.edu/exploring.asp>

CPW's website at:
<http://wildlife.state.co.us/>

CNHP's website at:
<http://www.cnhp.colostate.edu/>





The latter two organizations also have databases that contain records of specific sightings of the species that they track. Some of these data are available in GIS format and can be plotted together with project features.

In addition, it is possible that some of the T&E species being impacted have critical habitat that has been formally designated by USFWS and is legally protected. Be sure to learn whether the T&E species in the project area of impact have designated critical habitat and obtain a description and map of any such habitat.

Section 9.7 and **Section 9.8** of this Manual may contain additional sources that include information on T&E vegetation and fish and wildlife species, respectively.

Evaluation of Baseline Information

The process used to evaluate baseline information for T&E plant and animal species does not differ from the process used for other plant and animal species populations. However, the rigor with which these processes are applied to T&E species should be greater because of their status. Therefore, it is also important to include:

- ▶ Documented records of species occurrence within the influence of the project
- ▶ A determination of whether or not there is potential occupied habitat and, if so, to assume the species may be present
- ▶ Evaluation of potential project impacts on T&E species, their habitat and any designated critical habitat

OTHER ISSUES TO CONSIDER

The information used for compliance with NEPA and ESA must be consistent, but may not be identical. For example, in the NEPA document, CDOT and FHWA may decide to highlight all sensitive species in a separate chapter that is titled "Sensitive Species" rather than "T&E Species," while documentation prepared to comply with ESA should address only federally listed species. Less detail may be provided for individual species in the NEPA document so long as the BA is referenced, which means that information on federally listed species in the ESA document can be summarized for the NEPA document.

A BA cannot be completed until one alternative has been selected. This constraint, together with the 90 and 180 day constraints on BA preparation means that the formal initiation of the BA should be timed carefully. However, preparation of the species accounts in the BA can begin early in the project because informal lists of the species likely to require addressing





in the BA can be obtained from the online sources listed above. Such detailed species-specific information may benefit the development of project alternatives. Also, because the BA prepared on T&E species must ultimately be approved by USFWS, it is important to coordinate closely with this agency when collecting and evaluating information for the NEPA document.

9.9.2 NEPA Document Sections

The content of the sections on T&E species in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

Determine whether the Affected Environment section on T&E species should include only these species, or also discuss other species of concern, and title the section appropriately (i.e. sensitive species, species of concern etc.). If other species of concern are not discussed with T&E species, they should be highlighted in the sections on vegetation and fish and wildlife.

Information on T&E species in the Affected Environment chapter should be more detailed and species specific than what is provided in the sections on other vegetation (**Section 9.7**) and wildlife (**Section 9.8**). Discuss each T&E species separately. Provide specific information on the habitat or critical habitat each of these species occupies, what features of the habitat it uses, and why this is important to the species' population. The better this information is the more precisely potential impacts to the species can be identified.

ENVIRONMENTAL CONSEQUENCES

One of three findings must be made for listed species or critical habitat:

- ▶ No effect
- ▶ May affect but not likely to adversely affect
- ▶ May affect, likely to adversely affect

No consultation is required for "no effect" findings. For a finding of "may affect but not likely to adversely affect", CDOT will informally consult with the USFWS. If USFWS concurs with the finding in writing, the Section 7 process is complete. An "adverse effect" finding requires preparation of a BA and for FHWA or other federal agency to enter into formal consultation. At the end of formal consultation, the USFWS will issue a BO.

Discuss the impacts to each T&E species separately. Because these species and their designated critical habitat are so stringently protected, determination of precise potential impacts to them will best meet NEPA and





ESA requirements and will also benefit the project. After describing each type of impact to a species, note the importance of this impact to the species' population.

As for other resources, discuss alternatives that have the same impacts on a T&E species together and contrast those that differ so that similarities and differences in alternative impacts on a T&E species are clear. Prepare the T&E species input for a tabular summary of impacts by alternative.

For T&E species and designated critical habitat, avoidance of impacts is preferable. If the BA and NEPA document conclude that the project "may adversely affect" the species, USFWS may issue an incidental take statement in the BO. In addition, "reasonable and prudent measures" and "terms and conditions" must be adhered to during project implementation to minimize the incidental take.

If the BA and NEPA document conclude that the project "may adversely affect" the species and the USFWS BO contains a finding of jeopardy and/or adverse modification, the *Endangered Species Consultation Handbook Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act* (USFWS and National Marine Fisheries Services, 1998) outlines the necessary procedure to follow.

The lead federal agency may:

- ▶ Adopt one of the reasonable and prudent alternatives for eliminating the jeopardy or adverse modification of critical habitat in the opinion
- ▶ Decide not to grant the permit, fund the project, or undertake the action
- ▶ Request an exemption from the Endangered Species Committee (Appendix G in the *Endangered Species Consultation Handbook Procedures for Conducting Consultation and Conference Activities Under Section 7 of the Endangered Species Act* [USFWS and National Marine Fisheries Services, 1998])
- ▶ Reinitiate the consultation by proposing modification of the action or offering reasonable and prudent alternatives not yet considered
- ▶ Choose to take other action if it believes, after a review of the BO and the best available scientific information, that such action satisfies Section 7(a)(2)

The lead federal agency must notify the USFWS of its final decision on any proposed action that receives a jeopardy or adverse modification BO (50 CFR § 402.15(b)).





In either of the above situations, the process of ESA compliance becomes complex and the project may be severely delayed. The best course is to avoid potential impacts to T&E species whenever possible.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.10 Historic Properties



Historic properties are defined as any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

The steps in this section outline procedures for the identification and evaluation of historic properties as required by federal and state law. Qualified cultural resource professionals, as defined in the Secretary of the Interior's Professional Qualification Standards, in consultation with Native Americans, subject matter experts, and review authorities, are charged with identifying and dealing with historic properties that could have significance and could be affected by transportation projects.

The evaluation of historic properties should be initiated by the project engineer in consultation with the RPEM and appropriate cultural resource specialist.

The steps set forth in Section 106 of the National Historic Preservation Act (NHPA) describe the process that federal agencies must follow when planning undertakings that have the potential to affect historic properties.

CDOT identifies potential historic properties, recommends determinations of eligibility and effect, and consults with the State Historic Preservation Officer (SHPO) on behalf of FHWA. FHWA has authorized CDOT to make these evaluations; however FHWA is legally responsible for the findings and determinations made during the Section 106 process (**Figure 9-2**) and also determines whether the work done by CDOT fulfills the intent of the legislation. FHWA is also responsible for ensuring the Section 106 process is undertaken early in the planning process in order to fulfill public coordination and SHPO review requirements. Otherwise, the agency may be unable to document that it has fulfilled its responsibilities under Section 106, causing issues for CDOT later in the process. The issues that can arise from improper Section 106 documentation include legal challenges that can delay or stop a project.

Identification and evaluation of historic properties must be conducted during the initial planning phases of the project. This includes when alternatives for the proposed action are first being designed and developed. By taking alternatives into account at the planning stage, there is less chance of delays in the NEPA process due to undiscovered historic properties.



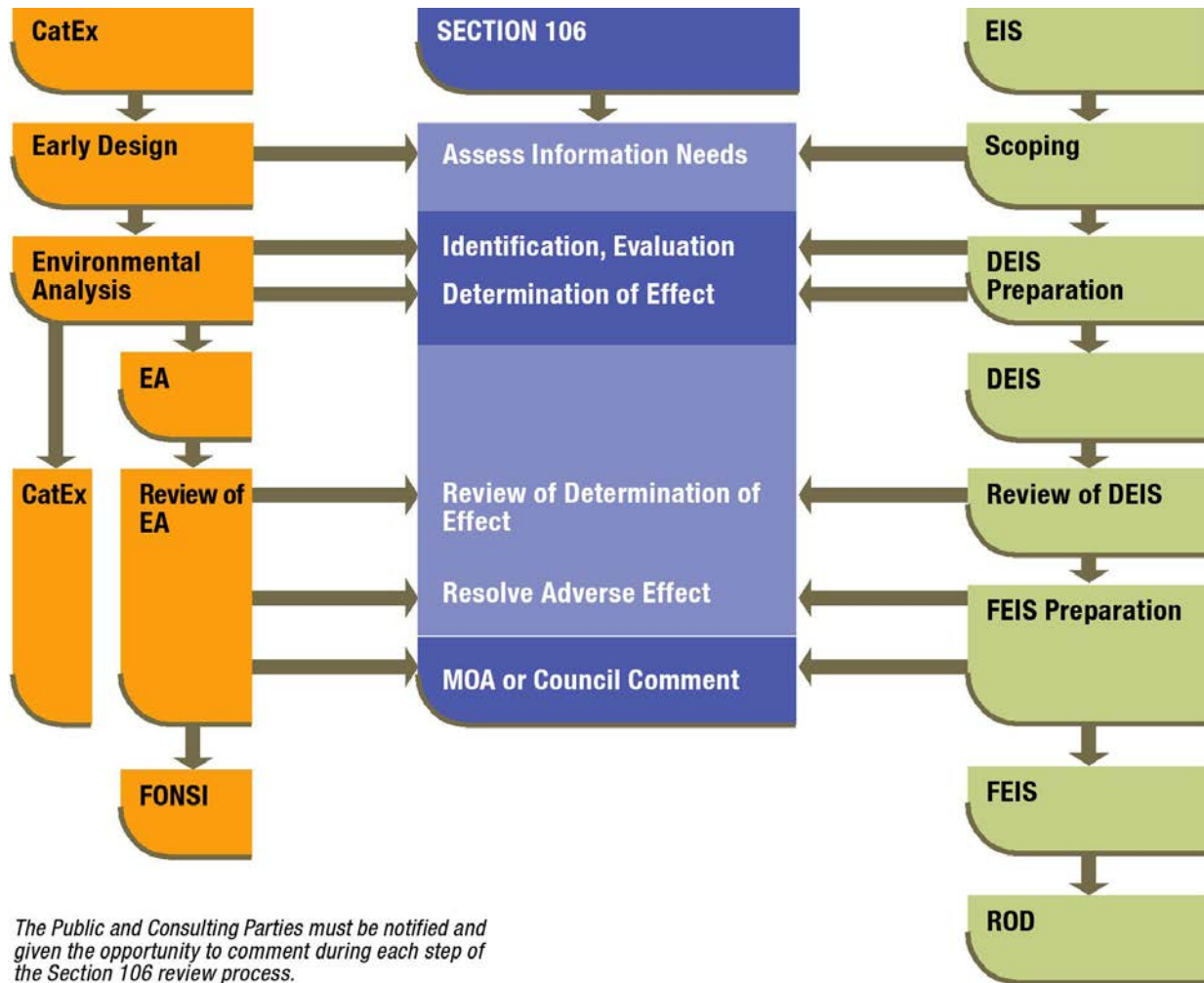
Refer to the Colorado Cultural Resource Survey Manual, Volumes I and II (http://www.historycolorado.org/sites/default/files/files/OAHP/crforms_edumat/pdfs/1527.pdf) on how to conduct a cultural survey and complete the necessary forms. The entire site form should be completed; however, to facilitate a quick review, specific detail and attention should be given to the item numbers listed for each form.

- Architectural Inventory Form – This is a stand alone form. (13, 22, 29, 35, 42, and 43)
- Management Data Form – Is to be completed in combination with other forms, as appropriate, including the Historic and /or Prehistoric Archaeological Component Form for every archaeological resource (10, 32, 36, 37, and 38)
- Linear Component Form – Is to be completed for railroads, irrigation ditches, roads, trails, etc., in combination with the Management Data Form (6, 9, 14, 15, 17, and 18)
- Cultural Resource Re-Evaluation Form – (7, 8, 9, 10, 12, and 13)





Figure 9-2 Coordination Between NEPA and Section 106



The Public and Consulting Parties must be notified and given the opportunity to comment during each step of the Section 106 review process.





9.10.1 Reasons for Evaluation of Historic Properties Under NEPA

CDOT is required by state and federal law to identify and evaluate the significance of historic properties prior to commencing work related to transportation construction and maintenance activities that could potentially impact historic and/or archaeological resources. There are several state and federal regulations that direct the evaluation and protection of historic properties.

As previously discussed, FHWA has authorized CDOT to make these evaluations. According to 36 CFR 800, Protection of Historic Properties, the regulations implementing Section 106, any undertaking that may result in alterations to features of a property's location, setting, alterations to features, or use may constitute an impact depending on a property's significant characteristics, transfer, or lease. For transportation projects, an undertaking is typically defined as any construction, maintenance, or enhancement project with the potential to affect historic properties. Adverse effects can occur when historic properties listed on or eligible for listing on the NRHP are subjected to any of the following:

- ▶ Physical destruction or alteration of all or part of the property
- ▶ Isolation of the property or alteration of the property's setting when that character contributes to the property's qualification for the NRHP
- ▶ Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting
- ▶ Neglect of a property, resulting in its deterioration or destruction
- ▶ Transfer, lease, or sale of the property

Local jurisdictions may also have their own ordinances and regulations that must be followed. The CDOT Project Engineer, in consultation with the RPEM, must coordinate with the counties, cities, and other jurisdictions where the undertaking will or may affect historic properties.

9.10.2 Collection and Evaluation of Baseline Information Under NEPA and Section 106

Section 106 of the NHPA outlines procedures to identify and determine the effects of a project on historic properties. The Section 106 and NEPA processes must be coordinated (**Figure 9-2**) so that the acquired information can provide the historic properties baseline information required for NEPA analysis.



Time Frames for the Section 106 Process

The following are average time frames for completion of the Section 106 process, from notification to completion, if all necessary information is provided in a timely manner and there are no issues.

- Adverse Effect – six months or more
- No Adverse Effect – four months
- No Historic Properties Affected – two months

Note: These time frames do not include Section 4(f) evaluations, which are detailed in **Section 9.19**.





The Section 106 regulations and guidance materials describe a four-step process that agencies must follow to assess the eligibility of historic properties and potential impacts to them. Surveys conducted for CDOT undertakings often carry out multiple steps with one transmittal letter to the SHPO (determinations of eligibility and effect as well as preliminary recommendations for mitigation of adverse effects) for a project. Note: This generally requires one letter each for archaeology and history, although they may be combined as the situation dictates. The regulations recognize that agencies can conduct consultation on several steps simultaneously, as long as the process includes adequate time to consider the views of consulting parties, interested parties, and the public.

Any time a project will or may have direct or indirect impacts to historic properties, whether within public right-of-way or on private land, a historic properties clearance should be discussed with the EPB or Regional Senior Staff Historian and EPB Senior Staff Archaeologist. The four step process is described in the following sections.

Step 1: Initial Consultation with Participants in Section 106

The RPEM will notify the EPB or Regional Senior Staff Historian and/or EPB Senior Staff Archaeologist if he or she is aware of any consulting or interested parties. Any federally recognized Indian Tribe with a potential interest in the Area of Potential Effects (APE) is identified and contacted during this initial phase. It should be noted that all consultation with federally recognized Native American Tribes must be conducted following a strict government to government protocol, per the NHPA. It should also be noted that the Tribes determine whether or not they have an interest in a property and it is not required that the Tribe have a modern physical presence within the state. Native American consultation is discussed in more detail in the subsection "Native American Consultation". The appropriate EPB or Regional staff specialist will contact the members of certified local governments, local historical societies, museums, historic preservation commissions, or other knowledgeable groups/individuals who might be able to provide views or comments on an undertaking or have specific knowledge concerning historic properties. Notification of the public and/or historic preservation organizations and individuals will occur commensurate with the type of undertaking, its anticipated effects on historic properties, and the level of federal involvement.

Step 2: Identification of Historic Properties

This step determines whether any resources that may be affected by an undertaking have the potential to be eligible for or listed on the National or State Registers of Historic Places. It is not necessary for a resource to be



Eligibility Criteria

- Association with significant events or people
- Technological, engineering, or architectural significance
- Ability to yield information about prehistoric or historic site
- Retains physical integrity or is able to demonstrate or communicate the qualities of its significance
- For properties less than 50 years old, review Criterion G to determine if the property is an exception.



listed on the NRHP to be afforded protection under the law, as eligible properties are also protected. NRHP-eligible resources must meet certain criteria, including association with significant events or people; technological, engineering, or architectural significance; or the ability to yield information about a prehistoric or historic site. In addition to meeting the significance criteria, a resource must retain physical integrity or be able to demonstrate or communicate the qualities of its significance. Except under exceptional situations, cemeteries, birthplaces, churches, structures that have been moved from their original location, reconstructed structures, memorial or commemorative structures, and structures less than 50 years old, are not considered eligible to the NRHP. Isolated artifacts and features also are generally not NRHP-eligible.

If a property is determined not eligible for the NRHP, the Section 106 process is completed. However, even though a property may not have the significance or integrity to be nationally eligible, it can still be eligible for, or listed on, the State Register of Historic Places (8CCR 1504-5).. If so, it must be considered under the Colorado Register of Historic Places Act (CRS 24-80.1). For more information about how CDOT evaluates projects under these state laws, please see **Section 9.10.3** below. In addition, some local governments in Colorado have historic preservation ordinances and/or lists of local landmark districts and properties. Some properties may be listed as locally significant, and impacts to these resources must be coordinated with the local government.

In addition to historic properties that are protected under Section 106 because of their age and physical attributes, properties that have traditional cultural significance because of the role they play in a community's historically rooted beliefs, customs, and practices must be addressed by Section 106. In this context, "traditional" refers to beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. Such properties are also eligible for inclusion on the NRHP. Examples of such properties on the NRHP, provided in National Register Bulletin 38, *Guidelines for Evaluating and Documenting Traditional Cultural Resources* (Parker and King, 1998), include the following:

- ▶ A location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world
- ▶ A rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents



Suggested Reference Materials

- National Register Bulletin: How to Apply the National Register Criteria for Evaluation (#15)
- National Register Bulletin: Defining Boundaries for National Register Properties (#21)
- Colorado Cultural Resource Survey Manual Vol. 1 & 2

These references and other useful guidance materials can be found at the Colorado Historical Society Office, Archaeology and Historic Preservation



- ▶ An urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices
- ▶ A location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice
- ▶ A location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity

Determine Undertaking's Area of Potential Effects (APE)

The EPB or Regional Senior Staff Historian and EPB Senior Staff Archaeologist are responsible for determining and documenting the APE for each project. In all cases, an APE must be developed in consultation with CDOT cultural resource staff and the SHPO and, in most cases, prior to the intensive-level field survey. The APE is not determined on the basis of land ownership or legal parcel boundaries and does not end at the highway right-of-way boundary. The APE includes:

- ▶ All alternatives being considered for the undertaking
- ▶ All locations threatened with ground disturbance
- ▶ All locations from which the undertaking may be visible or audible
- ▶ All locations where the undertaking may result in changes in traffic patterns, land use, public access, and so on
- ▶ All areas where there may be indirect as well as direct effects

An APE is determined according to specific project circumstances, and it is not necessary to intensively survey all historic properties within every APE, at the discretion of the agency. However, all potential historic properties within the APE must be taken into account when assessing project effects. An APE boundary may change during the course of a project as alternatives are modified, new alternatives are considered, or new effects to historic properties are identified.

SHPO Concurrence with Determinations of Eligibility

Once potential historic properties are identified within the APE, the EPB or Regional Senior Staff Historian, EPB Senior Staff Archaeologist, and consultant (where applicable) evaluate each property for historical or archaeological significance and recommend whether or not the property is eligible for the National or State Registers. If it is determined that no historic properties exist within the APE, or that historic properties exist but will not be impacted by the work, and the SHPO concurs with this determination, the



Definition of an Undertaking's APE

The geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may vary for different types of effects caused by the undertaking [800.16(d)].





resulting decision is that no historic properties are affected, and the Section 106 process is completed. If NRHP-eligible properties exist and there is potential for impact to these properties, the project team continues to Step 3.

Step 3: Assessment of Effects

During this step, the EPB or Regional Senior Staff Historian, EPB Senior Staff Archaeologist or cultural resource consultant applies the criteria of adverse effect to any eligible or listed historic properties within the APE. This process involves consultation with the SHPO and federally recognized Native American Tribes. Interested parties identified during steps 1 and 2 are notified of the effects. Effects include direct, physical impacts to historic properties, as well as indirect or secondary impacts that may include noise, visual, atmospheric, or vibration elements that may diminish a property's integrity or alter the qualities that make it eligible for the NRHP.

No Adverse Effect

The finding of no adverse effect can be applied when an undertaking's effects do not meet the criteria of adverse effect but are still considered to have an effect on a property. This finding can also be applied when specific conditions are met to avoid adverse effects. If SHPO concurs with the finding of no adverse effect, CDOT may proceed with the undertaking and the Section 106 process is completed. The Advisory Council on Historic Preservation (ACHP) will not review findings of no adverse effect, except under unusual circumstances. If the SHPO fails to respond within 30 days of their receipt of the finding, CDOT may assume SHPO concurrence with the finding and proceed with the project.

Adverse Effect

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion on the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (36 CFR Part 800.5(a)(1)). Adverse effects are further defined below.

If the determination results in a finding of adverse effect, CDOT must proceed to Step 4 and consult further with the SHPO and federally recognized tribes that request further involvement, while providing information to other interested parties, to resolve or mitigate adverse effects to historic properties.

According to the regulations, the SHPO has 30 days from receipt of the documentation to provide comments to CDOT. If they do not submit their comments within the 30-day period, CDOT is authorized by the regulations





to assume SHPO concurrence. If the SHPO does not participate within the specified time frame for one phase of a project (i.e., eligibility determination), that does not preclude their participation in further phases of a project (i.e., determinations of effect, consultation, and final review of NEPA documentation).

Step 4: Resolution of Adverse Effects

The purpose of this step is to develop strategies that avoid, minimize, or mitigate adverse impacts to historic properties but also meet the basic objectives of all interested stakeholders. Measures to mitigate negative impacts to historic properties can include adjusting the proposed alignment to avoid impacting the resource, moving the resource to a new location (which generally does not apply to archaeological localities and negates NHPA eligibility), and, as a last resort, photographic and written recordation of the resource prior to demolition. Ideally, alternatives that avoid historic properties will already have been considered prior to this step. FHWA notifies the ACHP of an adverse effect determination and provides specific documentation for their review of the project. The ACHP is given 15 days from receipt of the documentation to determine whether or not they will participate in consultation. If a response is not received within that time frame, the agency continues the consultation without the involvement of the ACHP. In addition, FHWA must invite the ACHP to participate in the consultation on adverse effects when:

- ▶ FHWA wants the ACHP to participate (i.e., for very controversial or high-profile projects)
- ▶ The undertaking will have an adverse effect on a National Historic Landmark
- ▶ The project will result in the preparation of a Programmatic Agreement

To resolve adverse effects to historic properties on a project-by-project basis, interested parties develop a Memorandum of Agreement (MOA) outlining agency responsibilities to avoid, minimize, or mitigate adverse effects. In virtually all cases, CDOT staff develops and facilitates project-specific MOAs. Significant archaeological sites, which previously were exempt from this process, are now subject to development of a MOA prior to data recovery excavations. If the ACHP decides to join the consultation, a MOA is executed with its participation. If not, the agreement is developed and executed by FHWA and SHPO, with CDOT as an invited signatory. In addition, the agencies may invite other organizations (e.g., Native American Tribes, local historic preservation commissions, etc.) to participate as invited signatories in the development of a MOA if those entities will assume a specific role or responsibility as outlined in the MOA. Other interested parties





lacking explicit action items may be invited to sign the document as concurring parties.

The execution and implementation of the stipulations in a MOA provide evidence of FHWA's compliance with Section 106. The MOA is submitted to the ACHP for filing, and CDOT, on behalf of FHWA, ensures the mitigation stipulations are carried out in accordance with the MOA. Unless project circumstances change and other potentially historic properties will be affected by an undertaking, or CDOT/FHWA is unable to fulfill the stipulations of the MOA, the Section 106 process is considered complete.

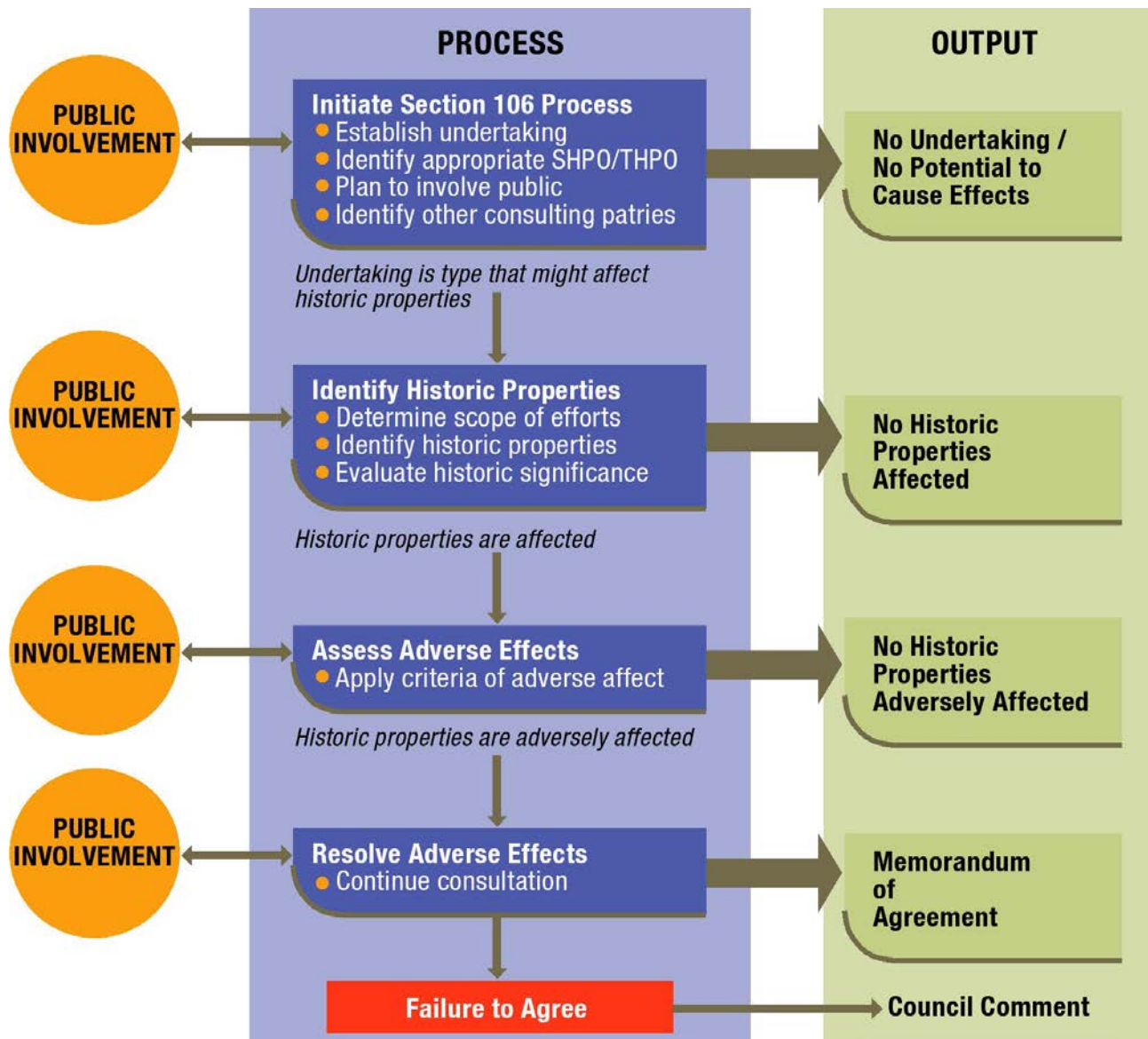
Section 106/NEPA Merger Timeline

Merging the Section 106 and NEPA processes (**Figure 9-3**) provides an opportunity to streamline the approach to historic properties compliance, especially for projects that will or may have complex historic or archaeological resource issues. Determination of the utility of a merger process will be made by CDOT and FHWA early in project planning, and coordinated closely with the SHPO and ACHP. FHWA and CDOT will first determine if a partial or full merger process will be implemented. Streamlining with a partial merger occurs primarily at the Determination of Effects stage, as the Draft EIS will serve as the conduit for transmittal of effects information to the SHPO, rather than the use of traditional correspondence. Conversely, a full merger entails incorporating all phases of the Section 106 process (determinations of eligibility and effects, and resolution of adverse effects) in the EA or Draft EIS. This process effectively replaces all or most standard correspondence between the transportation agencies and SHPO until release of the draft NEPA document, at which point the SHPO (and ACHP, as appropriate) will comment on the Section 106 issues at once. If the NEPA document is a Draft EIS, FHWA and CDOT may document the measures to avoid, minimize or mitigate adverse effects in the ROD; unless there is a dispute related to historic properties compliance, a MOA is unnecessary, although the agencies may elect to execute a MOA at their discretion. For an EA and FONSI, a MOA is required in addition to documenting measures to address adverse effects in the FONSI.





Figure 9-3 Section 106 / NEPA Merger Process



Source: Colorado Historical Society, Office of Archaeology and History Preservation. Tribal Historic Preservation Officer (THPO)





For the merger of Section 106 and the NEPA process, early consultation with the SHPO is essential and should include:

- ▶ Establishment of the APE
- ▶ Identification of historic properties
- ▶ Development of alternatives
- ▶ Assessment of effects of the undertaking
- ▶ Dispersal of Section 106 information during public involvement activities
- ▶ A review process for the Draft EIS and Final EIS
- ▶ If necessary, development of appropriate mitigation measures, drafting of a MOA, and incorporation of mitigation measures into the ROD
- ▶ According to 36 CFR 800.8, the NEPA process and documentation can be used for Section 106 purposes if the agency official has notified in advance the SHPO/THPO and the ACHP that it intends to do so, and the documentation must meet the standards set forth in 36 CFR 800.8 (c) (1) through 36 CFR 800.8 (c) (5).

9.10.3 Other Issues to Consider

Requesting Archaeology and Historic Surveys from CDOT Staff

For most CatEx and other types of smaller-scale undertakings, the EPB or Regional Senior Staff Historian and/or EPB Senior Staff Archaeologist (or their staff) will visit the site and conduct an on-the-ground survey, as appropriate, and prepare the necessary reports and paperwork, time and schedules allowing. Otherwise, projects are forwarded to the statewide consultant under contract to EPB. Project implementation involves completing a survey (**Figure 9-4**), preparing reports and letters, and forwarding documentation to the SHPO, ACHP, FHWA, or other agencies, as necessary. Meetings with the SHPO will be scheduled as needed by the EPB or Regional Senior Staff Historian and, on rare occasions, by the EPB Senior Staff Archaeologist. Copies of all correspondence will be forwarded to the RPEMs for their files.

Required Information for Clearance of Archaeological Resources

- ▶ Project number and name
- ▶ Appropriate accounting numbers
- ▶ Brief description of the project



Required Information for Clearance of Historic Resources

- Project number and title, and all appropriate accounting information
- Map showing project location
- Design plans (if available)
- Copies of the 128/463 forms, memos, or other documents describing the project
- Brief description of resources to be impacted, (i.e., CDOT) structure numbers and locations, or description of ditch, farm house, neighborhood, and so on.
- Project Schedule, with estimates of FIR, FOR, and advertisement dates
- Written memo or telephone conference with the EPB or Regional Senior Staff Historian describing concerns about potentially historic resources or other project-related issues.





- ▶ Physical dimensions of the study corridor, including beginning and ending mileposts and corridor width
- ▶ A copy of a 7.5 minute USGS topographic quadrangle or county map clearly showing the extent of the proposed undertaking, and engineering design plans, if available
- ▶ In order for a clearance to be provided in a timely manner, a specific due date must be furnished
- ▶ If temporary or permanent easements beyond the existing right-of-way are required to accommodate detours, line-of-sight improvements, shoulder widening, or material source areas (among others), this should be noted and right-of-entry forms obtained and forwarded to the EPB Senior Staff Archaeologist.
- ▶ CDOT Forms 128 and 463 can also be provided, but it is important to note that these forms do not by themselves constitute an adequate clearance request
- ▶ Field and archival investigations should generally be scheduled for completion by the FIR

Process for Requesting and Completing Clearance of Historic Resources

RPEMs are encouraged to contact the EPB or Regional Senior Staff Historian as early as possible to discuss undertakings that have the potential to impact historic properties. It is important to identify potential historic resources early in the planning process to allow enough time for coordination with regulatory agencies and consulting parties. Section 106 also requires coordination with local historic preservation commissions, if they have jurisdiction within the project area, in addition to public notification. RPEMs will notify the EPB or Regional Senior Staff Historian if a project has the potential to affect historic resources—generally projects that require right-of-way where buildings, irrigation ditches, railroad lines, or similar features are located.

Process for Requesting and Completing Clearance of Archaeological Resources

Archaeological resources are the material remains of past human life or activities which are of archaeological interest. Prehistoric archaeological resources include remains from human activities prior to written records. In Colorado, prehistoric resources date to the time before sustained European contact with Native American populations. Historic archaeological resources are locations with remains from the historic period that can be examined using archaeological techniques. Both prehistoric and historic archaeological





resources often have artifacts and other indications of *in situ* subsurface remains.

Historic resources are those that are 50 years or older; however, resources less than 50 years old are surveyed if they have exceptional significance or contribute significant information to the historical record, such as intact Nike Missile sites. Typical historic resources include buildings, residential neighborhoods, commercial districts, agricultural complexes, bridges, irrigation canals and ditches, reservoirs, and railroad lines. Less obvious historic resources include structure foundations, trails, sidewalks, and landscapes, including vegetation and dumps. At the earliest possible date in the planning process for a proposed undertaking, the RPEM will forward to the EPB Senior Staff Archaeologist a written request for an archaeological clearance. Undertakings include, but are not limited to, highway construction projects, off-system roadway projects, maintenance activities, transportation enhancements, and property transfers or sales. Archaeological investigations initiated by private contractors for activities associated with CDOT projects—such as undesignated material sources and equipment staging areas—are the responsibility of the contractor. It is imperative that project managers and contractors are made aware of their responsibilities in this regard, and that all appropriate permits and clearances are obtained prior to initiating ground disturbance for any activity peripheral to actual construction.

Requirements for Consultants Conducting Historic and Archaeological Surveys

All consultants are expected to perform a field survey of APEs in accordance with the Secretary of Interior's *Standards for Archaeology and Historic Preservation, and the Colorado Cultural Resource Survey Manual, Volume I (The Steps) and Volume II (The Forms)* (USDO I NPS, 1983). Prior to initiating work on an undertaking, consultants must coordinate directly with the appropriate CDOT cultural resource staff to discuss project approach. Consultants are required to conduct an OAHP file search prior to field investigations and review all pertinent maps and written information pertaining to previous inventories and documented sites, if applicable. It may be necessary to search other archival sources as well (e.g., federal agency files). In most cases, all sites surveyed will be recorded in their entirety, even if they extend beyond the limits of the project area.

For historic resources (generally not including historic archaeological sites), consultants may find it advantageous to discuss survey results and preliminary determinations of eligibility with Office of Archaeology and Historic Preservation (OAHP) staff in order to confirm that all pertinent information has been collected for the survey. The EPB or Regional Senior





Staff Historian does not necessarily need to attend these informal meetings unless required by unusual situations. However, the EPB or Regional Senior Staff Historian must be informed in advance when consultants plan to speak with OAHP staff. In most cases, the consultant is responsible for assessing effects to historic and archaeological resources if or when design plans have been created for specific transportation projects. The assessment of effects should be undertaken in close consultation with the EPB or Regional Senior Staff Historian and/or EPB Senior Staff Archaeologist.

Consultants must submit all documents generated by the survey directly to the EPB or Regional Senior Staff Historian or EPB Senior Staff Archaeologist, as appropriate, who are responsible for direct coordination with the SHPO. Where a federal land managing agency has assumed the duties of Section 106 "lead agency" for a project, the EPB or Regional Senior Staff Historian or EPB Senior Staff Archaeologist will forward all documentation to that agency, which will review the findings and subsequently send it to the SHPO. Under no circumstances will a consultant send final documents or correspondence regarding specific projects directly to the SHPO.

Consultants conducting field surveys must submit the following documentation to the EPB or Regional Senior Staff Historian and EPB Senior Staff Archaeologist (**Figure 9-4**):

1. Historic and/or Archaeological Resource Survey Report, formatted according to the OAHP survey guidelines, documenting inventory of prehistoric or historic resources encountered in the project area, including recommendations of NRHP eligibility for each resource. Consultants will provide three copies of the survey report (preferably unbound and corner-stapled, depending on size), and two copies of OAHP inventory forms (more on occasion, if needed). All reports, site forms and other documentation must be printed double-sided; single-sided copies are unacceptable unless previous justification and notification to this effect has been made to CDOT.
2. 7.5 minute USGS topographic quadrangles (or photocopied portions thereof) with the APE clearly marked, and separate quadrangle maps (generally as a report appendix) showing the location of all cultural resources present in the survey area. An explanation of the APE boundaries and why these boundaries were chosen must be provided, taking into account direct and (for historic resources) indirect impacts.





Figure 9-4 Cultural Resource Survey Forms – Which Forms to Use When

RESOURCE TYPES	CULTURAL RESOURCE FORMS										
	Architectural Inventory Form (1403)	Management Data Form (1400)	Historic Archeological Component Form (1402)	Prehistoric Archeological Component Form (1401)	Rock Art Component Form (1407)	Linear Component Form (1418)	Paleontological Component Form (1409)	Vandalism Component Form (1406)	Cultural Resource Revisitation Form (1405)	Post World War II Subdivision Form (1403b)	Historic Cultural Landscapes (1404)
Historic Architecture (for uses during architectural surveys only)	●										
Historic Architecture (for uses during archaeological surveys only)		●									
Non-Architectural Historic Archaeological Site	●	●									
Prehistoric Archaeological Site	●		●								
Rock Art Component	●		●	●							
Linear Feature	●				●						
Paleontological Site	●					●					
Vandalized Site	●						●				
Revisited Site								●			
Isolated Find									●		





3. 4 X 6 inch traditional 35 millimeter black and white prints, or black and white digital prints of historic resources over 50 years of age, and/or color photographs of archaeological resources must accompany the site forms. Consultants should review the OAHP "Photographic Standards for Intensive Level Historical and Architectural Surveys" for more specific information about acceptable photographic documentation.
4. For historic surveys, a Draft Determination of Eligibility and Effects letter to SHPO must be submitted to the EPB or Regional Senior Staff Historian on compact disc (CD) or via electronic mail. Samples of these letters are available from the EPB or Regional Senior Staff Historian.

Native American Consultation

As stipulated in the NHPA and the revised ACHP regulations, federal agencies must afford the Native American community a reasonable opportunity to comment on and participate in federal undertakings in the context of the Section 106 process. Federally recognized Tribes are, by law, considered sovereign nations and as such FHWA is obligated to initiate government-to-government cultural resource consultations on transportation projects when federal funding or a federal action is involved. FHWA has delegated most day-to-day consultation activities in this regard to CDOT. The EPB Senior Staff Archaeologist is the individual charged with coordinating Native American consultation for all EA- and EIS-level projects. Tribal consultation is initiated early in the project development process and entails an on-going administrative relationship between the federal agency, CDOT, and consulting Tribes. Consultants may on occasion be used to facilitate consultation activities on a project-specific basis, but generally the EPB Senior Archaeologist will complete all associated tasks in this regard.

CONSULTATION UNDER THE COLORADO REGISTER OF HISTORIC PLACES ACT (CRS 24-80.1 AND 8 CCR 1504-5)

The Register of Historic Places Act (CRS 24-80.1) states that the planning and activities of state agencies must take into account the preservation of historically significant cultural resources of the state. It also outlines how state agencies should evaluate actions that have the potential to affect properties eligible for or listed in the State Register of Historic Places (SRHP). The Rules and Procedures implementing the Act (8 CCR 1504-5) includes guidance regarding the evaluation of properties for State Register eligibility, how to assess effects, and consultation with the State Historical Society.





CDOT conducts consultation under the Register of Historic Places Act when projects are state funded (i.e., lack federal funding or another nexus) and when there is the potential to affect CDOT-owned properties that may be eligible for or listed in the State Register of Historic Places. A four-step process has been developed that is similar to, but less rigorous than, the process followed for Section 106 consultation.

Step 1: Initial Consultation and Participants

The Register of Historic Places Act requires state agencies to notify the State Historical Society of proposed actions that have the potential to effect properties that are listed in the SRHP. CDOT includes this notification, along with eligibility and effect determinations, in a letter to the SHPO. As with Section 106 consultation, CDOT has identified the SHPO as the point of contact for the SRHP consultation process.

The state act does not specifically require consultation with local interested parties or Certified Local Governments. However, following the protocol outlined in the CDOT Environmental Stewardship Guide, EPB staff identifies and includes interested parties in the consultation process to ensure that they are aware of the project and have an opportunity to provide information about resources that may be affected by the proposed action.

Although the state law does not reference the development of an APE, the Act does require state agencies to identify properties within "the area of proposed action" (24-80.1-104). For state-funded projects, CDOT does not request SHPO agreement regarding the "area of proposed action" but does provide a map or graphic depicting this area to clarify the project and resource locations.

Step 2: Identification of Properties

This step involves determining if resources affected by a state-funded action have the potential to be eligible or listed in the SRHP. The EPB or Regional Senior Staff Historian, or EPB Senior Staff Archaeologist, will evaluate the property to determine it meets one or more of the Criteria for Nomination as outlined in the National Register of Historic Places Act:

- a) The association of such property with events that have made a significant contribution to history;
- b) The connection of such property with persons significant in history;
- c) The apparent distinctive characteristics of a type, period, method of construction, or artisan;
- d) The geographic importance of the property;





- e) The possibility of important discoveries related to prehistory or history.

Criteria for Nomination a, b, c, and e are similar to the NRHP Criteria for Evaluation (NRHP Criteria). Criterion for Nomination D (geographic importance of the property) is not addressed by the NRHP criteria. The state Criteria also do not include NRHP Criterion Considerations A through G, which cover exceptional situations including cemeteries, birthplaces, churches, reconstructed structures, memorial or commemorative structures, and structures less than 50 years old. CDOT determines if a property meets the Criteria for Nomination and consults with the SHPO to determine if the properties are significant.

Step 3: Evaluation of Effects

The Register of Historic Places Act includes guidance on how to assess effects and consult with the State Historical Society regarding those effects. The Act defines an "effect" as "any change in the quality of the historical, archaeological, or architectural character that qualifies the property for entry in the state register." Unlike Section 106, the degree of effect (adverse effect, no adverse effect, no historic properties affected) is not defined in the state laws, but CDOT uses these categories to describe effects when consulting for state-funded actions.

The Act outlines the process by which state agencies consult regarding eligibility and effects. State agencies are required to notify the State Historical Society of the proposed action, identify properties within the area of the proposed action, request a determination of effect on properties, and afford the State Historical Society 30 days to review the proposed action. If there is disagreement over a finding, the state agency has 30 days to negotiate an agreement with the Historical Society. If no agreement is reached during this time, the governor makes the final determination.

CDOT has modified the consultation process so that CDOT, not the State Historical Society or SHPO, determines the significance of the property and whether there is an adverse effect. CDOT submits these determinations and requests concurrence from SHPO. If there is agreement regarding the eligibility of the resource and there is a finding of no adverse effect, the consultation process is complete.

Step 4: Resolution of Adverse Effects

When an adverse effect to a property is identified for a state action, CDOT includes mitigation recommendations in a letter to SHPO, agrees to complete mitigation before the property is affected, and provides SHPO an opportunity to review the final mitigation. Because there is no federal



involvement for state funded actions, it is not necessary to notify the ACHP of adverse effects and there are no requirements to execute a formal MOA. Once mitigation has been completed and reviewed by SHPO, the consultation process under the State Register of Historic Places Act is complete.

9.10.4 NEPA Document Sections

The content of the sections on historic properties in the Affected Environment and Environmental Consequences chapter is discussed below. For projects having complex historic properties issues, these sections shall contain subsections on "Historic Resources," "Archaeological Resources," and "Native American Consultation."

AFFECTED ENVIRONMENT

Brief but thorough data specific to the historic properties within the APE must be presented. The Affected Environment chapter must contain all relevant information related to the status and disposition of historic properties in the study area, and omit data that has no bearing on the transportation decision ultimately made as a result of the FONSI or ROD. Depending on the document and the resources present in an APE, historic and archaeological resources can be discussed either jointly or independently.

Other guidelines to be considered include using data tables whenever feasible, especially if many properties are present. Lengthy narrative site descriptions should generally be avoided. An adequate document will also be specific when discussing effects and proposed mitigation of adverse effects for NRHP eligible or listed sites. Discussion shall focus on properties that require protection under the law (i.e., are eligible) and exclude information regarding non-NRHP eligible resources.

ENVIRONMENTAL CONSEQUENCES

This chapter of the NEPA document summarizes the efforts taken during the Section 106 evaluation process and any findings. Discuss alternatives that have the same historic property impacts together and contrast those that differ, so that similarities and differences in impacts are clear. Effects to historic properties as a result of alternatives must be quantified as specifically as possible. All interagency correspondence documenting the evaluation should be attached as an appendix to the NEPA document.

As shown in **Figure 9-1**, one of the steps of the Section 106 evaluation process is the resolution of adverse effects. Discuss strategies to avoid, minimize, or mitigate adverse effects to historic properties in this section.





Basic Information to include in a NEPA document includes:

- ▶ Brief overview of the “whys and whats” of Section 106
- ▶ Brief description of SHPO and consulting party consultation regarding methodology(s) and development of the APE, file searches, and field inventory(s)
- ▶ The number and types of historic properties, and under which NRHP criteria they are eligible

NRHP-eligible archaeological sites are sensitive resources that are exempt from the provisions of the Freedom of Information Act (FOIA), and as such should never be reflected on maps or otherwise have specific locational data included in a NEPA document. Historic resources, however, can and should be illustrated on mapping, including the APE boundary.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT’s Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.11 Paleontological Resources



Paleontological resources constitute a fragile and nonrenewable scientific record of the history of life and related natural processes on earth. These resources include vertebrate, invertebrate, and plant fossils. In Colorado, plant and animal remains found in deposits post-dating the end of the Pleistocene Epoch (approximately 10,000 radiocarbon years ago), at which time modern fauna and flora were established and human occupation is well-documented, are not considered paleontological in nature. For the purposes of this Manual, paleontological resources include fossils, associated radiometrically- and/or paleomagnetically-datable rocks, sediments, or organic matter, and the physical characteristics of the fossils' associated sedimentary matrix.

The two sections below provide guidance on the treatment of paleontological resources for CDOT's NEPA projects. The first section provides guidance for evaluating paleontological resources. The second section outlines paleontological information that will be in each NEPA document.

9.11.1 Paleontological Evaluation Process

The evaluation of paleontological resources shall be initiated by the RPEM (or their designee) in association with the CDOT Staff Paleontologist.

Generally paralleling the archaeological program, paleontological clearances are required to proceed to construction, commence maintenance activities, or initiate materials excavation. This applies to all projects that propose any effect off the existing road prism, all CDOT-provided materials sources, and those materials sources adjacent to interstates where direct contractor access to the roadway is an issue. Previous disturbance, including cutting and even paving of an area to be impacted, does not automatically relieve the responsibility to consider potential affects to paleontological resources, particularly on projects where excavation to previously undisturbed bedrock is anticipated. Typically (although not exclusively), the scientific importance of paleontological resources is not as intimately tied to their precise original location (as in the case of archaeological resources), so that even surface finds of fossils in previously disturbed areas can be of scientific importance.

The paleontological evaluation will be conducted when alternatives for the proposed action are first being designed.



Paleontology Regulations and Guidance

Historical, Prehistorical, and Archaeological Resources Act (Colorado Revised Statute 24-80-401 ff, aka State Antiquities Act)

- The Act protects all fossils on state owned lands and lands controlled by any subdivision of state government.

Federal Land Policy and Management Act (FLPMA) of 1976 (USC Title 43, Section 1732)

- This section authorizes the Secretary of the Interior to issue regulations providing for the use, occupancy, and development of public lands through leases, permits, and easements.

Paleontological Resources Preservation Act (PRPA) of 2009 (16 USC 470aa-aaa11)

- This Act requires the Secretaries of the Interior and Agriculture to manage and protect paleontological resources on federal lands using scientific principles and expertise.





REASONS FOR EVALUATION OF PALEONTOLOGICAL RESOURCES UNDER NEPA

Requirements to locate and assess the scientific importance of fossils on state- and federal-owned lands are not stated explicitly in the law. However, state law is implicit in its requirement to avoid any damage to, or destruction or removal of, the resource without a permit.

The CDOT Staff Paleontologist, or any paleontological consultant working for CDOT, must be named on a current State of Colorado permit to search for and collect fossils on state-owned lands. Permits are obtained from the OAHP in Denver. FHWA considers protection of fossils on FHWA-funded projects a NEPA issue, but the extent of work required to protect the resource is based on the degree of protection afforded by each state's laws.

For highway projects that cross BLM-administered lands, BLM utilizes the Federal Land Policy and Management Act (FLPMA) of 1976 and the Paleontological Resources Preservation Act (PRPA) of 2009 to regulate the collection of fossils. The CDOT Staff Paleontologist, or any paleontological consultant working for CDOT, must be named on a current State of Colorado BLM fossil collecting permit to collect fossils on BLM-administered lands in Colorado. Permits can be obtained from the Colorado State Office of the BLM in Lakewood.

For highway projects that cross USFS-administered lands, fossil collection is regulated under the Paleontological Resources Preservation Act (PRPA) of 2009. The CDOT Staff Paleontologist, or any paleontological consultant working for CDOT, must hold a current USFS Special-Use Permit to collect scientifically significant fossils on USFS-administered lands in Colorado.

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

The paleontological clearance process consists of four steps: (1) initiation of paleontological clearance, (2) initial research, (3) on-the-ground reconnaissance, and (4) report of results.

Step 1: Initiation of a Paleontological Clearance

To initiate a paleontological clearance, a request and accompanying data shall be sent by the RPEM to the CDOT Staff Paleontologist. A request for paleontological clearance will provide the following information, at a minimum:

- ▶ Project name and number
- ▶ For a linear highway project, its beginning and ending mileposts



Paleontological Reports Authored by Consultants

Consultant reports are typically expected to provide a more detailed account of the factors described under Step 1 than is typical of in-house reports because the CDOT Staff Paleontologist keeps more detailed data on file where it is readily accessible for CDOT's use.

Consultant reports will include two copies of any newly recorded fossil localities and previously recorded fossil localities for which a field survey has provided additional locality data for insertion in the CDOT Staff Paleontologist's files. In order to conserve document space, all written materials submitted to CDOT must be double-sided.

Consultant reports should be submitted in electronic format.





- ▶ For a linear highway project, the width of the corridor requiring clearance, measured each direction from centerline (if the corridor to be cleared is the existing right-of-way only, stating that fact is sufficient)
- ▶ For a materials source, its location in relation to the nearest highway milepost
- ▶ For a materials source, its legal location, either descriptive or plotted on a 1:24,000 scale topographic map
- ▶ For a materials source, the dimensions of the area for which clearance is being requested
- ▶ Copies of any pertinent, signed rights-of-entry forms
- ▶ A proposed clearance due date

When available, plan, profile, and cross-section sheets are a valuable data source that aid in the paleontologist's assessment of the nature and scope of proposed affects to known and potential paleontological resources. If not provided with a paleontological clearance request, they may be requested by the reviewing paleontologist.

Step 2: Initial Research

Upon receipt of a paleontological clearance request, the paleontologist conducts a search for pertinent published and unpublished research data. This includes researching the availability of geologic map data relevant to the proposed linear highway project corridor or materials source. This initial research may reveal that a proposed linear highway project corridor or materials source does not require on-the-ground reconnaissance for paleontological resources. This is usually because there is no potential fossiliferous geologic unit cropping out at or near the existing ground surface within the proposed project limits. The paleontological assessment must include use of the best (usually, the largest-scale available) geologic maps in identification of geologic units encountered or expected to be encountered during paleontological survey. When CDOT requests a consultant to conduct a paleontological study, CDOT's Staff Paleontologist is available for consultation on the availability of geologic maps.

In addition to searching published and unpublished literature, a previously recorded fossil locality search at the Paleontological Section of the University of Colorado Museum, Boulder, and/or the Denver Museum of Nature and Science is conducted. Federal agencies may also require that their fossil locality databases be consulted when a survey is conducted on CDOT rights-of-way that intersect federally owned lands. When CDOT requests a consultant to conduct a paleontological study, CDOT's Staff





Paleontologist is available to facilitate these searches, if necessary. The CDOT Staff Paleontologist will also be consulted to determine other fossil localities known to him or her but not recorded in either of the above-cited museum databases (e.g., USGS fossil localities cited in USGS Bulletins, Professional Papers, and various geologic map series).

Step 3: On-the-Ground Reconnaissance

A site visit and visual survey on state-owned lands must search out not only vertebrate fossils, but macroinvertebrate (non-microscopic animals without backbones) and macropaleobotanical (plant remains other than pollen) fossils as well. Federal agencies may only require consideration of possible effects to vertebrate fossils where CDOT right-of-way intersects federally owned lands. Intermittent shallow subsurface sampling of bedrock exposures where plant and/or invertebrate fossils may be buried will be necessary. This should include cracking of limestone concretions common in some marine shale and sandstone lithologies and probing for leaf fossils in locations where literature search and on-the-outcrop experience indicate that they may be present. Vertebrate fossil searches may be conducted by surface examination alone.

Step 4: Report of Results

The CDOT Staff Paleontologist provides reports to the appropriate RPEM. Report text, at a minimum, includes:

- ▶ The linear highway project location, with milepost limits and legal location of the endpoints of the linear survey to the quarter-quarter-quarter section, or the materials source location, located legally and in relation to the nearest highway milepost
- ▶ Date(s) of on-the-ground reconnaissance (when applicable)
- ▶ The bedrock units known to crop out within the proposed linear highway project or materials source limits and the source(s) of that geologic data
- ▶ The results of on-the-ground reconnaissance, including identification of any newly recorded and/or relocated previously recorded fossil localities
- ▶ An assessment of all identified fossil localities' scientific significance





- ▶ A recommendation either for further paleontological investigation prior to NEPA clearance, or clearance to proceed to project construction, or commence proposed maintenance work, or initiate materials excavation. If appropriate, the clearance to proceed to project construction, or commence proposed maintenance work, or initiate material excavation will include stipulations for mitigation of impacts to paleontological resources during project construction or completion of proposed maintenance work or materials excavation.

New fossil localities identified during field reconnaissance and previously recorded localities for which field survey has provided additional data, are recorded on fossil locality data sheets. These data sheets are provided by the institution designated as the repository for specimens collected under the OAHP permit issued to CDOT or the paleontological consultant. Federal agencies may require separate recordation of fossil localities identified on federally administered lands.

OTHER ISSUES TO CONSIDER

Although OAHP is responsible for enforcing the State Antiquities Act and, by inference, reviewing reports of surveys addressing CDOT's efforts to satisfy the act, OAHP has delegated report review responsibilities to the CDOT Staff Paleontologist. OAHP only requires that the CDOT Staff Paleontologist provide annual lists of clearance reports and fossil localities identified and specimens collected.

9.11.2 NEPA Document Sections

The content of the sections on paleontological resources in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

Information from the paleontological assessment report is used to provide a brief summary in the NEPA document of the paleontological resources located within the APE, along with a brief description of those resources likely to be impacted. An EA or EIS typically includes only one to three paragraphs concerning paleontological resources in the Affected Environment chapter. Lengthy narrative fossil locality and geologic unit lithology descriptions should be avoided. If a special issue of concern is raised in the paleontological assessment report, additional information may be necessary and appropriate. In most instances, only a very brief summary of the geological and paleontological data presented in the paleontological assessment report need be included in the Affected Environment chapter. If applicable, the basis for determination of identified fossil localities' scientific significance will be provided. Also, the basis for concluding that there will





likely be no effects to scientifically important paleontological resources should be provided. Paleontological sites are sensitive resources that are exempt from the provisions of the FOIA, and must never be reflected on maps or otherwise have specific locational data included in a NEPA document.

A NEPA document will discuss any special concerns that will require further study during the final design phase of planned construction projects within the project study corridor. Final design may be important in determining the nature and scope of any mitigation efforts required during construction. Specific subsurface soil, bedrock, and groundwater conditions that may be relevant to the nature and scope of mitigation efforts are determined at that time for use in preparing construction plans.

ENVIRONMENTAL CONSEQUENCES

The Environmental Consequences section of the NEPA document summarizes the efforts taken during the paleontological clearance process. Discuss alternatives that have the same paleontological impacts together and contrast those that differ, so that similarities and differences in alternative paleontological impacts are clear. All interagency correspondence documenting the evaluation should be attached as an appendix to the NEPA document.

Effects to scientifically significant fossil localities are mitigated by avoidance and/or further collection and documentation of their associated resources. Paleontological mitigation may consist of controlled salvage excavation prior to linear highway project construction or materials source excavation, but more typically mitigation is completed through on-site monitoring of highway construction or materials excavation into bedrock deposits known to produce scientifically important fossils.

Mitigation through on-site monitoring includes the collection of any scientifically important fossils and associated scientific data uncovered during major construction or materials excavation. On-site monitoring typically is the mitigation strategy adopted when (1) potentially fossiliferous bedrock is not exposed at the ground surface prior to major construction or materials excavation, but will likely be uncovered during these efforts, and (2) fossil density at previously identified scientifically significant fossil localities is such that controlled excavation prior to construction will not produce enough important fossils to represent a statistically valid sample in a timely and cost-effective manner. CDOT may request a paleontological consultant to conduct mitigation efforts, but such efforts will be under the direct supervision of, and/or in close cooperation with, the CDOT Staff Paleontologist.





The NEPA document will discuss concerns to be studied in depth during the final design phase of future construction projects. Final design may be an important phase in determining the nature and scope of any mitigation efforts required during construction. Specific subsurface soil, bedrock, and groundwater conditions that may be relevant to the nature and scope of mitigation efforts are determined at that time, for use in preparing construction plans.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.12 Land Use

The way land is developed and used for various activities (e.g., residential, commercial, industrial, parks and open space) affects quality of life and the environment. Land use topics include: designations created by a state, county or city through land use plans (General Plans, Comprehensive Plans, etc.), zoning, future land use and growth management areas, conservation easements, urban infrastructure service boundaries, annexation plans, and past, existing, and future development trends. The planning, design, and construction of roads and highways, as well as other transportation modes, is often based on land use development patterns and trends and affects existing land uses and plans and proposals for future development. Safe and efficient travel, whether by walking, public transportation, taking a car, an airplane, or a bike, is also influenced by the types and patterns of land uses.

The two sections below provide guidance on the treatment of land use for CDOT's NEPA projects. The first section discusses the process for evaluating land use. The second section discusses land use information that should be in each NEPA document. In addition, the introduction to this section of this Manual provides guidance on the treatment of resource-specific information that is the same for all resources.

9.12.1 Land Use Evaluation Process

The CDOT project team is responsible for reviewing land use in the area of potential impact and consulting with local agencies.

The current land use and future planned and proposed land uses should be assessed and evaluated for their consistency with the approved local government comprehensive development.

The land use evaluation should be completed when alternatives for the proposed action are first being designed and developed, prior to the formal initiation of the NEPA process.

REASONS FOR EVALUATION OF LAND USE UNDER NEPA

CDOT evaluates land use for several reasons:

- ▶ Its importance in a community
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner





There are no land use specific regulations that FHWA and CDOT must comply with; however, the land use discussion should assess the consistency of the alternatives with the comprehensive development plans adopted for the area and (if applicable) other plans used in the development of the transportation plan required by 23 USC 134.

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

Information on existing and planned and proposed land use is typically available from regional and local governments and metropolitan planning organizations, if applicable. County and city governments typically have land use plans that document existing and planned future land use within their legal geographic limits. Depending on the locale, these data may be available from the county or city planning department's website, in hard copy publications, or, preferably, from their GIS group. For largely rural areas, planning departments may have less data and generalized statewide data may need to be used. Use these sources to obtain information on the type of land use (i.e., such uses as urban, suburban, parks, agricultural, pastureland, riparian corridors, or unused grassland, shrubland, or forest). For urban and suburban land, obtain data that differentiate light industry, heavy industry, commercial, retail, and residential uses, if available. Also useful is information on residential density and Transit Oriented Development (TOD) whether the dwellings provide single family or multi-family housing. Map this information together with project facilities and provide further information on the mapped categories in tables. Coordinate the information obtained with land use information used in addressing noise impacts (**Section 9.22**). The data used in these two sections may differ in its level of detail, but should not be inconsistent.

Regional government entities also compile and analyze current and future land use information. In many instances future land use assumptions at the regional level differ from those at the local level. Both figures can be used, but regional figures are often required for NEPA traffic, noise and air quality analysis purposes. If differences are substantive, the differences should be identified.

To assess the impacts of the project on land uses, envision what will happen during construction and operation of each project facility and how that activity will affect the ongoing uses of the adjacent land and future plans for changes in land use. Often, the need for a transportation project will have been identified by the county or city government, which would therefore have been involved since the very early planning of the project. Implementation of some projects may induce growth beyond what has been anticipated by the local planning departments.





Induced growth is an indirect impact that occurs when a project causes changes in the intensity and integrity, location or pattern of land use. For transportation projects this results from changes in accessibility that influence where development occurs. Induced growth impacts may be analyzed by modeling or by a round-table approach involving agency staff members, business people, and citizens particularly well-informed regarding existing and future land use, restrictions to growth, the location of developable land, infrastructure, population and economic growth trends, and transportation systems and planned improvements, including the proposed project.

If the transportation project will potentially affect adjacent land uses, work with the county and city government and the local citizens to develop acceptable mitigation measures. Measures such as elevated or depressed roadways, berms, or walls to constrain sight of and noise from the project come with a cost that must be balanced against their benefit to the nearby community.

OTHER ISSUES TO CONSIDER

Because induced growth has the potential to affect many aspects of a community in addition to its land use (e.g., the economy, existing transportation network, future growth plans, community diversity and composition), extensive public involvement (**Chapter 7**) may be required to characterize, evaluate, and to help develop mitigation for potential impact. This has implications on the project's early planning, budget, schedule, and community buy-in.

9.12.2 NEPA Document Sections

The content of the sections on land use in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

Typically two areas are discussed in detail under the land use section - existing and future land use and consistency with local government land use planning. The level of detail provided in the document depends on the complexity of the project area and its surroundings. The section should discuss how the project will or will not meet the SWLRTP and the local comprehensive plan, as well as any possible differences in the objectives of federal, regional, state, and local land use plans and controls for the area concerned.



Affected Environment Chapter of NEPA Document

- Existing and future land use and zoning
- Current development trends in the project vicinity and community at large
- Consistency with state and local land use planning and policies
- Understanding of growth management policies practiced in the city/county, community growth patterns, and conservation and preservation areas and easements.





Existing and Future Land Use

This section should provide a description of the existing and planned future land use in the project area. It should also provide a discussion about any access requirements (acceleration/deceleration lanes, signalization, etc.) imposed on the new development and any required traffic impact fees of current development trends in the project vicinity and the community at large. In discussing development trends, this section should provide:

- ▶ The development name
- ▶ The development's status (i.e., existing, under construction, or proposed)
- ▶ The development's size (i.e., area, type of use, density)

If the document is an EIS, this type of information is usually found in the affected environment chapter. The level of detail should be appropriate to enable evaluation of the impact potential of the proposed action.

Consistency with Land Use Planning

In addition, the land use section must describe the state and local government plans and policies regarding land use controls and community growth management in the project area. This discussion should entail a brief overview of existing land use and growth management planning for the county and/or city.

The ultimate goal of this portion of the land use section is to ensure that the reader gains a clear understanding of the prevailing land use and growth management policies practiced in the county and/or city, substantiated by the state, community growth patterns and values, economic incentives, and conservation/preservation areas.

In discussing the policies of the county and/or city and state regarding land use controls, this section should also show how the existing community has grown and expanded, consistent with these plans and policies or otherwise. The section should reference appropriate sections of the approved local government comprehensive plan, community services element, and other areas that would substantiate the information presented. Where conflict exists among these policies and/or land usages within the community, these areas should be identified.





ENVIRONMENTAL CONSEQUENCES

The land use section of the Environmental Consequences section should assess and evaluate the consistency of each alternative for the proposed action with the approved local government comprehensive development plan and, if applicable, other plans used in the development of the transportation plan required by Section 134. In discussing the consistency of the proposed action with local planning, evaluate how the development of various project alternatives will directly contribute to changes in land use in the project area.

The secondary social, economic, and environmental impacts of any substantial, foreseeable, induced development should also be presented for each alternative to determine its importance in a community. Where possible, the distinction between planned and unplanned growth should be identified.

Development of a list of past, present, and foreseeable future land use development projects that should be addressed for only impacted resources in the consideration of cumulative effects is discussed in **Section 9.26**. Locate these projects on a land use map. Discuss cumulative impacts to land use in more general terms, noting which land use components will be most impacted, their relative importance, and the degree to which impacts from the transportation project considered in the current NEPA document will contribute to the cumulative impacts.

Minimizing potential impacts of transportation alternatives to existing and future land use and local government’s comprehensive development plans is the most satisfactory form of mitigation planning for land use. Other options, such as amending land use plans, or compensating for land use changes by supporting replacement land uses in other locations, are likely to be costly in terms of time and money and also require extensive negotiation between CDOT and the community leaders and decision-makers.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT’s Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.



Key Points for Land Use Impacts

- Consistency of alternatives with approved local government comprehensive development plans
- Direct impacts from alternatives to local zoning and how land use will change in project area
- Secondary social, economic, and environmental impacts of substantial, foreseeable, induced development
- Distinguish planned and unplanned growth





9.13 Social Resources

Social resources include a variety of factors that may affect quality of life for a population. Transportation projects must consider the following potential social impact concerns:

- ▶ Changes in neighborhoods or community cohesion
- ▶ Community resources (schools, churches, parks, shopping, emergency services, etc.)
- ▶ Community vision and values
- ▶ Community transportation resources (alternative modes, etc.)
- ▶ Community mixed-use developments, Transit Oriented Development



Public scoping input should help guide the topics and level of detail presented under Social Resources.

Since social resources tend to be more qualitative, dynamic, and intangible, public involvement and coordination with local communities may be required to gather adequate information to address this resource area. Other issues affecting the social health of a community include land use changes, economics, environmental justice (EJ), and relocation and acquisitions.

The sections below provide guidance on the analysis of social resources for CDOT's NEPA projects. The first section discusses the process for evaluating the community composition. The second section discusses community information that should be in each NEPA document.

9.13.1 Social Resource Evaluation Process

The CDOT project manager and social analyst (either in-house social analysts or consultants) are responsible for early identification of the community composition and community issues. It is recommended that data collection and analysis be conducted under the supervision of persons with an educational background in sociology, regional planning, economics, or similar training.

Information on community composition and community issues should be collected and refined throughout the project. The study area should at least include communities within and immediately surrounding the proposed project. Community boundaries can often be delineated by physical barriers, land-use patterns, political divisions (such as school districts), selected demographic characteristics, historical backgrounds, resident perceptions, and subdivisions and neighborhoods recognized by name and tradition. Additionally, the project may have consequences for communities beyond the immediate geographic area. In such instances, the study area needs to be expanded to include these other communities.





Community composition and community issues must be identified as early as possible during project planning. Early identification of social resource issues is important to community buy-in and project success. Proactive involvement of community leaders and local political entities, as well as other segments of society important to a project, is an integral part of the analysis. This outreach leads to decision-making that is more likely to be responsive to community concerns and goals, resulting in greater community acceptance of proposed transportation improvements, enhancing agency credibility, and ensuring non-discrimination.

REASONS FOR EVALUATION OF SOCIAL RESOURCES UNDER NEPA

CDOT evaluates social resources for several reasons:

- ▶ To involve communities that will be affected by transportation projects (whether positively or negatively) and should be an important part of the process
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with several legal mandates that pertain to communities and federally funded projects

CDOT must comply with federal social regulations when implementing transportation projects in Colorado.

These policies require that consideration be given to qualitative factors and unquantifiable amenities and values, along with social and technical considerations in decision-making. However, social effects are not intended by themselves to require preparation of a NEPA document, but should be addressed when a NEPA document is prepared and social and natural or physical environmental effects are interrelated. Then the document will discuss all of these effects on the human environment without discrimination on the basis of race, color, national origin, age, sex, or disability.

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

Gathering baseline information can be expensive and time consuming. To avoid wasted effort, carefully define the intended use of the data, identify what data are needed, and determine whether they are readily available before beginning to gather information. In many cases, in-house staff has expertise; and in larger communities, various planning agencies and councils of government have information that can easily be obtained. Another source may be other projects' files or earlier attempts at the current



Community Resource Regulations and Guidance

- National Environmental Policy Act of 1969
- Federal Aid Highway Act of 1970
- Section 1508.14 of CEQ regulations
- Sections 109(h) and 128, Title 23 of the United States Code on Highways
- Title VI of the Civil Rights Act of 1964
- American Disability Act of 1990
- FHWA Technical Advisory T6640.8a
- Section 5309 New Starts, 49 USC 5309(e)
- Major Transit Capital Investment Projects Final Rule, 49 CFR Part 611, April 6, 2001





project, which may then be updated. If information is not available from traditional sources, resourcefulness is needed to seek out alternative sources.

Before using data, be aware of when they were collected, their sources, and their reliability. Use the most up-to-date data available, understand the basic assumptions used in each compilation, and recognize the purposes for which data were originally collected.

Baseline data on community composition are available from several sources including:

US Census Bureau – Provides easy access to community resource data and maps. US Census Bureau’s Decennial Census Summary File 1 and Summary File 3 – Quick Tables are a good starting point for data on demographic, social, and housing characteristics for the study area. The analysts can easily obtain Colorado state level data including economic development and gentrification down to Census Block-group level data to develop population trends, demographics, and social makeup. US Census Bureau Maps and Cartographic Resources provide maps for determining community boundaries, physical characteristics, instances of joint land use, and locating activity centers within the study area.

Local Governments (e.g., city and county planning, labor, and social service departments) – Provide more recent demographic, social, economic, and housing characteristics. Additionally, local governments can provide land-use and zoning plans, building-permit records, social programs, and business and marketing information that can be used to determine infrastructure, house and business locations, approved or built development, and community issues.

Metropolitan Planning Organizations – Provide land-use and zoning plans, building-permit records, and real estate market surveys to determine infrastructure, house and business locations, approved or built development, and housing characteristics.

Local Publications (from state, local, and university libraries) – Provide general insight, historical background, and business and marketing information. Assure all community groups are reached including those of limited English proficiencies or unique cultural backgrounds.

Community Groups (such as local historical societies, Colorado Historic Preservation Office, and religious institutions) – Provide historical background, location of historic structures, landmarks, and districts, special populations and their needs, and community issues.



Do not rely solely on one data source. A second data source should be used to validate the first.



US Census Bureau’s Decennial Census Summary File 1 and Summary File 3
<http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>
 US Census Bureau Maps and Cartographic Resources
<http://www.census.gov/geo/www/maps/>





Social Service Agencies – Provide information on special populations and their needs, businesses, and community issues.

Public Scoping Meetings (with community leaders, local political entities, special interest groups, businesses, and residents) – Provide information on community values and issues.

Windshield Surveys – Provide information on locations and numbers of structures, and social activity patterns.

EVALUATION OF BASELINE INFORMATION

Use the collected baseline information to delineate and characterize the social resource study area and understand its interface with the proposed project. Work with engineers and transportation planners to consider new project options based on preliminary indications of likely community issues and special areas to avoid. The evaluation of baseline information incorporates the following components:

- ▶ Finalize the social study area, as it will vary from multiple counties to specific Census Tracts and Block data depending on the magnitude of potential social impacts and the existing community base.
- ▶ Include demographic characteristics such as: ethnic composition of the existing population, age distribution, median income of the study area, low mobility status (elderly and/or disabled), and existing number of households and average household size.
- ▶ Identify the defined communities (e.g., communities recognized by name and/or practice) and perceived neighborhoods (e.g., a little section of open space, the corner grocery, a laundromat, a beauty salon, or a neighborhood bar, etc.) within the study area.
- ▶ Discuss the growth policies of the local jurisdictions, such as adopted growth targets, growth management policies, or other policies relating to the location or rate of population growth.
- ▶ Briefly describe the types of transit facilities, highways, streets, and bicycle and pedestrian facilities associated with the proposal, if the proposed project will likely have an effect on such facilities.
- ▶ When it may be an issue, describe the type, size, and location of public services and facilities within the affected social environment (e.g., parks, schools, hospitals, day care centers, libraries, counseling facilities, alcohol and drug rehabilitation, bike paths, emergency services, etc.).



If known, any substantial population changes that have occurred in recent decades in ethnic, elderly, poor, or other demographic groups within the affected community area should be discussed.



Impacts on social resources that may occur as the result of proposed transportation improvements include impacts on community cohesion, community facilities and services, mobility, and safety. The following subsections provide specific guidance for addressing the impacts of each alternative on these four social impact areas.

Community Cohesion

The community cohesion analysis should address such impacts of project alternatives on cohesiveness, as the following:

- ▶ Bisecting (dividing) neighborhoods
- ▶ Social isolation (isolating a portion of an ethnic group or neighborhood)
- ▶ Facilitating new development (infill)
- ▶ Urban renewal
- ▶ Decreased neighborhood size (relocation)
- ▶ Joint land use
- ▶ Changes in property values
- ▶ Changes in neighborhood or community access
- ▶ Changes in quality of life
- ▶ Changes in neighborhood identification
- ▶ Separation of residences from community facilities

Community social groups that will benefit from or be adversely affected by the proposed project alternatives should also be identified. It is important that all segments of the population be treated with equal consideration, including:

- ▶ Elderly persons
- ▶ Disabled persons
- ▶ Non-drivers and transit-dependent individuals
- ▶ Minority groups
- ▶ Low-income individuals and households

Public Services and Facilities

Analysis of project alternative impacts on public services and facilities should include actions such as the following:





- ▶ Identify the existence of public service providers, their responsibilities and facilities: police, fire, ambulance, hospital, and schools, as appropriate, given site condition and potential project issues
- ▶ Show on a map the proximity of each facility to the project
- ▶ Define service areas, user groups, and affected populations
- ▶ Discuss each service/facility's principle involvement with the community
- ▶ Determine the value of the service/facility to the community
- ▶ Determine the project's impact on these services/facilities

Mobility

The analysis of mobility should describe and discuss changes in travel patterns and accessibility (e.g., vehicular, commuter, bicycle, or pedestrian). It is important to note the effects of such changes on community mobility and neighborhood interaction, especially for groups that may experience more severe mobility impacts due to physical limitations, including the elderly, disabled persons, and children.

If any of the proposed alternatives will close or move cross streets, address the impacts of closing or moving each street. If pedestrian/bicycle routes are closed or otherwise modified, identify and discuss potential impacts on community mobility/neighborhood interaction. The views of the community and the city and/or county government on such changes must be clearly documented.

Safety

The evaluation of safety should discuss the impacts of each project alternative on traffic and neighborhood safety. Neighborhood safety issues to be addressed include:

- ▶ Police services
- ▶ Emergency services
- ▶ Bicycle/pedestrian safety
- ▶ Increase in crime

OTHER ISSUES TO CONSIDER

Other agencies may have information or guidance that will affect a particular CDOT project. Coordinate with the various agencies having resource oversight to obtain any site-specific data they may have, talk to resource specialists who know the study area and determine whether they know of social issues that could constrain the project. The resource agencies that





are particularly likely to have information or guidance on the social makeup of the communities include local planning agencies (e.g., county, city, and community planning offices), social services agencies, and community groups, as well as the USFS, and BLM when they manage lands that are traversed by a transportation project.

The project file should include correspondence and telephone contact information with community service groups, as well as minutes of meetings where appropriate. The files should thoroughly document the process whereby the social service needs of the community have been taken into consideration during project development.

9.13.2 NEPA Document Sections

The content of the sections on social resources in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

If the proposed project or activity impacts a population, the NEPA document should discuss the existing and projected population and the relevant demographic characteristics of the affected area and the associated city, county, or region. The level of detail should be commensurate with the importance of the social impacts. The description of the community composition in the Affected Environment chapter of the NEPA document should include social aspects that may be impacted as the result of the proposed project:

- ▶ Community cohesion
- ▶ Public services and facilities
- ▶ Mobility
- ▶ Safety

The baseline information on the social environment of the study area should be used to help develop a community profile. The community profile is a summary of the history, present conditions, and anticipated future of an area. It provides an overview or series of snapshots of the area and provides a basis for identifying potential impacts of a proposed transportation action. The community profile enables conclusions regarding community cohesion, public services and facilities, mobility, and safety of various groups within the social study area as a whole.



Affected Environment Chapter of NEPA Document

- A visual map or maps that depict physical characteristics, such as neighborhood boundaries, land uses, public facilities, and commercial centers
- Narrative text that describes community characteristics, such as population demographics, social, social history and values of the communities, the importance of various facilities, and plans for the future
- Tables or graphics that summarize important data or conclusions, such as population demographics or employment trends





It may also be necessary to expand or supplement the information, depending on the level of detail developed for the study area, by communicating with community groups, stakeholders, and local sociologists. Attributes typically included in the community profile are summarized in the side bar. For additional information, consult FHWA's *Community Impact Assessment: A Quick Reference for Transportation* (FHWA, 1996).

ENVIRONMENTAL CONSEQUENCES

Impacts on social resources that may occur as the result of proposed transportation improvements include impacts on community cohesion, community facilities and services, mobility, and safety, aesthetics, displacement, traffic, employment and construction. Discuss alternatives that have the same social impacts together and contrast those that differ so that similarities and differences in alternative social impacts are clear. The following subsections provide specific guidance for each of these four social impact areas. The impacts of each alternative on each of the four social impact areas—community cohesion, public services and facilities, mobility, and safety—should be addressed at a level of detail appropriate to their severity and the complexity of the project. For additional information, consult FHWA's *Community Impact Assessment: A Quick Reference for Transportation* (FHWA, 1996).

Where the evaluation determines that potential social impacts are adverse to community cohesion, public services and facilities, mobility, and/or safety, the document should provide discussion of possible mitigation. Include the information shown in the sidebar in the NEPA document, as appropriate. This section should provide assurance that the social service needs of the community have been taken into consideration during project development.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.



Mitigation Planning Information to Include in NEPA Document

- Basis for the mitigation decisions and flow chart of the decision process
- Identify mitigation strategies to avoid or minimize potential impacts to communities' well being and incorporate them into project designs as necessary
- Outreach efforts to minority and low income populations
- Appropriateness, reasonability, and timing of the mitigation strategies relative to project planning and implementation
- Coordination required to obtain agreement on mitigation measures





9.14 Economic Resources

Economic resources include a variety of factors that may affect an area's economy. Transportation projects must consider the following potential economic impact concerns:

- ▶ Employment and tax base affected by project (retail sales, opportunity for development, tax revenues, relocation of employment centers, etc.)
- ▶ Businesses affected by project or construction (detours, bypasses, circulation)
- ▶ Housing
- ▶ Infrastructure and public services
- ▶ Changes in property values

Economic resources tend to be quantitative and tangible; however, public involvement and coordination with local communities may be required to gather adequate information to address this resource area. The economic health of a community is affected by changes in other resources such as land use, social resources, EJ, and relocations and acquisitions.

The two sections below provide guidance on the treatment of economics for CDOT's NEPA projects. The first section discusses the process for evaluating economics. The second section discusses economic information that should be in each NEPA document.

9.14.1 Economic Evaluation Process

The CDOT project manager and economic analyst (either in-house economic analysts or consultants) are responsible for early identification of the local economies and their specific profiles. It is recommended that data collection and analysis be conducted under the supervision of persons with an educational background in economics, regional planning, or similar training.

Economic profiles of the communities should be identified throughout the project. The economic study area should at least include communities within and immediately surrounding the proposed project. Community boundaries can often be delineated by physical barriers, land-use patterns, political divisions (such as school districts), selected demographic characteristics, historical backgrounds, resident perceptions, and subdivisions and neighborhoods recognized by name and tradition. Additionally, the project may have economic consequences for communities beyond the immediate geographic area. In such instances, the study area needs to be expanded to include these other communities.



Public scoping input should help guide the topics and level of detail presented under Economic Resources.



Economic Resource Regulations and Guidance

- NEPA
- Federal Aid Highway Act of 1970
- Section 1508.14 of CEQ regulations
- Intermodal Surface Transportation Efficiency Act of 1991
- Sections 109(h) and 128, Title 23 of the United States Code on Highways
- FHWA Technical Advisory T6640.8a
- Section 5309 New Starts, 49 USC 5309(e)
- Major Transit Capital Investment Projects Final Rule, 49 CFR Part 611, April 6, 2001





Economic profiles of the communities within the economic study area and issues must be identified as early as possible during the project planning. Early identification of economic issues is important to community buy-in and project success. Proactive involvement of community leaders and local political entities, as well as business segments, is an integral part of the analysis. This outreach leads to decision-making that is more likely to be responsive to community concerns and goals, resulting in greater community acceptance of proposed transportation improvements, enhancing agency credibility, and ensuring non-discrimination.

REASONS FOR EVALUATION OF ECONOMICS UNDER NEPA

CDOT evaluates economics for several reasons:

- ▶ The economy of an area is a vital component of a community
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with several legal mandates that pertain to local economics and federally funded projects

CDOT must comply with federal economic regulations when implementing transportation projects in Colorado.

These policies require that consideration be given to qualitative factors and unquantifiable and/or quantifiable economic amenities and values in decision-making. However, economic effects are not intended by themselves to require preparation of a NEPA document, but should be addressed when a NEPA document is prepared and economic and natural or physical environmental effects are interrelated. Then the document will discuss all of these effects on the human environment.

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

Collection of Baseline Information

Before beginning to collect baseline information on economic resources, carefully define the intended use of the data, identify what data are needed, and determine whether they are readily available to avoid wasting time and money. Obtain needed information from in-house staff with expertise and, in larger communities, from various planning agencies and councils of government. Also review other projects' files or earlier attempts at the current project, which may then be updated.



Baseline Information for NEPA Document

Background of the fiscal and economic conditions in the study area such as:

- Tax revenue
- Employment
- Labor force characteristics
- Employment programs and policies





Before using the data, be aware of when they were collected, how current they are, their sources, and their reliability. Also be sure to understand the basic assumptions used in each compilation, and recognize the purposes for which data were originally collected.

Baseline data for economic resources are available from several sources including:

- ▶ US Census Bureau - Provides data on population and economic and housing characteristics for the study area. In US Census Bureau Decennial Census Summary File 1 and File 3 Quick Tables, Colorado State level data down to Census Block-group level data are available for use in developing economic trends and indicators. Additionally, US Census Bureau Maps and Cartographic Resources provide maps for determining community boundaries, physical characteristics, and locating economic activity centers within the study area.
- ▶ Bureau of Economics Regional Publication – Provides Colorado level data down to micropolitan statistical area data on personal income and industry employment
- ▶ Bureau of Labor Unemployment Publications – Provides Colorado level data down to micropolitan statistical area data on unemployment
- ▶ Local Governments (revenue, labor, and planning departments, economist's office, chambers of commerce, etc.) – Provide economic and housing characteristics that can be used to determine employment and salary by industry, employment trends, unemployment rates, tax revenues, and property values
- ▶ Local Businesses – Provide information on business issues, tax revenues, and property values
- ▶ Local Publications (from state, local, and university libraries) – Provide business and marketing information
- ▶ Public Scoping Meetings (with community leaders, local political entities, special interest groups, businesses, and residents) – Provide information on business needs and issues



US Census Bureau's
Decennial Census Summary
File 1 and Summary File 3
<http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>

US Census Bureau Maps and
Cartographic Resources
<http://www.census.gov/geo/maps-data/index.html>

Bureau of Economics
Regional Publications
<http://bea.gov/regional/index.htm>

Bureau of Labor
Unemployment Publications
<http://data.bls.gov/cgi-bin/dsrv?la>





Evaluation of Baseline Information

Collected baseline information is used to help evaluate the project and delineate the economic study area. Work with engineers and transportation planners to consider new options based on preliminary indications of likely economic issues and special areas to avoid. The evaluation of baseline information incorporates the following components:

- ▶ Finalizes the economic study area, as it will vary from multiple counties to specific Census Tracts and Block data depending on the magnitude of potential economic impacts and the existing economic base
- ▶ Identifies the types of economic impacts the project could have on the communities as highlighted in the sidebar
- ▶ Briefly characterizes the current fiscal and economic conditions in the study area including such information as tax revenue(s) (e.g., retail sales and use tax, business tax, property tax, etc.) and major contributors, employment by sector, labor force characteristics (e.g., labor earnings by sector, and personal income), employment centers in the study area, jobs versus housing balance, and relevant comprehensive plans
- ▶ Discuss impacts to economics in somewhat general terms, noting which economic components will be most impacted, their relative importance, and the degree to which impacts from the transportation project considered in the current NEPA document will contribute to the impacts.

OTHER ISSUES TO CONSIDER

Other agencies may have information or guidance that will affect a particular CDOT project. Coordinate with the various agencies having resource oversight to obtain any site-specific data they may have, talk to resource specialists who know the study area, and determine whether they know of economic issues that could constrain the project. The resource agencies that is particularly likely to have information or guidance on economics include city and county planning offices and chambers of commerce, as well as the USFS, BLM, and NPS when they manage lands that are traversed by a transportation project.

9.14.2 NEPA Document Sections

The content of the sections on economic resources in the Affected Environment and Environmental Consequences chapter is discussed below.



AFFECTED ENVIRONMENT

The description of economics in the Affected Environment chapter of the NEPA document should include those aspects of fiscal and economic conditions that are likely to be impacted by the project. Economic aspects that may be impacted as the result of proposed transportation improvements include changes in growth rates, business activity, property values, and tax revenues. These impacted economic aspects are generally related to one of two factors: changes in the accessibility of an area and/or changes in the local environment.

Transportation improvements tend to affect businesses, residences, and taxing authorities in different ways; therefore, the impacts to various land uses and local government should be evaluated and addressed separately in the documentation. The types of impacts that should be evaluated for businesses, residential areas, and local taxing authorities are summarized below.

Businesses

- ▶ Changes in regional traffic (bypass impacts)
- ▶ Changes in business environment (noise, air quality, aesthetics, amenities, traffic volumes and traffic speed)
- ▶ Access changes (delivery, employee, customer)
- ▶ Changes in customer and/or employee base (relocations)
- ▶ Compatibility with economic development plans
- ▶ Changes in parking availability

Residential Areas

- ▶ Changes in residential environment (noise, air quality, aesthetics, amenities, traffic volumes and traffic speed)
- ▶ Changes in employment opportunities and retail shopping/services related to changes in businesses

Local Taxing Authorities

- ▶ Conversion of taxable property to public use
- ▶ Affected taxing authorities
- ▶ Revenue losses and the affect on taxing authorities

ENVIRONMENTAL CONSEQUENCES

The Environmental Consequences section of the NEPA document should identify and discuss the impacts from each alternative on the economic



An Input/Output model is a regional economic impact model that provides mathematical accounting of the flow of dollars and commodities through a region's economy.

Mitigation Planning Information to Include in NEPA Document

- Basis for the mitigation decisions and flow chart of the decision process
- Mitigation strategies to avoid or minimize potential impacts to communities' economic well being to be incorporated into project designs as necessary
- Appropriateness, reasonability, and timing of the mitigation strategies relative to project planning and implementation
- Coordination required to obtain agreement on mitigation measures
- Reasonableness and reliability of the mitigation measures





health of the community as a whole. Discuss alternatives that have the same economic impacts together and contrast those that differ so that similarities and differences in alternative economic impacts are clear. The section should:

- ▶ Identify affected businesses, residential areas, and/or local taxing authorities
- ▶ Show on a map the proximity of the project to each affected business or residential area
- ▶ Show on a map the jurisdictional boundaries of affected local taxing authorities
- ▶ Define the employee and customer base for affected businesses
- ▶ Discuss the value of the businesses and/or residential area to the community
- ▶ Determine the project's impact on these businesses and/or residential areas

Economic impacts are best described quantitatively, but, in certain cases, qualitative data may be the only information available to adequately characterize the area. When applicable, potential total economic impacts (direct and indirect) of alternatives associated with the project can be estimated using economic models, such as the commonly used IMPLAN Input/Output model, which can be purchased. Input/Output models generate estimates of how a given amount of a particular economic activity translates into jobs and income in the study area.

In the NEPA document, only identify those mitigation measures that are in response to project impacts and are appropriate as CDOT commitments. Summarize these measures just below the impacts they are intended to mitigate in the tabulation of economic impacts by alternative. Note whether residual economic impacts will remain after the suggested mitigation measures are applied. Discuss economic impacts as a result of induced growth as further discussed in **Section 9.26**.

Where the evaluation determines that potential economic impacts are substantial, the document should provide discussion of possible mitigation. It is important to consider the effects on small businesses or businesses with unique customer and/or employee bases, since these businesses are more sensitive to change. Include the information shown in the sidebar in the NEPA document, as appropriate.





Mitigation measures needed to resolve economic impacts can be costly. It is important to work with the project development team and the local community to choose practical solutions that result in a reasonable expenditure of public funds and help the project fit harmoniously into the community. For example, phase the project to minimize impedance to business access during peak periods. Another option could be to redesign a road segment as an underpass to avoid cutting off access to a business activity center.

For additional information, consult FHWA's *Community Impact Assessment: A Quick Reference for Transportation* (FHWA, 1996).

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.15 Environmental Justice



Environmental Justice (EJ) is the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies. CDOT evaluates EJ for several reasons:

- ▶ To ensure a non-discriminatory process
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with several legal mandates that pertain to protected populations

EJ has its origins with Title VI of the Civil Rights Act of 1964, which states "No person in the US shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." In 1994, Executive Order 12898 was issued and gave renewed emphasis to Title VI and added low-income populations to those protected by the principles of EJ. CDOT must comply with federal Title VI and EJ regulations when implementing transportation projects in Colorado.

The three fundamental principles at the core of EJ, as expressed by Executive Order 12898 are:

- ▶ To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on tribal governments, minority, and low-income populations
- ▶ To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
- ▶ To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

The requirements expressed in Executive Order 12898 are intended to ensure that procedures are in place to protect low-income and minority groups that have been traditionally underserved. These policies forbid discrimination on the basis of race, color, sex, or national origin in all CDOT programs and activities. Its regulations apply not only to intentional discrimination, but also to policies and practices that have a discriminatory



Environmental Justice Regulation and Guidance

- Title VI of the Civil Rights Act of 1964, as amended
- Title VI Regulations, 49 CFR 21 and 23 CFR 200
- Executive Order 12898 on Environmental Justice
- Executive Order 13166 on Environmental Justice
- NEPA of 1969
- 23 USC 140 (Non-discrimination)
- 23 USC 324 (Non-discrimination on basis of sex)
- Americans with Disabilities Act (ADA) of 1990
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, amended 1987
- Environmental Impact and Related Procedures, 23 CFR 771
- USDOT Order 5610.2(a) on Environmental Justice
- USDOT Guidance on Environmental Justice and NEPA (December 16, 2011)
- FHWA Executive Order 6640.23(a) on Environmental Justice
- 23 USC 109(h), Federal-Aid Highway Act of 1970





effect. This has been amplified to also require CDOT to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations in all its operations.

EJ EVALUATION PROCESS

It is critical to identify low-income and minority populations early so that these populations can become involved and have a meaningful opportunity to determine the extent of their participation during every phase of a NEPA project.

Minority, as it applies to EJ, is defined as a person who is:

- ▶ Black: a person having origin in any black racial groups of Africa
- ▶ Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture of origin, regardless of race
- ▶ Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent
- ▶ American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition
- ▶ Native Hawaiian or Pacific Islander: people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands

Minority populations are defined as any readily identifiable group of minority persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be affected by a proposed DOT program, policy, or activity. For purposes of these guidelines, tribal governments are also included in this definition of minority populations.

Low-income populations are defined as any readily identifiable group of low-income persons (household income is at or below the Department of Health and Human Services poverty guidelines) who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be affected by a proposed DOT program, policy, or activity.



The Environmental Justice Executive Order 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on minority and low-income populations in all its operations. This is an amplification of the non-discrimination mandate of Title VI of the Civil Rights Act of 1964. The resultant USDOT and FHWA Orders require CDOT to achieve Environmental Justice within the framework of existing laws such as NEPA in all its operations.





To identify affected populations, CDOT takes the following evaluation steps:

- ▶ Define Area of Potential Impact
- ▶ Determine Minority Populations
- ▶ Determine Low-Income Populations
- ▶ Evaluate Impacts
- ▶ Identify Mitigation

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

A web user guide has been prepared with step-by-step directions for collecting and evaluating baseline information. These directions are provided in **Attachment B** of this CDOT NEPA Manual.

STEP 1: DEFINE AREA OF POTENTIAL IMPACT

The first step in the EJ evaluation process is to identify and evaluate the geographic area likely to be affected by the project (i.e., community study area). The EJ analysis would include all areas adjacent to the project footprint that may reasonably be affected. Many transportation projects have far-reaching impacts. It is, therefore, probable that the area of impact may be a considerably larger area than the literal project footprint. The determination of the community study area should be presented, reviewed, and agreed upon by the project team and documented in the public involvement process.

The EJ community study area should at least include communities within and immediately surrounding the proposed project. Community boundaries can often be delineated by physical barriers, land-use patterns, political divisions (such as school districts), selected demographic characteristics, historical backgrounds, resident perceptions, and subdivisions and neighborhoods recognized by name and tradition. Additionally, the project may have social consequences for communities beyond the immediate geographic area. In such instances, the community study area needs to be expanded to include these other communities.

At the start of a project, the project team will need to determine, based on project-specific factors, the level of data (i.e., census tract, census block group levels) that is the most appropriate to define the characteristics within the community study area. CDOT generally uses the census block group level data, when available. If data is not available at the block group level, the census tract level of data is used.





STEP 2: DETERMINE MINORITY POPULATIONS

Data Sources

A variety of data sources record and maintain statistics relative to minority populations. The US Census data are the best primary source of data to define and identify minority populations. Demographic information is accessible from the US Census 2010 American Fact Finder (<http://factfinder2.census.gov>) website, which provides details on the race, ethnicity, and other population characteristics within a specified community study area.

Other sources of information may be used to confirm and further refine the locations of minority populations. Public involvement is a critical component to this effort. Public involvement, discussed in **Chapter 7** of this Manual, is a particularly important source of information relevant to EJ. Throughout the NEPA process, CDOT project staff must elicit the views of the affected populations through the public scoping process and take those comments into consideration. Some other likely sources of data may include religious groups and schools who might provide race and national origin information, homeowner/community associations, community action agencies, civil rights organizations, minority business associations and economic and job development agencies, and ethnic stores and shops. Other reliable local data sources include county assessors, social service agencies, local health organizations, local public agencies, and community action agencies.

Step 2a – Define Minority Populations in the Community Study Area

If minority populations are identified, they should be characterized by their size, general location, etc. (See example table below.) Remember to be sensitive to your public.

Example Table: Minority Populations in Community Study Area

Area	Total Population	Minority Populations (%)				Total Minority (%)
		Black/African American	Native American	Asian/Pacific Islander	Hispanic or Latino	
State						
County						
Census Block Groups in Community Study Area						
Block Group						
Block Group						





If there is more than one minority group within the study area, the minority percentage should be based on the aggregate of all minority persons. For example, if the percentage of African American persons in the identified census block is 20 percent and the percentage of Asian persons is 20 percent, then the total of 40 percent should be used for the minority percentage.

Hispanic is classified as an ethnicity rather than a race in the US Census to avoid double counting because a person who self-identifies as Hispanic may be of any race. Therefore, for purposes of EJ analysis, the total population within the geographic area being analyzed minus the total White, non-Hispanic/Latino population would generate the total minority population.

Step 2b - Identify Linguistically-Isolated Households

The most recent US Census American Community Survey 5-year Estimates should be used to obtain the most recent information on linguistically-isolated households for Colorado, the county/counties, and census tracts within the community study area. Linguistically-isolated may also be referred to as Limited English Proficiency. The most updated estimate is from the 2005 – 2009 survey. Data is provided down to the census tract level, but is not yet available at the block group level (as of November 2012). If you have already defined your geography down to the block group level, **Step 1** must be completed for the census tracts within the community study area.

Example Table Percent Linguistically-Isolated Households (Spanish as the Primary Language) within the Community Study Area

Area	Total Households	Linguistically-Isolated Households [Spanish as the Primary Language] (%)
State		
County		
Census Tracts in the Community Study Area		
Census Tract		



A **census tract** is defined as “A small, relatively permanent statistical subdivision of a county or statistically equivalent entity, delineated for data presentation purposes by a local group of census data users or the geographic staff of a regional census center in accordance with Census Bureau guidelines. Designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time they are established, census tracts generally contain between 1,000 and 8,000 people, with an optimum size of 4,000 people. (US Census Bureau)

STEP 3: DETERMINE LOW-INCOME POPULATIONS

Typically, low-income populations can be spread throughout the community study area, but there may be a concentrated area that has a significantly higher percentage of low-income population than the county or metro area average. The first step is to identify any of these potential areas.





To determine whether there are low-income populations in a community study area, two things must be established: 1) the low-income threshold dollar amount, number, and percentages for a particular county; and 2) the number and percentage of low-income populations in the community study area that will be compared to the county percentage.

The low-income threshold means a household income at or below the Department of Health and Human Services poverty guidelines.

Data Sources

A combination of US Census data and US Department of Housing and Urban Development (HUD) data (http://huduser.org/portal/pdrdatas_landing.html) are used to identify and define low-income populations.

County census data and county-specific HUD Average Median Income at 30 percent (AMI30) data are used to determine the areas for low-income populations. US Census data indicate total households and the number of households per income range by county and by smaller levels of geography (i.e., by census tract or other appropriate level such as block group). The average household size is also designated by county. However, these data do not indicate the number of persons in each household.

The HUD AMI30 data are county-specific and indicate the low-income dollar amount for each household size. AMI30 is recommended as the method to use to determine the county low-income percentage. This method is also used to determine if a low-income population is greater than the county or metro area income percentage. This is preferred to census poverty household state averages because it is sensitive to county differences in income.

Median Household Income

- ▶ Obtain the 30 percent median household income data set from the HUD website at:
 - <http://www.huduser.org/portal/datasets/il/il12/index.html>
 - Select Income Limits from the Topic Areas
 - Select the FY 2012 (or most current year) Income Limits Documentation
 - Select the county within the community study area

If there are multiple counties in your community study area, follow these steps for each county.



A block group is the next level above census blocks. A block group is a combination of census blocks that is a subdivision of a census tract or block numbering area. (US Census Bureau)



Median household income is the amount which divides the income distribution into two equal groups, half having income above that amount, and half having income below that amount. Median, or average income.





- ▶ Find the 30 percent median income for the appropriate county or counties in the community study area and then find the 30 percent of median low-income thresholds for the whole number above and below the average household size (e.g., if the average household size is 2.27, use the data from the FY Income Limit Category for the 2 person and 3 person household).
- ▶ Subtract the lower low-income threshold dollar number from the higher low-income threshold dollar number and multiply by the decimal portion of the average household size (e.g., if 2.27, multiply by .27). Add this number to the lower whole dollar number (30 percent of median low-income) identified in the last step. This will give you the low-income threshold amount for the actual average household size for the county.

Calculate the low-income threshold number and percentage of low-income households for each census tract in your community study area. Use the county-level household size (# of low-income households (county level)/total # of households in census tract/block group). A detailed calculation example is provided below.

Low-Income Methodology Example

The following is an example low-income calculation (Sample taken from "Environmental Justice in Transportation Planning Phase II, CDOT Research Branch, December 2003.)

Data Assumptions

The average household size is 3.25 people per household for this county, as provided in the 2010 Census data.

Tract 1, County X
Low-income thresholds for County X

Persons per household	1	2	3	4	5	?	?	?
Low-income	\$24,450	\$27,950	\$31,450	\$34,950	\$37,750	\$40,550	\$43,350	\$46,150

Household Income	Total Households
Total	1,190
Less than \$10,000	50
\$10,000 to \$14,999	60
\$15,000 to \$19,999	70
\$20,000 to \$24,999	80





\$25,000 to \$29,999	90
\$30,000 to \$34,999	100
\$35,000 to \$39,999	100
\$40,000 to \$44,999	200
\$45,000 to \$49,999	100
\$50,000 to \$59,999	100
\$60,000 to \$74,999	100
\$75,000 to \$99,999	100
\$100,000 to \$124,999	100
\$125,000 to \$149,999	100
\$150,000 to \$199,999	100
\$200,000 or more	100

Given the data presented above, the number of households that are considered to be low income in Tract 1 is calculated as follows.

Low-Income Thresholds

The value of the threshold low-income based on an average 3.25 person household is calculated as follows:

- ▶ The average household is between 4 persons and 3 persons, so: \$34,950 (4-person household income) minus \$31,450 (3-person household income) = \$3,500.
- ▶ \$3,500 multiplied by 0.25 (decimal portion of county average household size) = \$875
- ▶ Low-income threshold for Tract 1: \$31,450 (3-person household income) + \$875 = \$32,325

Referring back to the total household income, the total number of households with incomes at or below \$32,325 would be 450, or a total of the number of households within the first six income categories (refer to example table above) below the threshold range "\$0 to \$34,999" (50+60+70+80+90+100=450).

CENSUS TRACT/BLOCK GROUP COMPARISON

Use the method described above to calculate the census tract or block group number and percentage of low-income households. Use the previously calculated county-level household size. Derive the total number of households in the census tract/block group with income at or below the low-income threshold using the census tract or block group ranges. Add all the households at or below the threshold income calculated above. It may be necessary to count some households that may have a higher income than





the threshold income because they fall in an income range that includes the threshold income level.

Compare this to the county percentage that is used as a reference point to identify low-income populations within the census tract/block groups within the community study area. If the percentage of low-income households is higher than what has been calculated as the county percentage, the census tract/block group should be included in the EJ analysis. If there is any doubt about whether a particular area constitutes a low-income area, it is recommended that additional data be used to refine the analysis. The county and block group (or metro area) averages are initial points of reference, but should be supplemented by additional, more specific local data sources as appropriate.

Area	Low-Income Households (%)
County	
Census Tracts in the Community Study Area	
Census Tract	
Census Tract	

If a low-income area within the community study area exceeds the county average, then the entire census tract/block group containing the low-income area should be studied.

STEP 4: EVALUATE IMPACTS

If minority populations exist in the study area, the next step in the EJ evaluation is to consider how each alternative might impact the low-income or minority populations (positively or negatively) using the resources within the project impact area. Include consideration of:

- ▶ Possible relocation of minority and/or low-income populations
- ▶ Displacement of businesses that provide jobs for minority and/or low-income populations
- ▶ The displacement of a place of worship or community center that is a gathering place, or other actions that could disrupt or destroy the social fabric of a community or sense of place

Impacts that may result from issues unique to a community's distinct cultural practices or use of affected resources (e.g., subsistence fish, vegetation or wildlife consumption or use of well water in rural communities.) If there is more than one minority population in the community study area, then the





percentage of the minority is the aggregate of all minority persons. Evaluate each alternative to determine whether there is a potential for disproportionately high or adverse impacts from the project to fall on low-income or minority populations compared to populations that are not minority or low-income in the community study area. A disproportionately high or adverse effect is an adverse effect or impact that would be: 1) predominantly borne by minority and/or low-income populations; or 2) will be suffered by minority and/or low-income populations and is appreciably more severe or greater in magnitude than the adverse effect suffered by the non-minority population and/or non-low-income population. At a minimum, use the evaluative criteria set out below. Adverse impacts to a population may include but are not limited to:

- ▶ Bodily impairment, infirmity, illness, or death
- ▶ A change in air, noise and water pollution and soil contamination
- ▶ Destruction or disruption of man-made or natural resources
- ▶ Destruction or diminution of aesthetic values
- ▶ Destruction or disruption of community cohesion or a community's economic vitality
- ▶ Destruction or disruption of the availability of public and private facilities

In considering if an alternative's adverse impact(s) falls disproportionately on a minority and/or low-income population, project staff should consider public comments and reactions about alternatives from low-income, minority or other affected populations. If one or more tribal governments are involved, the tribal consultation process under Section 106 of the National Historic Preservation Act may be necessary, along with consultation with CDOT NEPA staff or the CDOT Senior Staff Archeologist. Finally, in considering whether a disproportionately high and adverse impact is predominantly borne by minority and/or low-income populations, project staff should consider and weigh at least the following criteria:

- ▶ Varying levels of disproportionate and adverse effects on low-income or minority populations
- ▶ Distribution of disproportionate impact. Impacts that are distributed throughout a larger geographical area tend to affect specific populations less. Be prepared, however, to evaluate each project on the basis of its own unique circumstances





- ▶ Cumulative effects. Consider the cumulative effects already being experienced by the community when evaluating the impacts of the proposed project
- ▶ Mitigation. Consider alternatives that mitigate impacts to the greatest extent practicable for the community

For more information on identifying disproportionately high and adverse effects and proceeding when there are disproportionately high and adverse effects, refer to FHWA's guidance on how to address EJ in NEPA documents (December 2011).

STEP 5: IDENTIFY MITIGATION

Project staff should consider the option of applying early mitigation where applicable and consider the following possible mitigation measures:

- ▶ Reducing pollutant loadings through changes in processes or technologies
- ▶ Planning and addressing indirect impacts prior to project initiation
- ▶ Assisting an affected community to ensure that it receives at least its proportional share of the anticipated benefits of the proposed action (for example, through job training, infrastructure improvements, etc.)
- ▶ Establishing a community oversight committee to monitor progress and identify potential community concerns
- ▶ Analyzing compiled demographic data to determine relevant tools to implement in a community study area for effective public participation
- ▶ Considering enhancement measures that will improve the affected area consistent with CDOT's Environmental Stewardship Guide, resolving the impact by repairing or rehabilitating the affected environment, or compensating for the impact by replacing or providing substitute resources or environments
- ▶ Relocating affected communities as necessary and in compliance with the Uniform Relocation Assistance Property Acquisition Policies Act of 1970 (the Uniform Act) and within the existing guidelines of the CDOT and FHWA right-of-way programs.

9.15.1 NEPA Document Sections

The content of the sections on EJ in the Affected Environment and Environmental Consequences chapter is discussed below.





AFFECTED ENVIRONMENT

Consistent with the FHWA guidance on how to address EJ in NEPA documents (December 2011), EJ information is typically included in the section on social conditions. This section includes information on the general population in the community study area. Social characteristics that should be described include:

- ▶ Description of minority populations
- ▶ Race and ethnicity in census tract or block groups – compared to the State of Colorado and county(ies) in which project is taking place
- ▶ Households with Limited English Proficiency
- ▶ Description of low-income populations in census tract or block groups – compared to county(ies) in which project is taking place
- ▶ Description of businesses
- ▶ Description of community facilities and public services (trails, parks, recreation centers)
- ▶ Public and agency involvement relevant to EJ

If no minority or low-income populations are present in the community study area, an EJ analysis is not required. If your documentation concludes that no low-income or minority populations are present in a community study area, the documentation needs to support how that conclusion was reached.

ENVIRONMENTAL CONSEQUENCES AND MITIGATION

To adequately address EJ impacts to minority and low-income populations within the community study area, the NEPA document must include the following:

- ▶ Describe the environmental effects on all communities, including human health, economic, and social effects (negative and positive) on all people within the study area, with special consideration for minority and low-income populations based on the evaluation of impacts
- ▶ Identify any disproportionately high and adverse environmental effects that exist
- ▶ When impacts on minority or low-income populations are projected to be disproportionately high or adverse after considering offsetting benefits, the NEPA document should discuss the mitigation measures that are feasible for the project





Consistent with FHWA's guidance on how to address EJ in NEPA documents (December 2011), it is especially important to thoroughly document the following information as part of the NEPA process:

- ▶ The ethnic and economic character of the affected community has been determined as early as possible in the process to appropriately identify potential EJ issues
- ▶ Meaningful opportunities for public participation were provided throughout the project development process, including activities to increase low-income and minority participation such as consultation with affected communities to identify potential effects and possible mitigation measures, and improved accessibility to public meetings, project documents, and project decision-makers on EJ populations
- ▶ The degree to which the affected groups of minority and/or low income populations have been involved in the decision-making process related to the alternative selection, impact analysis, and mitigation
- ▶ The views of the affected population(s) about the project and any proposed mitigation, and the steps being taken to resolve any controversy that exists
- ▶ The types of outreach and involvement processes undertaken are responsive to the unique characteristics of the community, including the comments and opinions of the minority and/or low-income populations
- ▶ Other reasonable alternatives that do not have EJ impacts were evaluated and eliminated because they did not meet the purpose and need for the project, or had impacts that were more severe, affected far greater numbers of people, did greater harm to the environment, or involved costs of extraordinary magnitude, etc.
- ▶ The project's impacts are unavoidable
- ▶ Identifiable minimization and/or mitigation measures will be made to reduce the harm to minority and/or low-income populations

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from: http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.16 Transportation Resources

The Colorado Transportation Commission has policies that guide CDOT by providing transportation operating principles, and the transportation vision, mission, goals and objectives. The policies establish CDOT's position on promoting an integrated multimodal transportation system. Therefore, CDOT's NEPA projects should consider and evaluate all travel modes available to the study area.

Transportation resources include the entire transportation network within the study area, including roadway, freight, transit, rail, aviation, bicycle, and pedestrian facilities. Evaluation of these transportation resources provides a framework within which the new transportation project can be considered and evaluated.

9.16.1 Transportation Resources Evaluation Process

When CDOT is evaluating a transportation project that is expected to be federally funded, FHWA requires integration of the NEPA process with the transportation decision-making process. Since the transportation system is typically the focal point of CDOT's NEPA projects, the purpose and need is tied heavily to the transportation problems. Therefore, the transportation system is considered and evaluated in two different ways:

- ▶ Impacts of the project on the transportation system (e.g., the project results in elimination of a bus shelter).
- ▶ Transportation alternatives' ability to address the project's purpose and need.

REASONS FOR EVALUATION OF TRANSPORTATION RESOURCES UNDER NEPA

CDOT evaluates transportation resources for several reasons:

- ▶ To understand and thoroughly evaluate the impacts and benefits to the transportation system that could result from a proposed action.
- ▶ To further CDOT's mission "to provide the best multimodal transportation system for Colorado that most effectively and safely moves people, goods, and information."
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner.



In a transportation-focused NEPA document, Transportation Resources are sometimes included in a separate Transportation Chapter and improvements are evaluated in the Alternatives chapter. Elements of the transportation system, however, may also be addressed in other chapters of the NEPA document, such as:

- **Freight** – Economics, Land Use Chapter
- **Bicycle/Pedestrian** – Section 4(f) Chapter
- **Transit** – Environmental Justice, Land Use Chapters





- ▶ To comply with several legal mandates that pertain to 23 USC 135 and to evaluate compliance with air quality laws and regulations.
- ▶ To comply with FHWA's Vital Few Objective #1: to use integrated approaches to multimodal planning, the environmental process, and project development at a system level and/or context-sensitive solutions at the project level.

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

There are many resources available for the collection and evaluation of the baseline transportation system. Information on the existing and future local and regional transportation system should be obtained and evaluated in close coordination with the local community(ies), regional agency (e.g., Metropolitan Planning Organization [MPO]), CDOT, and FHWA. If transit is present or planned in the study area, the local transit agency and Federal Transit Administration (FTA) involvement may also be appropriate. Likewise, if aviation alternatives are being considered, the Federal Aviation Administration (FAA) and CDOT's Division of Aeronautics should be involved.

The existing conditions and future baseline conditions should provide a thorough description and analysis of the state of the multimodal transportation system within the study area today and in the future. The future baseline condition should represent the transportation system without any proposed action in the study area. Outside of the immediate study area, the baseline should include only those transportation improvement projects that have committed funding during the planning horizon.

9.16.2 NEPA Document Sections

AFFECTED ENVIRONMENT

The transportation system includes roadway, freight, transit, rail, aviation, bicycle, and pedestrian facilities and how the modes connect and interrelate to form the transportation network. Evaluation of the existing and future transportation system conditions provides a framework for alternatives development and screening.

The purpose of this effort is to gather enough information to provide a complete picture of the existing and future transportation system within the study area. The data collection effort should rely on professional judgment and general knowledge of the study area to determine the information sources that are needed to provide an overview of the existing and future transportation system. The level of detail of the information gathered should correspond with the importance of the specific element to the transportation system.



In NEPA, the existing and the long-range planning horizon No Action conditions are essential in determining the need for a project.





Roadway

Physical Characteristics

Information about the physical roadway network should be collected and documented, including:

- ▶ Cross-sections (e.g., right-of-way width, through lanes, auxiliary lanes, median, shoulder, etc.)
- ▶ Functional classification (e.g., expressway, major arterial, etc.) and access category (e.g., Regional Highway [R-A], Non-Rural Highway [NR-A], etc.)
- ▶ Access points, spacing, and traffic control (e.g., signalization, stop control)
- ▶ Interchange configurations, ramp lengths
- ▶ Lane restrictions (e.g., high occupancy vehicle [HOV] or tolled lanes)
- ▶ Freight designations (e.g., truck routes, hazardous material routes)
- ▶ Parallel transportation facilities that affect travel patterns in the study area
- ▶ Inventory of planned roadway network improvements from local agency and regional fiscally-constrained and vision plans

Traffic Composition and Patterns

Existing traffic volumes and patterns for motorized and non-motorized traffic should be documented using thorough field traffic data collection and from existing CDOT, regional, county, and municipal data sources, including:

- ▶ Daily traffic volumes and peak hour intersection turning movement counts
- ▶ Posted and observed speeds, travel times
- ▶ Travel patterns (e.g., trip length, local vs. regional trips, origins/destinations, trip purposes)
- ▶ Level of Service (LOS) – using the currently accepted *Highway Capacity Manual* (Transportation Research Board) methodology to provide a qualitative assessment of the traffic flow for intersections, highway or freeway segments, ramp merge/diverge/weave sections, etc.
- ▶ Hours of congestion
- ▶ Vehicle miles of travel (VMT) and vehicle hours of travel (VHT)





- ▶ Safety records and significant crash patterns

TDM/TSM

Transportation Demand Management (TDM) and Transportation System Management (TSM) infrastructure or programs that exist within the study area should be documented. Examples could include:

- ▶ Intelligent Transportation Systems (ITS) that provide signal coordination, traveler information, dynamic message signs, etc. to maximize the efficiency of the system
- ▶ TDM measures aimed at encouraging changes in driving behavior (e.g., educational information, transit or carpool incentives, congestion pricing, parking management, etc.)

Freight

Freight can be defined as the movement of goods to, from, and through the study area. In Colorado, freight is most commonly transported on the roadway network (trucks) and by rail. Data collection for freight could include:

- ▶ Vehicle classification, truck counts and truck count forecasts
- ▶ Freight flow data including commodity flow databases
- ▶ Truck travel patterns
- ▶ Location of freight distribution centers, manufacturing locations, intermodal facilities

Transit and Rail

The transit system includes any mass transportation service in the study area, including shuttle, bus, light rail, commuter rail, passenger rail, etc. and demand-responsive services, along with the facilities that support those services (transit stations, stops, park and ride facilities, etc.). Information about transit routes, amenities, and infrastructure within the study area, or potentially impacted by the project, should be collected and documented, including:

- ▶ Public and private transit service providers
- ▶ Type of transit service by provider (e.g., fixed-route bus, demand responsive bus, light rail transit)
- ▶ Routing or service area
- ▶ Frequency of service (e.g., 15 minute peak/30 minute off peak)
- ▶ Span of service - days of week and hours of day service operates



CDOT Transit Projects

CDOT could have projects that are transit focused or projects that are focused on another mode but have the potential to impact transit services. This version of the NEPA Manual focuses on projects that have the potential to impact transit services.

With the recent establishment of CDOT's Division of Transit and Rail (DTR), the next version of the manual is expected to provide more comprehensive guidance for evaluating transit specific projects. Transit and rail projects will need to comply with FTA and/or Federal Railroad Administration (FRA) requirements.





- ▶ Ridership annually (by stop if available)
- ▶ Clientele served (e.g., commuters, seniors, disabled)
- ▶ Connecting routes
- ▶ Origins and destinations served by impacted bus stops and along the transit route as a whole (e.g., business park, neighborhood, medical facility, grocery store)
- ▶ Number and location of passenger amenities (e.g., shelters, benches, trash receptacles, signing)
- ▶ Infrastructure improvements present (e.g. transit signals, parking spaces, queue jumps, bus pullouts)
- ▶ Planned (fiscally constrained and vision) transit improvements in the study area (local, regional or statewide)

Aviation

If aviation alternatives are being considered, an inventory of the existing airport facilities should be documented, including:

- ▶ Location of airports
- ▶ Category of airport: commercial service, primary, cargo service, reliever
- ▶ Type of service (commercial vs. general aviation)
- ▶ Annual enplanements and operational capacity
- ▶ Ground transportation facilities and services

Bicycle and Pedestrian

Bicycle accommodation can take a number of forms including on-street facilities (shared lanes, wide curb lanes, paved shoulder, bike lanes, etc.) and off-street shared use paths. Pedestrians are most commonly accommodated on sidewalks or shared use paths. The existing and planned bicycle and pedestrian facilities and amenities in the vicinity of the project should be documented, including:

- ▶ Existing bicycle facilities (e.g., designated bike routes, bike lanes, shared use paths, etc.)
- ▶ Existing pedestrian facilities (e.g., sidewalks, shared use paths, intersection crossing treatments, etc.)



Scope of Traffic Analysis

Key aspects of the traffic scoping include:

- **Horizon Years:** Traffic analysis is generally required for the existing and the long-range planning horizon year.
- **Time Periods:** Analysis should be geared to recurrent peak traffic conditions.
- **Study Area:** The study area for the transportation analysis is often larger than the area defined for most environmental resources.
- **Model Calibration:** Travel demand and traffic operations models should be validated against actual conditions and calibrated to ensure that they are reasonably representing the area and local travel conditions.



- ▶ Bicycle and pedestrian LOS – using *Highway Capacity Manual* (Transportation Research Board) methodology to provide a qualitative assessment of segment and intersection LOS in the study area
- ▶ Bicycle and pedestrian crossing treatments (e.g., crosswalks, pedestrian push button activation, bicycle in-street actuation, etc.)
- ▶ Amenities (e.g., bike racks, bike lockers, bicycle accommodation on transit vehicles)
- ▶ Bicycle and pedestrian connections to other transportation facilities (e.g., transit stations or stops)
- ▶ Local and regional bicycle and pedestrian improvements (fiscally constrained and vision plan)

ENVIRONMENTAL CONSEQUENCES

The Environmental Consequences section of EAs and EISs should compare the effects of each alternative carried forward for detailed analysis for all affected travel modes in the study area. The following sections provide an overview of the range of tools and analytical techniques that can be used to evaluate how well each alternative meets the project's stated purpose and need and to assess the project's impacts on transportation resources in the study area.

Roadway

Travel Demand and Traffic Operations Modeling

One or more of the following four categories of travel demand and traffic operations models may be needed to appropriately forecast the travel demands and assess the operational conditions associated with the various transportation alternatives in the future.

Regional Travel Demand Models

This type of transportation model is designed to forecast travel demand at a regional level. Travel demand forecasting models are typically developed and maintained by an MPO and are used to understand the regional demands on and needs of a transportation system.

- ▶ Common software packages: TransCAD, VISUM, Cube
- ▶ Basic inputs: land use forecasts and the transportation network (roadway and transit)
- ▶ Basic outputs: forecasted daily traffic volumes and transit ridership for individual corridors in a region, regional travel patterns including origins/destinations
- ▶ Typical applications: regional, community, and corridor level analysis



The travel demand model used by a project should be adopted by the relevant MPO and verified/approved by FHWA.





- ▶ Level of effort required: a relatively low level of effort is required to adapt these tools for project-level application

Analytical/Deterministic Tools

Analytical/deterministic tools implement the procedures of the *Highway Capacity Manual* to conduct operational analyses (Transportation Research Board). The *Highway Capacity Manual* procedures use deterministic mathematical equations to calculate facility LOS. These tools quickly predict capacity, density, speed, delay, and queuing and are validated with field data and small-scale calibration. Analytical/deterministic tools are good for analyzing the performance of isolated facilities but do not evaluate the interaction between multiple intersections.

- ▶ Common software packages: Highway Capacity Software, Synchro
- ▶ Basic inputs: traffic volumes (peak hour), roadway geometry, and signalization characteristics
- ▶ Basic outputs: signalized and unsignalized intersection levels of service, travel delay, freeway mainline and ramp peak hour operations, etc.
- ▶ Typical applications: intersection operational analysis
- ▶ Level of effort required: a low level of effort is required to use these tools

Microscopic Simulation Models

Microscopic simulation models are designed to provide detailed simulation of individual vehicles in a network. They evaluate the interaction between each single car, bus, or person in the simulation based on the laneage and geometry and are capable of providing very detailed information about the performance. Due to the fine detail and large amount of information required to develop microscopic simulation models, these models often focus on small areas and are developed for specific corridor and intersection studies. Microscopic models rely on user-defined travel patterns and demands, and do not adjust for capacity constraints. Microscopic simulation models can be particularly useful when evaluating over-saturated traffic conditions.

- ▶ Common software packages: CORSIM, VISSIM, and SimTraffic (which is packaged with the Synchro analytical/deterministic tool)
- ▶ Basic inputs: the most extensive and detailed of the four modeling tools; all of the conditions in the study area (lanes, signal timing, volumes, geometry, etc.) are required in order to evaluate operational performance





- ▶ Basic outputs: intersection operations (LOS) and network performance including interaction (queuing) between intersections
- ▶ Typical applications: individual corridors or sub-area system of intersections
- ▶ Level of effort required: requires a high level of effort and calibration

Mesoscopic Operational Models

Mesoscopic models are relatively new to transportation planning and bridge the divide between travel demand models and microscopic models. Mesoscopic operational models include dynamic network assignment processes that adjust driver route choices based on real-time conditions and are designed to include more detailed aspects of the roadway system (e.g., the location of auxiliary turn lanes, the existence of tolled or managed lanes or facilities, etc.) without the intense resource requirements of a full microscopic simulation model. This model type is particularly useful when analyzing the route decision-making differences resulting from congested conditions or managed lanes, assessing the impacts of ITS technologies, supporting the decision-making for work zone planning and traffic management, the evaluation of congestion pricing schemes, and the planning for special events and emergency situations.

- ▶ Common software packages: DynusT, Aimsun, TransModeler
- ▶ Basic inputs: the basic requirements for a travel demand model with the potential for increased network information, such as auxiliary lanes, signal timing and coordination, ITS technologies, tolled lanes and HOV lanes
- ▶ Basic outputs: Travel forecasts in small time increments that account for and demonstrate the impacts of congestion (e.g., rerouting, queuing) over time
- ▶ Typical applications: regional or corridor level analysis
- ▶ Level of effort required: This model type is not as readily available as travel demand models. The regional nature of a mesoscopic model requires a considerable effort for development, calibration, and validation. Depending on the existence of an established model and the project requirements and goals, this process requires a moderate to high level of effort.



Safety Analysis Resources

*Highway Safety Manual –
American Association of
State Highway
Transportation Officials
(AASHTO)*

CDOT's Safety Performance
Functions (SPF)





Safety

CDOT requires explicit consideration of safety in a transportation planning process. The analysis should employ the concepts of Level of Service of Safety (LOSS) and pattern recognition to test the frequency and severity of crashes throughout the study area. The LOSS formulation categorizes four levels of “potential for accident reduction,” I through IV. Level I indicates a better than expected safety performance and thus a low potential for crash reduction. Level IV indicates a crash history significantly greater than expected for a given roadway type, thus possessing a high potential for crash reduction.

Freight

Projects that may require the integration of freight considerations include, but are not limited to, intersection improvements, reconstruction and rehabilitation of roadways, bridge replacements and/or rehabilitation, repaving, building roadway on a new alignment, expanding roadway corridors, interchange improvements, additions of interchanges, roadway widening, access to intermodal facilities, accommodating rail expansion with roadway improvements, and safety improvements. There are generally two types of freight considerations for CDOT transportation projects:

- ▶ **Freight-focused:** a transportation project intended to resolve a freight issue or that has a significant freight element. The project’s purpose and need would likely be heavily focused on freight movement, and freight would likely be a major consideration in the alternatives evaluation process.
- ▶ **Freight-related:** a transportation project that could impact freight operations. The role of freight in the project would likely be one of several transportation considerations.

Alternatives development and evaluation should consider freight infrastructure, operations and policy. Truck volume forecasting should be verified for accuracy, as many regional models calibrate mainly on overall traffic volumes. For both freight-focused and freight-related projects, screening of alternatives may consider:

- ▶ The degree to which the alternative solves an existing freight problem
- ▶ The degree to which the alternative satisfies all transportation needs, not just freight (a balancing of benefits)
- ▶ Direct impacts on freight movement such as access changes, facility design that could reduce truck safety, tolls that could divert trucks onto the adjacent street network, inhibiting intersection design (e.g.,



Freight Stakeholders

Freight stakeholders can be hard to engage and reluctant to disclose operational information that they deem to be proprietary and could benefit their competitors.

Statewide and regional resources are important to identify freight users of the study area.

Key input from freight stakeholders:

- Current freight uses of the facility
- Freight forecasts
- Alternatives development and refinement
- Impacts of alternatives on freight operations





roundabouts), poor signal timing, increased congestion that could reduce truck travel times and/or reliability

- ▶ Indirect impacts on freight movement such as induced changes in the pattern of land use, the location of freight facilities, and effects to the supply chain
- ▶ The impacts of freight movement on environmental resources and features (e.g., air quality, water quality, noise, visual, social/environmental justice, etc.) and the potential for an alternative to minimize the impacts should also be considered.

Transit and Rail

The travel demand modeling tools described above may provide some insight into how ridership and travel times are likely to change as a result of a project. However, a calibrated travel demand model with transit is often not available. Therefore, this section provides guidance on qualitative and quantitative off-model analysis that can be useful:

- ▶ Degree to which the alternative impacts the transit service in relation to the services importance regionally
- ▶ Change in ridership
- ▶ Potential to incite mode shift to transit
- ▶ Influence on transit's ability to service existing clientele and key activity centers
- ▶ Compatibility with planned transit improvements
- ▶ Impacts on origins and destinations served
- ▶ Impact to transit agency or service provider
- ▶ Impact on connecting services or ability to make connections
- ▶ Change in travel time and/or reliability
- ▶ Impact on passenger amenities
- ▶ Change in transit infrastructure
- ▶ Change in access to facilities and circulation

Aviation

Although it is rare for a CDOT NEPA project to impact aviation facilities, some large studies with aviation facilities in proximity to the study areas may exist. Facilities may include runways, airports, airport towers etc. Aviation impacts should be coordinated with the FAA, the CDOT Division of Aeronautics and the local airport managers.



Transit Stakeholders

- Public transit agencies
- Private for profit transit providers
- Private not for profit agencies
- Municipalities
- Regional planning entities (e.g., MPOs)
- CDOT Division of Transit and Rail
- Federal Transit Administration (FTA)
- Federal Railroad Administration (FRA)
- Colorado Association of Transit Agencies (CASTA)
- Human services agencies
- Transit and rail interest groups





Bicycle and Pedestrian

Both the U.S. Department of Transportation's (USDOT) policy statement on bicycle and pedestrian accommodation (signed March 11, 2010) and the Colorado Transportation Commission's Bike and Pedestrian Policy Directive 1602.0 (dated October 22, 2009) and subsequent State Statute 43-1-120 support the development of fully integrated active transportation networks. CDOT's Policy Directive states that "the needs of bicyclists and pedestrians shall be included in the planning, design, and operation of transportation facilities, as a matter of routine." As such, bicycle and pedestrian accommodation needs to be incorporated into all CDOT transportation projects. Some CDOT NEPA projects may be specifically focused on bicycle and/or pedestrian travel.

To identify the potential impacts and benefits to bicycle and pedestrian use under each alternative, the following tools may be useful:

- ▶ Maps showing the alignment of the project alternatives overlaid with existing and planned bicycle and pedestrian facilities
- ▶ Comparison of the bicycle and pedestrian features of the project alternatives with respect to existing and planned bicycle and pedestrian facilities outlined in community transportation plans and information provided by local interest groups
- ▶ Evaluation of whether the proposed action features will have negative or positive impacts on the existing and planned bicycle and pedestrian facilities
- ▶ Completion of bicycle and pedestrian LOS evaluation for each alternative, using the methodologies presented in the *Highway Capacity Manual*
- ▶ Comparison of the bicycle and pedestrian features of the alternatives to highlight the similarities and differences among the alternatives

The Environmental Consequences discussion in EAs and EISs should, at a minimum, compare the effects in the following three categories of each alternative carried forward for detailed analysis:

- ▶ **Community Needs:** Demonstrate that CDOT has fully considered bicycle and pedestrian transportation and has actively coordinated with local government bicycle and pedestrian agencies and public interest groups to understand and meet, where feasible, community needs. The information contained in this discussion should provide a firm understanding of how the local needs and movements of bicyclists and pedestrians will be met by the proposed facilities.



Unless currently under construction, all CDOT and local agency projects (including those in a re-evaluation process) are subject to the Transportation Commission's Bike and Pedestrian Policy Directive 1602.0 and State Statute 43-1-120.



Bicycle/Pedestrian Stakeholders

Groups supporting the development of bicycle and pedestrian facilities on the project typically have information regarding existing and future needs for bicycle and pedestrian accommodation. Stakeholders could include:

- Bicycle advocacy groups
- Biking clubs
- Walking organizations
- Senior advocacy groups
- Schools





- ▶ **Public Law:** The Environmental Consequences discussion must cite the federal legislation in Title 23 of the U.S. Code Section 109(m), documenting CDOT's full consideration of bicycle and pedestrian accommodation and the provision of reasonable accommodation for the bicycling and walking public.
- ▶ **Community Context:** Describe any project components that will benefit the local bicycle and pedestrian network by being constructed as part of the project or by providing adequate right-of-way for later construction.

Cumulative Impacts

Develop a list of past, present, and reasonably foreseeable future projects that may impact similar transportation components. Cumulative impacts to transportation should be discussed in more general terms, noting which transportation components and travel modes will be most impacted, their relative importance, and the degree to which impacts from the transportation project considered in the current NEPA document will contribute to the cumulative impacts.

Conclusion of Effects

The conclusion of the Environmental Consequences related to the transportation resources should restate the biggest transportation concerns associated with each alternative and identify the alternative with the least expected negative effect on and the greatest benefit to the transportation network.

MITIGATION

The mitigation section should describe project design elements that avoid or minimize impacts to the existing transportation network and detail the proposed mitigation measures and describe how they will mitigate the impact for which they were developed.

Roadway

Traffic Operations

Mitigation measures should be considered when the analysis of alternatives results in a negative impact to existing or future traffic operations and safety. These measures could include:

- ▶ Implementation of traffic control devices (e.g., traffic signals, stop signs, ramp metering)
- ▶ Intersection improvements (e.g., roundabout construction, auxiliary lanes)





- ▶ Signal timing improvements (e.g., reallocation of green time, addition of protected-only left turn phase to address safety issue)

TDM/TSM

Mitigation of impacts to the transportation system can often be performed through TDM and TSM, such as the following:

- ▶ TDM strategies to change or reduce the demand for automobile use, particularly during peak periods of the day, by encouraging a change in travel behavior. Example measures could include:
 - Requiring parking fees
 - Subsidizing transit costs for employees or residents
 - Enhancing facilities and amenities for alternative travel modes (transit, bicycle, pedestrian) to encourage mode shift from single-occupancy vehicles
 - Implementing TDM programs, often through major employers, to encourage telecommuting and flexible work schedules
- ▶ TSM strategies focus on maximizing the efficiency of transportation system operations by improving traffic flow and reducing traveler delay. Such programs can also reduce emissions by changing vehicle speeds, reducing vehicle idling, and rerouting to avoid congested areas. Example measures could include:
 - Signal coordination
 - Traveler information (e.g., online tools or applications)
 - Dynamic messaging signs

Freight

Appropriate mitigation of impacts on freight facilities and operations should be commensurate with the presence of freight activity and the project's impacts thereon. Working with freight stakeholders during the identification of mitigation options is critical to the success of freight-focused or freight-related project. Mitigation measures could address:

- ▶ Impacts to truck operations during construction (e.g., advance notice of construction schedules to prominent trucking companies, ensuring work zone safety measures account for corridor truck travel)
- ▶ Geometric design and pavement materials to adequately handle forecasted truck travel
- ▶ Alterations in the transportation network to minimize interactions between trucks/trains and autos/pedestrians/bicyclists



Freight Resources

CDOT is currently in the process of developing a Statewide Freight Plan (no link available).

CDOT's Freight Roadmap
<http://www.coloradodot.info/programs/transitandrail/TRACdocumentsFolder/TRACdocument-ColoradoStatewideFreightRoadmap/view>

Colorado Freight and Passenger Rail Plan
<http://www.coloradodot.info/projects/PassengerFreightRailPlan>

FHWA's
<http://ops.fhwa.dot.gov/publications/fhwahop10033/nepa.pdf> (September 2010)

CDOT's Mobility and Mobility Unit
jason.wallis@state.co.us





- ▶ Efficient truck routing that avoids residential communities
- ▶ Provision of loading and unloading areas for truck deliveries to stores, restaurants, and offices
- ▶ Provision of sound or visual barriers to reduce freight transportation noise and visual impacts on the adjacent area

Transit and Rail

Mitigation measures should be considered when the analysis of alternatives results in a negative impact to existing or planned transit and/or rail services. Mitigation measures should be coordinated with transit stakeholders but could include:

- ▶ Relocation of transit stop(s)
- ▶ Enhancement of transit stop(s) (e.g., sidewalks, ramps, connections to adjacent land uses, lighting)
- ▶ Replacement, relocation or enhancement of passenger amenities such as shelters and benches
- ▶ Rerouting of service to retain reliability and travel time
- ▶ Signing and way finding
- ▶ Transit priority features (e.g., queue jumps, signal priority)
- ▶ Pedestrian crossing treatments (e.g., crosswalks, grade separated crossings)
- ▶ New or expanded intercept parking lots
- ▶ Local agency modifications to zoning and/or setbacks to encourage transit-supportive land uses

Aviation

Mitigation measures should be considered if the alternatives analysis results in negative impacts to aviation facilities in the study area. These mitigation measures could include enhanced or new access to affected airports, traveler information, or enhanced transit service to access the affected airports.

Bicycle and Pedestrian

If the analysis of alternatives shows a negative impact on existing or planned accommodation of bicyclists or pedestrians, mitigation measures should be identified. Such mitigation measures could include:

- ▶ Expansion of or improvements to existing bicycle or pedestrian facilities to maintain a desired bicycle or pedestrian LOS



Transit Resources

CDOT Division of Transit and Rail is currently in the process of developing a Statewide Transit Plan and a Statewide Intercity and Regional Bus Network Study.

<http://www.coloradodot.info/programs/transitandrail>



Aviation Resources

CDOT's Division of Aeronautics:

<http://www.coloradodot.info/programs/aeronautics>





- ▶ Provision of connections to other system options such as local or regional trail system, on-street lanes or routes, etc.
- ▶ Rerouting of bicyclists/pedestrians to equivalent type facility if proposed action would sever existing bicycle or pedestrian facilities
- ▶ Intersection or mid-block crossing treatments to enhance pedestrian safety
- ▶ Grade separations to eliminate conflicts between bicyclists/pedestrians and autos/trains
- ▶ Provision of amenities (e.g., bike racks or bike lockers) at transit stations to enhance inter-modal connections
- ▶ Signing and wayfinding

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.



Bicycle/Pedestrian Resources

CDOT has completed a Bicycle and Pedestrian Plan located here:

http://www.coloradodot.info/programs/bikeped/Bike_Ped_Plan.

CDOT *Roadway Design Guide*

http://www.coloradodot.info/business/designsupport/bulletins_manuals/roadway-design-guide/dg05-ch-14/view





9.17 Residential/Business/Right-of-Way Relocation

The relocation and displacement analysis of the NEPA document should identify and discuss any residential, business, non-profit association, or farm operation relocations associated with the proposed project to:

- ▶ Ensure that community issues are identified and project effects are addressed and incorporated into the decision-making process
- ▶ Try to avoid, minimize, or mitigate, where feasible, adverse community effects
- ▶ Ensure the incorporation of environmental protection and community impact considerations from the earliest stages of project or plan development
- ▶ Provide for the participation and consultation of communities affected by the proposed project throughout the life of the project development process

The CDOT's right-of-way staff should be involved in all projects where right-of-way acquisition will be required or is a potential concern. It is the responsibility of environmental planners performing relocation and displacement analysis to coordinate closely with the CDOT right-of-way staff in order to avoid duplication of effort as well as better integration of information. Acquisitions and relocation issues also affect the land use and social and economic health of a community and should be addressed accordingly.

The two sections below provide guidance on the treatment of acquisition and relocation for CDOT's NEPA projects. The first section discusses the process for evaluating acquisition and relocation. The second section discusses acquisition and relocation information that should be in each NEPA document.

9.17.1 Relocation and Acquisition Evaluation Process

The CDOT project manager and relocation and displacement analyst (either in-house or consultants) are responsible for obtaining data on the number of relocations and availability of replacement property.

Information will be evaluated on how the relocations and acquisitions, caused by the proposed project, would facilitate or inhibit access to jobs, educational facilities, religious institutions, health and welfare services, recreational facilities, social and cultural facilities, pedestrian facilities,



Relocation/ Acquisition Regulations and Guidance

- FHWA Technical Advisory T6640.8a
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law. 100-17)
- FHWA's Environmental Impact and Related Procedures (23 CFR 771)





shopping facilities, and public transit services within the project area. The study area is obligated to include communities within, and immediately surrounding, the proposed project. Community boundaries can often be delineated by physical barriers, land-use patterns, political divisions (such as school districts), selected demographic characteristics, historical backgrounds, resident perceptions, subdivisions and neighborhoods recognized by name and tradition.

Possible right-of-way acquisitions must be identified and evaluated as early as possible during project planning. This should be done before alternative corridors are selected if possible and must be completed before proceeding with any right-of-way acquisitions.

REASONS FOR EVALUATION OF RELOCATION AND ACQUISITION UNDER NEPA

CDOT evaluates relocation and acquisition for several reasons:

- ▶ Relocation and acquisition of any residence, business, non-profit associations, or farm operations is an involved undertaking that needs to be carefully considered before any individual or group is impacted
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with several legal mandates that pertain to right-of-way acquisitions

CDOT must comply with federal relocation regulations when implementing transportation projects in Colorado. These policies provide for uniform and equitable treatment of persons displaced from their homes, businesses, farms, or other properties, by federal and federally funded programs or projects, and establishes uniform and equitable land acquisition policies.

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

To comply with the FHWA Technical Advisory 6640.8A (FHWA, 1987) information on right-of-way requirements are to be included in the description of project alternatives. The CDOT *Right-of-Way Manual* (CDOT, 2011) addresses the preparation of right-of-way plans. These plans are a prerequisite to federal participation in the cost of acquiring real property and are required under state law. Preliminary development of these plans is initiated as soon as the route of the proposed project has been selected and approved by the Transportation Commission.





Collection of Baseline Information

The contents of final right-of-way plans are prescribed in the CDOT *Right-of-Way Manual* and include information that could enable evaluation of relocation/acquisition impacts. However, NEPA analysis occurs between the processes of describing right-of-way requirements for project alternatives and preparing right-of-way plans for the selected route of the proposed highway. Relevant data sources are discussed in **Section 9.13** (Social Resources) and **Section 9.14** (Economic Resources) and coordinated with the CDOT right-of-way staff.

Evaluation of Baseline Information

To enable identification of relocation and acquisition impacts, the baseline information must be limited to the right-of-way boundaries for each of the project alternatives. As appropriate to project complexity, this information can then be used to develop the following types of information with regard to project impacts:

- ▶ Estimation of types of households to be displaced, including:
 - Percentage of minority (racial, national origin, and ethnic) households
 - Income range (in dollars) of the affected neighborhoods or community
 - Age of the structures that are being displaced, taking into consideration the types, effective and chronological age
 - Percentage of elderly households to be displaced
 - Percentage of households containing five or more family members
 - Disabled residential occupants for whom special assistance services may be necessary
 - Comparison of available (decent, safe, and sanitary) housing in the area with the housing needs of displacees as to price range, size, and occupancy status
 - Special relocation advisory services necessary for identified unusual conditions or unique problems
 - Actions proposed to remedy insufficient relocation housing, including a commitment to housing of last resort, if necessary
- ▶ Number, type, and size of businesses to be displaced, including special business characteristics, number of employees, and general



It is not appropriate to collect and present demographic details of individuals associated with displacement. In situations where the number of displacements is low, general demographic discussions may be appropriate. In situations where there are numerous displacements, demographic information from the census or other sources may be sufficient to characterize the overall nature of the displaced individuals.



economic impact of business dislocation(s) on community economy, plus:

- Sites available in the area for business relocation
- Likelihood of such relocation
- Impacts on remaining businesses
- Sign relocations
- Summary of potential contamination concerns
- Identification of any publicly owned lands

A discussion of the results of early consultation with local government(s) and any early consultation with businesses subject to displacement, including any discussions of potential sources of funding, financing, planning for incentive packaging (e.g., tax abatement, flexible zoning, and building requirements), and advisory assistance that has been or will be furnished along with other appropriate information.

A description of the actions proposed to remedy insufficient relocation housing including, if necessary, Last Resort Housing. If Last Resort Housing is anticipated, the plan should address how this housing could be provided, that is, whether newly constructed housing must be made available or if there is sufficient replacement housing on the resource market to handle Last Resort Housing situations.

The results of discussions with local officials, social agencies, and such groups as the elderly, disabled, nondriver, transit-dependent, and minorities regarding the relocation impacts.

A statement that relocation and acquisition would be in accord with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, making resources for relocation available without discrimination.

Relocation and right-of-way acquisition impacts are mitigated by avoidance to the extent feasible, such as by changing an alignment so that there are no displacements. When this is not possible, just compensation in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Relocation Assistance and Real Property Acquisition Policies Act, 42 USC § 61) may be provided.

OTHER ISSUES TO CONSIDER

Other agencies may have information or guidance that will affect a particular CDOT project. Coordinate with the CDOT right-of-way staff to obtain any site-specific data they may have. Also, talk to project engineers who are familiar with the alternative locations to determine whether they know of





acquisition and relocation issues that could constrain the project. right-of-way acquisition and relocation can be a very sensitive issue, so do not share any information outside the project team that has not already been made public, unless it is previously cleared by the CDOT project manager.

9.17.2 NEPA Document Sections

The content of the sections on relocations and acquisitions in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

Relocation and acquisitions aspects that may be impacted by the project should be described in the Affected Environment chapter (as summarized in the sidebar). Additional information is provided in the CDOT *Right-of-Way Manual* (CDOT, 2011).

ENVIRONMENTAL CONSEQUENCES

It is essential that the relocation and acquisition section in the Environmental Consequences section of the NEPA document identify and discuss any residential, business, non-profit association, or farm operation relocations associated with the proposed project to:

- ▶ Ensure that community issues are identified and project effects are addressed and incorporated into the decision-making process
- ▶ Attempt to avoid, minimize, or mitigate, where feasible, adverse community effects
- ▶ Ensure the incorporation of environmental protection and community impact considerations from the earliest stages of project or plan development
- ▶ Provide for the participation and consultation of communities affected by the proposed project throughout the life of project development
- ▶ Discuss such topics as the number of relocations, categorized by residences, businesses, non-profit associations, farm operations, and acreage of right-of-way acquisitions involved
- ▶ Provide information on all alternatives
- ▶ Discuss how the relocations caused by the proposed project would facilitate or inhibit access to jobs, educational facilities, religious institutions, health and welfare services, recreational facilities, social and cultural facilities, pedestrian facilities, shopping facilities, and public transit services



Affected Environment Chapter of NEPA Document

- Describe the number of houses and/or buildings subject to displacement
- Incorporate CDOT's right-of-way estimates of the number of people in the study area who are subject to relocation
- Determine if the potential relocatees represent a disproportionate population
- Include projections of housing stock
- Briefly discuss housing policies and programs



When a project will require the relocation or acquisition of residences or businesses, standard CDOT statements such as the following should be included in the NEPA document discussion of relocation or acquisition impacts these statements are also included in **Appendix F**.

Model Relocation Statement

In certain situations, it may also be necessary to acquire improvements that are located within a proposed acquisition parcel. In those instances where the improvements are occupied, it becomes necessary to “relocate” those individuals from the subject property (residential or business) to a replacement site. The Uniform Act provides for numerous benefits to these individuals to assist them both financially and with advisory services related to relocating their residence or business operation. Although the benefits available under the [Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (Uniform Act)] are far too numerous and complex to discuss in detail in this document, they are available to both owner occupants and tenants of either residential or business properties. In some situations, only personal property must be moved from the real property and this is also covered under the relocation program. As soon as feasible, any person scheduled to be displaced shall be furnished with a general written description of the displacing agency’s relocation program that provides, at a minimum, detailed information related to eligibility requirements, advisory services and assistance, payments, and the appeal process. It shall also provide notification that the displace person(s) will not be required to move without at least 90 days advance written notice. For residential relocatees, this notice cannot be provided until a written offer to acquire the subject property has been presented, and at least one comparable replacement dwelling has been made available. Relocation benefits will be provided to all eligible persons regardless of race, color, religion, sex, or national origin. Benefits under the [Uniform] Act, to which each eligible owner or tenant may be entitled, will be determined on an individual basis and explained to them in detail by an assigned right-of-way Specialist (CDOT, 2011).

Model Acquisition Statement

For any person(s) whose real property interests may be impacted by this project, the acquisition of those property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act). The Uniform Act is a federally mandated program that applies to all acquisitions of real property or displacements of persons resulting from federal or federally assisted programs or projects. It was created to provide for and ensure the fair and equitable treatment of all such persons. To further ensure that the provisions



Mitigation Planning Information to Include in NEPA Document

- The availability of residential and commercial real estate for sale to accommodate potential relocation needs
- Consider and reference the Relocation Assistance Program including types of benefits available
- An evaluation of city zoning considerations with respect to potential relocation and franchise territories for potentially relocated/acquisitioned commercial entities





contained within this act are applied “uniformly,” CDOT requires Uniform Act compliance on any project for which it has oversight responsibility regardless of the funding source. Additionally, the Fifth Amendment of the US Constitution provides that private property may not be taken for a public use without payment of “just compensation.” All impacted owners will be provided notification of the acquiring agency’s intent to acquire an interest in their property including a written offer letter of just compensation specifically describing those property interests. A right-of-way specialist will be assigned to each property owner to assist them with this process (CDOT, 2011).

When relocation and acquisition impacts are identified, the document will discuss possible mitigation and include the information shown in the sidebar in the NEPA document, as appropriate.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT’s Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.18 Utilities and Railroads

A utility is a private or publicly owned line, facility, or system for producing, transmitting, or distributing communications, cable television, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, stormwater not connected with highway drainage, or any other similar type of commodity that directly or indirectly serves the public (23 CFR Part 645.105(m) Utility Relocations, Adjustments, and Reimbursement, Definitions).

The two sections below provide guidance on the treatment of utilities and railroads for CDOT's NEPA projects. The first section discusses the process for evaluating utilities and railroads. The second section discusses utilities and railroads information that should be addressed in each NEPA document.

9.18.1 Utilities and Railroads Evaluation Process

The CDOT project manager will coordinate with the Region Utility Engineer and the Region Railroad Coordinator, whenever there is involvement with utilities and/or a rail system on a project.

The study area will need to be surveyed for the existing and proposed utilities and railroads through utility company map review and field review. If they are present, project construction will need to be coordinated with the existing and proposed infrastructure. It may also be necessary to relocate utilities for a number of reasons, such as:

- ▶ A utility may conflict with proposed construction
- ▶ Road construction may provide a convenient opportunity to place new utility or upgrade existing ones (betterment)
- ▶ Existing unsafe or hazardous conditions may easily and economically be mitigated during construction
- ▶ Certain non-aesthetic visual impacts may be replaced with a more acceptable solution (i.e. undergrounding an overhead line)

Early coordination with utility and rail line owners ensures development of reasonable alternatives relative to existing utilities and railroads. Additionally, the associated improvements and timely consideration of the costs associated with the potential relocation of these resources can be fully integrated into the NEPA document. Early coordination identifies potential conflicts with existing or future utilities and rail line owners and users within the study area. Associated improvements that can be impacted include proposed/revised roadway section, drainage facilities (storm sewer facilities,



Utility and Railroad Clearance Documentation

Utilities

- CDOT's *Project Development Manual* (CDOT, 2001b) Section 5.03 Utility Involvement for clearance process

Railroad

- Early coordination with the railroad company and with the Railroad Program Manager is critical as *it may take up to a year to obtain clearance*





retention/detention ponds, etc.), landscaping, and any other proposed improvement with potential for subsurface disturbance.

REASONS FOR EVALUATION OF UTILITIES AND RAILROADS UNDER NEPA

CDOT evaluates utilities and railroads for several reasons:

- ▶ Utilities and railroads are under the ownership of a private or public entity, which requires coordination and possibly mediation
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with several legal mandates

The legal mandates include CRS 38-5-101, Eminent Domain Act; CRS 45-1-225, Transportation Act; and other state laws and constitutional provisions. These mandates give utilities the right to construct their lines within highway right-of-way, provided they meet CDOT's established criteria (CDOT, 2008c).

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

CDOT has established procedures in the *Project Development Manual* (CDOT, 2001b), Section 5.03, for coordinating with utility companies when utilities may be impacted by a project.

It is the responsibility of the Region Utility Engineer to furnish all relevant information concerning the location, dimension, and characteristics of major utilities found within a proposed project corridor (all viable alternates under consideration). The Region utility section is responsible for maintaining contact with local utility agencies and coordinating with those utility agencies during the plans, specifications, and estimates phase. It is the responsibility of the project manager to evaluate and consider potential utility conflicts and recommended mitigations made by the Region utility staff when addressing roadway impacts on utilities.

CDOT also has established procedures in the *Project Development Manual*, Section 5.04 (CDOT, 2001b) for coordinating with railroad companies when a railroad facility may be impacted by a project.

The development of a list of past, present, and foreseeable future projects that should be addressed for all resources in the consideration of cumulative impacts is discussed in **Section 9.26**. A utilities and railroad map should be consulted to identify what utility and railroad components will be impacted by projects. For input to this section, evaluate cumulative impacts to utilities and



Utility and Railroad Regulations and Guidance

- Transportation Act, CRS 43-1-225
- Eminent Domain Act, CRS 38-5-101
- CDOT Utility Manual
- CDOT Project Development Manual
- State Highway Utility Accommodation Code; CFR-Title 23 Section 645, 646 and 635-309b
- Local Agency Manual (LACA); CFR 38-5-101
- UNCC Article 1.5
- ASCE Standard 38-02 (C-1-38-02)





railroads in relatively general terms, noting which utility and railroad components will be most impacted, their relative importance, and the degree to which impacts from the transportation project considered in the current NEPA document will contribute to the cumulative impacts.

9.18.2 NEPA Document Sections

The content of the sections on utilities and railroads in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

The introduction of the Affected Environment chapter of the NEPA document shall identify existing and proposed utilities and rail systems within the project area and discuss their relationship to the proposed project.

The Affected Environment chapter of the NEPA document will include the information developed to understand the utility and railroad information compiled as part of the inventory process. This information will be presented in the NEPA document with sufficient detail to be clear and understandable. General information listed in the sidebar, as well as any unique information necessary to evaluate potential impacts, will be included.

ENVIRONMENTAL CONSEQUENCES

Summarize impacts by alternative, such that similarities and differences between alternatives relative to utility and railroad impacts can be discerned.

Overall, it is in the best interest of CDOT to avoid impacts to utility and railroad facilities. This is due to the cost for relocations (as applicable) and the time and effort needed for coordination with the entities. As noted above, early involvement of the Region Utility Engineer, Resident Engineer, and Railroad Program Management in the alternatives development process is key to identifying locations of utilities and railways, possible effects to these locations, and possible avoidance alternatives. It also contributes to the development of effective agreement documents if avoidance is not possible.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.



General Information to Include in NEPA Document

Utilities

- Owner
- Location
- Dimension
- Characteristics
- Type of facility/utility
- Material(if known)
- Easements/agreements/permits (property interests)

Railroad

- Owner
- Location
- Type of crossing (at grade, etc.)
- Used or abandoned





9.19 Section 4(f) Evaluation

Section 4(f) has been part of federal law since 1966 when it was enacted as Section 4(f) of the USDOT Act. It is codified in 23 USC Section 138 and 49 USC Section 303. Section 4(f) requires consideration of:

- ▶ Parks and recreational areas of national, state, or local significance that are both publicly owned and open to the public
- ▶ Publicly owned wildlife and waterfowl refuges of national, state, or local significance that are open to the public to the extent that public access does not interfere with the primary purpose of the refuge
- ▶ Historic sites of national, state, or local significance in public or private ownership regardless of whether they are open to the public

The law says that FHWA (and other DOT agencies) cannot approve the use of land from publically owned parks, recreation areas, wildlife refuges, or historic sites unless there is no feasible and prudent alternative to the use and the action includes all possible planning to minimize harm to the property. The substantive provisions of Section 4(f) apply only to agencies within the USDOT.

Section 4(f) resources that may be affected by transportation uses can be divided into two principal categories:

- ▶ Publicly owned parks, recreation areas, and wildlife refuges
- ▶ Historic resources

Publicly owned land that has been formally designated and determined to be significant for park, recreation area, or wildlife and waterfowl refuge purposes is also considered a Section 4(f) resource, even if it may not be functioning as such during project development. If a governmental body has a proprietary interest in the land (such as fee ownership or an easement), it is considered publicly owned.

9.19.1 Legislative Background

In 2005, Section 6009(a) of the SAFETEA-LU, made the first substantive revision to Section 4(f) since it was enacted in 1966. This amendment simplified the process and approval of projects that have only *de minimis* impacts on lands subject to protection under Section 4(f). *De minimis* impacts are of such a minor extent as to not require a full Section 4(f) evaluation. Under the new provisions, once the USDOT determines that a transportation use of Section 4(f) property results in a *de minimis* impact, analysis of avoidance alternatives are not required and the Section 4(f) evaluation process is complete.





In 2008, FHWA reorganized the regulations implementing Section 4(f), clarifying specific elements of the Section 4(f) approval process and simplifying the regulatory requirements. Section 4(f) regulations also moved from 23 CFR 771.135 to 23 CFR 774. FHWA has a Policy Paper which supplements the regulations, which aids FHWA in administering Section 4(f) in a consistent manner.

The two sections below provide guidance on the evaluation of Section 4(f) resources for CDOT's NEPA projects. The first section discusses the process for evaluating Section 4(f) resources. The second section discusses information about Section 4(f) properties that should be included in each NEPA document.

9.19.2 Section 4(f) Evaluation Process

A Section 4(f) evaluation is required when a project uses a Section 4(f) resource. A use is defined as one of the following:

- ▶ Land from a Section 4(f) property is incorporated into the transportation system
- ▶ Occupancy of the land is adverse in terms of the statute's preservationist purposes
- ▶ Proximity impacts of the transportation project are so great that the purposes for which the Section 4(f) property exists are substantially impaired (normally referred to by courts as a constructive use)

The Section 4(f) evaluation should be initiated when alternatives for the proposed action are first being designed and developed. If the Section 4(f) evaluation is part of the NEPA document, it should be completed in conjunction with the NEPA process to the extent possible.

REASONS FOR EVALUATION OF SECTION 4(F) PROPERTIES UNDER NEPA

CDOT conducts Section 4(f) evaluations for its projects for a variety of reasons, including the following:

- ▶ Section 4(f) evaluation is required by law for USDOT agencies
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with federal and state transportation regulations when implementing transportation projects in Colorado



In July, 2012 FHWA released a new policy paper on Section 4(f). The policy paper can be retrieved at:

<http://www.environment.fhwa.dot.gov/4f/4fpolicy.asp#intro>



Additional information on FHWA's five nationwide programmatic applications for Section 4(f) properties is available at:

<http://www.environment.fhwa.dot.gov/projdev/4fnspeval.asp>





DETERMINING WHAT TYPE OF SECTION 4(F) EVALUATION TO COMPLETE

Collection of Baseline Information

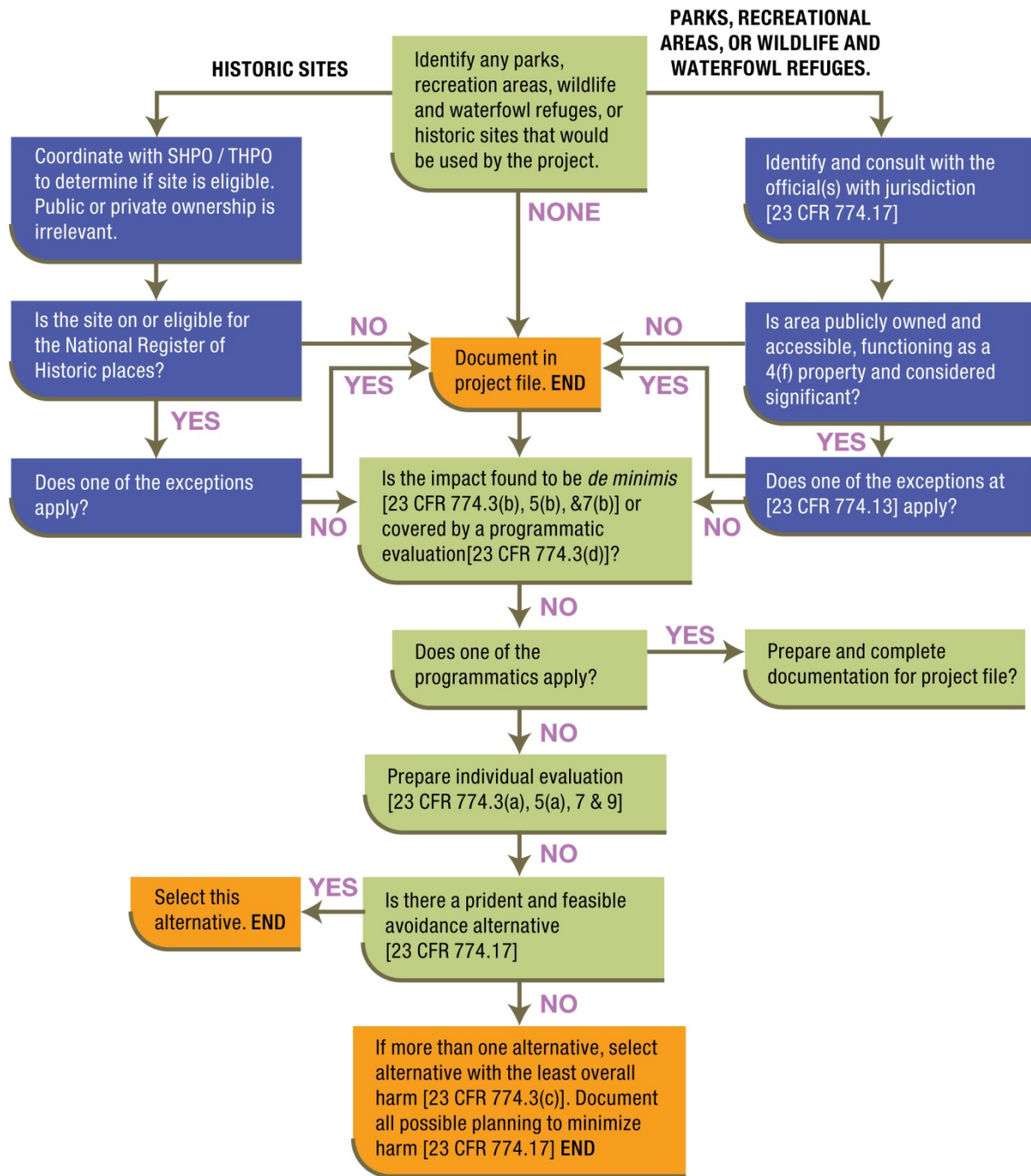
The first step in the Section 4(f) evaluation process is to identify existing and planned Section 4(f) properties, which include the following:

- ▶ Historic sites on or eligible for the NRHP.
- ▶ Archaeological sites on or eligible for the NRHP and that warrant preservation in place as determined by FHWA and the SHPO.
- ▶ Officially designated publicly owned parks, recreation areas (including recreational trails), and wildlife or waterfowl refuges. Factors such as public access restrictions may affect whether properties qualify for Section 4(f) protection. A property that requires fees for public access does not disqualify the property as a Section 4(f) resource.
- ▶ Portions of multi-use properties; including public schools, Forest Service property, some wild and scenic rivers, and open space properties; where the agency having jurisdiction over the land determines that the area of the property affected by the project has a primary purpose or function and are considered significant for purposes of use as a park, recreation area, or refuge.
- ▶ Planned publicly owned parks, recreation areas (including recreational trails), wildlife or waterfowl refuges where agencies having ownership have taken significant steps towards implementation.

Once a Section 4(f) property is identified within the project area, it must be determined if there will be a "use" of land from that property within the meaning of Section 4(f). As a result, all Section 4(f) applicability determinations are made on a case-by-case basis. An evaluation diagram for Section 4(f) projects is shown in **Figure 9-5**.



Figure 9-5 Section 4(f) Evaluation Process





Evaluation of Baseline Information

Compliance with Section 4(f) can be established through: 1) application of an exception to Section 4(f) identified in 23 CFR 774.13 2) a *de minimis* impact determination, 3) a Nationwide Section 4(f) Programmatic Evaluation that is approved at the FHWA Division Office level, or 4) a full Section 4(f) Evaluation that requires FHWA legal and external agency review prior to approval. An analysis for each property must be made and the appropriate process for the use of that property followed. However, where a project has multiple uses, the consideration of which process minimizes overall paperwork and process should be considered.

If a proposed alternative involves more than one Section 4(f) resource, each resource should be reviewed individually to determine if the *de minimis* exemption or a programmatic evaluation is applicable. If there remain uses for which an exception to Section 4(f), the *de minimis* impact determination or a programmatic evaluation is not appropriate, a full Section 4(f) evaluation must be done for the project as a whole with measures to minimize harm included for all Section 4(f) protected properties.

The advantage of using exceptions, *de minimis*, and programmatic evaluations is that there is no requirement to circulate the draft Section 4(f) evaluation to the DOI, the USDA, or Housing and Urban Development (HUD). There is also the advantage of not needing a Legal Sufficiency review on programmatic, which is necessary for full Section 4(f) evaluations. This reduces the amount of time necessary to complete the Section 4(f) evaluation. The complete Section 4(f) documentation should be included in the NEPA document, usually as an appendix, and retained in the project file as a matter of public record.

Several agencies and organizations have a role in preparing and approving programmatic Section 4(f) evaluations: the SHPO as the official with jurisdiction for historic and archaeological properties and local historic preservation agencies, agencies having ownership and management of non-historic Section 4(f) properties, EPB and Regional environmental staff, FHWA Operations Engineers, and FHWA environmental staff. The EPB Manager, RPEM, and FHWA Division Administrator approve the final programmatic Section 4(f) evaluations.

Exceptions to Section 4(f)

23 CFR 774.13 establishes a series of exceptions to Section 4(f). These exceptions allow for the use of Section 4(f) properties without the requirement for a formal evaluation process. Each exception has specific requirements that must be met and demonstrated to the FHWA-CO Division to determine applicability.





Exceptions apply to a specific property, not to the project as a whole, and therefore must be evaluated separately for each Section 4(f) property used by a project.

Determining *de minimis* Impacts to Section 4(f) Resources

Certain uses of Section 4(f) properties are minor (*de minimis*) in nature. The requirements for *de minimis* are included in 23 CFR 774.5(b), 774.7(b), and 774.17. If, after consideration of any impact avoidance, minimization, and mitigation or enhancement measures, FHWA determines that CDOT transportation projects result in *de minimis* impacts to a Section 4(f) property, an analysis of avoidance alternatives is not necessary and the Section 4(f) process is complete.

Because *de minimis* applies to individual uses, each property must be evaluated separately to determine if *de minimis* is appropriate for the specific use identified. An alternative with all *de minimis* impacts does not require further evaluation

Historic Properties

According to 23 CFR 774.5(b)(1)(i) and (ii), a Section 4(f) *de minimis* finding can only be made when: 1) the Section 106 process results in a finding of "no adverse effect" or "no historic properties affected" in accordance with 36 CFR part 800; 2) there is written concurrence from the SHPO and/or THPO (and ACHP if they are part of the consultation process) on the Section 106 effect determination; 3) the SHPO and/or THPO, and ACHP if participating, are notified of FHWA's intent to make a *de minimis* finding based on the Section 106 determination; and 4) the views of the Section 106 consulting parties have been considered.

Publicly Owned Parks, Recreation Areas, and Wildlife or Waterfowl Refuges

According to 23 CFR 774.5(2)(i) and (ii), impacts that are *de minimis* for publicly owned parks, recreation areas, and wildlife or waterfowl refuges are defined as those that do not adversely affect the activities, features, and attributes of the Section 4(f) resource. The public must be afforded the opportunity to review and comment on the effects of the project on the identified Section 4(f) resource(s). After the public comment period, the official(s) with jurisdiction over the property must provide written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f). When identifying *de minimis* impacts on publicly owned parks, recreation areas, and wildlife or waterfowl refuges, it is important to distinguish the activities, features, and attributes of a Section 4(f) resource that are important to protect from those that can be impacted without adverse effects. For example, when identifying uses to a public park, portions of the resource, such as playground





equipment, should be distinguished from facilities such as parking. Further guidance for *de minimis* impacts findings for non-historic Section 4(f) resources is located in **Attachment C**.

De minimis Impact Finding

Only the FHWA Division Administrator can make the final *de minimis* impact finding. The *de minimis* impact finding is based on the degree or level of impact including any avoidance, minimization, and mitigation or enhancement measures that are included in the project to address the Section 4(f) use. *De minimis* impact findings must include conditions requiring the implementation of any measures that were relied upon to reduce the impact to a *de minimis* level.

A *de minimis* finding cannot be made for a constructive use of a Section 4(f) property. A constructive use, by definition, involves impacts such that the protected activities, features, and attributes would be substantially impaired.

A *de minimis* finding can sometimes be made for a temporary uses of a Section 4(f) property, when the project does not meet FHWA's temporary occupancy exception criteria.

Public Involvement

Historic Section 4(f) properties do not require a separate public review process, but non-historic properties do require public involvement. Additional information can be found in the FHWA's Section 4(f) Policy Paper (FHWA, 2012b) and 23 CFR 774.

For parks, recreation areas, or wildlife or waterfowl refuges, in most cases a separate public review process, including the public notice or comment requirement, is not necessary because the information supporting the *de minimis* impact finding will be included in the NEPA document. The public involvement criteria related to the specific NEPA document will be sufficient to satisfy the same criteria for the *de minimis* impact finding if the information about the impacts and use of the properties is included in the public review and comment activities. There are instances (e.g., certain CatExs and Reevaluations) that do not routinely require public review and comment, however for those where a *de minimis* finding will be made, a separate public notice and opportunity to review and comment will be necessary.

Programmatic Evaluations

FHWA developed five nationwide programmatic evaluations for Section 4(f) properties. Each of the five types of programmatic evaluations has specific applicability criteria. A detailed description of their specific criteria can be found by following the links for a particular Section 4(f) evaluation.



- ▶ Final Nationwide Section 4(f) Evaluation and Approval for Federally Aided Highway Projects With Minor Involvements With Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges.
<http://www.environment.fhwa.dot.gov/projdev/4fmparks.asp>
- ▶ Final Nationwide Section 4(f) Evaluation and Approval for Federally Aided Highway Projects With Minor Involvements With Historic Sites
<http://www.environment.fhwa.dot.gov/projdev/4fmhist.asp>
- ▶ Programmatic Section 4(f) Evaluation and Approval for FHWA Projects That Necessitate the Use of Historic Bridges
<http://www.environment.fhwa.dot.gov/projdev/4fbridge.asp>
- ▶ Section 4(f) Statement and Determination for Independent Bikeway or Walkway Construction Projects
<http://www.environment.fhwa.dot.gov/projdev/4fbikeways.asp>
- ▶ Section 4(f) Evaluation and Approval for Transportation Projects That Have a Net Benefit to a Section 4(f) Property
<http://www.environment.fhwa.dot.gov/projdev/4fnetbenefits.asp>

The programmatic evaluations require coordination and documentation similar to the regular Section 4(f) procedures, including proof that there is no prudent and feasible alternative to the use of Section 4(f) lands and that all measures to minimize harm have been taken. In addition, a programmatic evaluation must demonstrate that the project meets the criteria of the appropriate nationwide programmatic evaluation.

Individual Section 4(f) Evaluation

Individual Section 4(f) evaluations must include sufficient analysis and supporting documentation to demonstrate that there is no feasible and prudent avoidance alternative and shall summarize the results of all possible planning to minimize harm (23 CFR 774.7(a)). Individual Section 4(f) evaluations are processed in two distinct stages: draft and final. Draft evaluations must be circulated to the US Department of Interior (DOI) and shared with the official(s) with jurisdiction. The analysis and identification of the alternative that has the overall least harm must be documented in the final Section 4(f) evaluation. If the analysis concludes that there is no feasible and prudent avoidance alternative, then FHWA may approve, from among the remaining alternatives that use Section 4(f) property, only the alternative that causes the least overall harm in light of the statute's preservation purpose. Detailed guidance on least harm is provided in the FHWA *Section 4(f) Policy Paper* (FHWA, 2012b).

Although public review is not required by Section 4(f), the public may review and comment on a draft evaluation during the NEPA process. When a





project is processed as a CatEx, the Section 4(f) evaluation must be circulated independently to the US DOI. In all cases, final Section 4(f) evaluations are subject to FHWA legal sufficiency review prior to approval.

9.19.3 Section 4(f) Documentation in NEPA Documents

The majority of information related to the Section 4(f) evaluations related to *de minimis*, programmatic, or individual Section 4(f) evaluations will be included in a separate Section 4(f) chapter. The Section 4(f) alternatives analysis is generally incorporated into an EIS or EA. A description of the process and the findings of the Section 4(f) evaluation are included in the body of the NEPA document while the Programmatic and *de minimis* may be included in the appendix.

Information that should be included in each of the chapters is discussed below.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Separate identification and review of Section 4(f) resources is not necessary in the Affected Environment or Environmental Consequences chapter of the NEPA document. Affected Environment and Environmental Consequences information for the following resources will be used as part of the Section 4(f) evaluation and may include a Section 4(f) evaluation related to the property/resource for each of the following:

- ▶ Historic Properties (Section 9.10.4)
- ▶ Social Resources (Section 9.13.2) for parks and other public recreational properties
- ▶ Bicycle and Pedestrian Facilities (Section 9.16)
- ▶ Fish and Wildlife (Section 9.8.2) for Wildlife or Waterfowl Refuges
- ▶ Other sections as appropriate (Land Use Section 9.12.2)

SECTION 4(F) COMPLIANCE AND APPROVALS

Depending on the type of Section 4(f) evaluation, there are different requirements for what should be included as part of the evaluation as discussed below:

Exceptions Evaluations

Those properties determined to be exceptions to the requirement for Section 4(f) approval must be evaluated by having a documented agreement with the official(s) with jurisdiction over the Section 4(f) resource. This





documentation can be included in the appendix or attached to the NEPA document.

De Minimis Evaluations

The *de minimis* impact determination must include sufficient supporting documentation to demonstrate that the impacts, after avoidance, minimization, mitigation, or enhancement measures are taken into account, are *de minimis* as defined in 23 CFR 774.17. The *de minimis* information can be presented in a chapter in the NEPA document or in an appendix.

Programmatic Evaluations

Information related to an approval to use Section 4(f) property by applying a programmatic Section 4(f) evaluation should be included in the project NEPA document (EA or EIS), or in the project file for a CatEx. Sufficient supporting documentation to demonstrate that the programmatic evaluation being relied upon applies to the use of the specific Section 4(f) property including documentation that the coordination required by the applicable programmatic evaluation was completed and that all specific conditions of the applicable programmatic evaluation were met.

Some of the information identified in the following sections would typically be included in a NEPA document, even in the absence of the Section 4(f) process. However, it is summarized here to fully document Section 4(f) compliance and approval protocols.


Individual Section 4(f) Evaluation

Individual Section 4(f) evaluations must include sufficient analysis and supporting documentation to demonstrate that there is no feasible and prudent avoidance alternative and shall summarize the results of all possible planning to minimize harm. For projects requiring a least overall harm analysis, that analysis must be included within the individual Section 4(f) evaluation in an appendix or separate document.

Draft Section 4(f) Evaluation

The following format and content are suggested for a draft Section 4(f) Evaluation as outlined in the *FHWA Technical Advisory T 6640.8A* (October 30, 1987).

- ▶ Description of the proposed project including an explanation for the project purpose and need.
- ▶ Description of each Section 4(f) resource which would be used by any alternative under consideration.



Guidance for how to handle Section 4(f) evaluations in tiered NEPA documents is in CFR 23 774.7(2)





- ▶ Discussions of the impacts on the Section 4(f) resource for each alternative. Impacts that can be quantified should be quantified.
- ▶ Identification and evaluation of location and design alternatives that would avoid the Section 4(f) property. Detailed descriptions of alternatives in an EIS or EA do not need to be repeated if they are presented in other chapters.
- ▶ Discussion of all possible measures available to minimize the impacts of the proposed action on the Section 4(f) property(ies) including detailed discussion of mitigation measures in the EIS or EA. A preliminary least harm analysis of the Section 4(f) analysis should be included as well.
- ▶ Discussion of the results of preliminary coordination with the public official having jurisdiction over the Section 4(f) property and with regional (or local) offices of DOI.

At the draft Section 4(f) evaluation stage, it should be noted that although it will contain a discussion about prudent and feasible avoidance alternatives and a preliminary least harm analysis, conclusions about these subjects are made only after the evaluation has been circulated and coordinated with the appropriate agencies and any identified issues have been adequately evaluated.

Final Section 4(f) Evaluation Format and Content

When the preferred alternative uses Section 4(f) land, the final Section 4(f) evaluation must contain the following information:

- ▶ All of the information required for a draft Section 4(f) evaluation
- ▶ A discussion of the basis for concluding that there are no feasible and prudent alternatives to the use of the Section 4(f) land. The supporting information must demonstrate consistency with the requirements for a prudent and feasible evaluation as required in 23 CFR 774.17
- ▶ A discussion of remaining prudent and feasible alternatives and a determination of which alternative has the overall least harm as defined in 23 CFR 774.3(c)(1)
- ▶ A discussion of the basis for concluding that the proposed action includes all possible planning to minimize harm to the Section 4(f) property
- ▶ A summary of the appropriate formal coordination with the headquarters offices of DOI (and/or appropriate agency under that department) and, as appropriate, the involved offices of USDA and HUD.





- ▶ Copies of all formal coordination comments and a summary of other relevant Section 4(f) comments received and an analysis and response to any comments received. When new alternatives or modifications to existing alternatives are identified and will not be given further consideration, the basis for dismissing these alternatives (using the prudent and feasible criteria) should be provided and supported by factual information.
- ▶ Where Section 6(f) land is involved, the NPS's position on the land conversion should be documented
- ▶ Concluding statement as follows: "Based upon the above considerations, there is no feasible and prudent alternative to the use of land from the (identify the Section 4(f) property) and the proposed action includes all possible planning to minimize harm to the (Section 4(f) property) resulting from such use." If the analysis of avoidance alternatives concludes that there is no feasible and prudent avoidance alternative, then the FHWA may only approve the alternative that causes the least overall harm to the Section 4(f) property. (23 CFR 774)

Documenting the Section 4(f) Process

The following information should be presented in the NEPA document in the Section 4(f) section of the resource evaluation or as a separate chapter or used as supporting documentation for a CatEx, as appropriate:

- ▶ Comments received after the circulation of the draft Section 4(f) Evaluation
- ▶ Responses to comments
- ▶ Documentation that all possible planning has been done to minimize harm to Section 4(f) resources
- ▶ Summary of coordination with the SHPO, other officials with jurisdiction and, as appropriate, the USDA and HUD including any activities since the draft NEPA document was published
- ▶ Documentation that the preferred alternative is the one with the overall least harm

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table.





The spreadsheet can be retrieved from:
http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.

If FHWA headquarters has determined there is “constructive use,” include documentation to that effect, as well as the following documentation:


- ▶ Authority having jurisdiction over the Section 4(f) property agrees with conversion and acceptability of any replacement property
- ▶ CDOT project manager has approved the conversion of the Section 4(f) property and any replacement
 - Identification of any commitment to acquire Section 4(f) replacement property

9.19.4 Section 4(f) Evaluation Processing, Review, and Approval

Full Section 4(f) evaluations that are included in NEPA documents are typically incorporated and reviewed internally within the preliminary versions of that NEPA document. Once the Section 4(f) evaluation has undergone FHWA review and has been revised to include any comments, the FHWA operations engineer will submit the NEPA document and associated Section 4(f) evaluation to FHWA legal counsel (if required) for a review period of 30 days. The FHWA legal review is conducted prior to external agency and public review.

Approval for the NEPA document and associated draft full Section 4(f) evaluation to be circulated for external review is indicated by FHWA approval of the accompanying NEPA document. External review is required by DOI. Review may also be required by USDA and HUD. These outside agencies are given a 45-day review period.

Once the external agency review is complete, an FHWA legal sufficiency review is required prior to approval of the final full Section 4(f) evaluation. For full Section 4(f) evaluations processed as part of an EIS, approval of the evaluation will typically occur upon approval of the Final EIS. A summary of the basis for the Section 4(f) approval must also be included in the ROD. In EAs, the draft Section 4(f) evaluation is included in the FHWA-approved EA. The FHWA-approved FONSI includes the final Section 4(f) evaluation. The final full Section 4(f) evaluation must be provided to DOI and to USDA and HUD if required.



Full Section 4(f) Approval can take up to a year or more to process. It is important to start the process early.





There are circumstances when a Section 4(f) evaluation is not included in a NEPA document and a separate Section 4(f) evaluation is required. As outlined in the Section 4(f) regulations (23 CFR 774.7(f), 774.9(c) and 774.11(b)), this may occur when:

- ▶ A project is classified as a CatEx.
- ▶ A proposed modification of the alignment or design would require the use of Section 4(f) property after the CatEx, FONSI, or ROD has been processed.
- ▶ The FHWA determines, after processing the CatEx, FONSI, or ROD that Section 4(f) applies to a property.
- ▶ A proposed modification of the alignment, design, or measures to minimize harm (after the original Section 4(f) approval) would result in a substantial increase in the amount of Section 4(f) land, or a substantial reduction in mitigation measures.
- ▶ Another agency is the lead agency for the NEPA process, unless another USDOT element is preparing the Section 4(f) Evaluation.
- ▶ There is no feasible and prudent alternative to the use of land from the (identify the Section 4(f) property) and the proposed action includes all possible planning to minimize harm to the (Section 4(f) property) resulting from such use.

If it is determined that a Section 4(f) evaluation is required after the CatEx, FONSI, or ROD has been processed, preparation and circulation of the Section 4(f) evaluation will not necessarily require the preparation of a new or supplemental NEPA document. In addition, the separate evaluation does not prevent the granting of new approvals, require the withdrawal of previous approvals, or require the suspension of project activities for any activity not affected by the Section 4(f) evaluation.

For full Section 4(f) evaluations which are circulated separately from NEPA documents, EPB or Regional staff, FHWA Operations Engineers, and FHWA environmental staff review the preliminary draft evaluations. Upon completion of the FHWA division review, the draft Section 4(f) evaluation is submitted to FHWA legal counsel for a 30-day review. The signed draft Section 4(f) evaluation is then forwarded to the DOI and any entities with jurisdiction over a Section 4(f) resource. The USDA and/or HUD may also need to review the evaluation (45-day review period). Following receipt of the agency comments, the concluding statement is incorporated and the Section 4(f) evaluation is submitted to FHWA for internal and official legal sufficiency review. The final document is signed by the EPB Manager and the FHWA Division Administrator and submitted to the DOI.





Constructive Use Approval

In the case of constructive use of a Section 4(f) resource, the pre-draft Section 4(f) evaluation must be reviewed and approved by FHWA headquarters office. This coordination ideally occurs early in the project development process. During the legal review, the FHWA operations engineer will also send a copy to FHWA headquarters. If the determination of constructive use is approved, the draft Section 4(f) document is processed normally.

Final Section 4(f) Approval

The FHWA must make a formal determination that there is no prudent and feasible alternative to the use of Section 4(f) resources and all possible planning has been done to avoid the use of a Section 4(f) property or to minimize harm to any Section 4(f) property affected by the project. This approval can be contained in a FONSI, a ROD, or as a separate document.

The FHWA is ultimately responsible for making all decision related to Section 4(f) compliance. These include whether Section 4(f) applies to a property, whether a use will occur, whether a *de minimis* impact determination may be made, assessment of each alternative's impacts to Section 4(f) properties, and determining whether the law allows the selection of a particular alternative after consulting with the appropriate officials with jurisdiction. CDOT staff also plays a critical role in assessing alternatives and their impacts to Section 4(f) properties and should be included throughout the entire Section 4(f) process.





9.20 Section 6(f) Evaluation

Section 6(f) properties are those purchased or improved with Land and Water Conservation funds. Importantly, Section 6(f) applies to all transportation projects involving possible conversions of the property whether or not federal funding is being utilized for the project. Normally, any federally funded transportation project requiring the conversion of recreational or park land covered by Section 6(f) will also involve Section 4(f) (see **Section 9.19**). The coordination and agreements entered into as part of completing CDOT's Section 6(f) responsibilities, therefore, may also be reflected in the Section 4(f) evaluation.

The Section 6(f) evaluation should be completed when alternatives for the proposed action are first being designed and developed.

9.20.1 Reasons for Evaluation of Section 6(f) Under NEPA

CDOT evaluates Section 6(f) for several reasons:

- ▶ To preserve the intended use of public funds for land and water conservation
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with several legal mandates that pertain to the Land and Water Conservation Fund Act (Act), Section 6(f)(3)

Section 6(f) of the Act assures that once an area has been funded with Land and Water Conservation Fund assistance, it is continually maintained in public recreation use unless the NPS approves substitution property of reasonably equivalent usefulness and location and of at least equal fair market value.

State and local governments often obtain grants through the Act to acquire or make improvements to parks and recreation areas. Section 6(f) of this Act prohibits the conversion of property acquired or developed with these grants to a non-recreational purpose without the approval of the DOI's National Park Service (NPS). Section 6(f) directs the NPS to assure that replacement lands of equal value, location, and usefulness are provided as conditions to such conversions. Consequently, where conversions of Section 6(f) land are proposed for highway projects, replacement lands will be necessary.





Importantly, Section 6(f) applies to all transportation projects involving such a conversion whether or not federal funding is being utilized for the project.

9.20.2 Collection and Evaluation of Baseline Information Under NEPA

For non-federal projects requiring a NEPA-like analysis, a Section 6(f) Land Replacement Plan is required if Act funding was used in improving the public outdoor recreational resource. CDOT will develop the plan in cooperation with the Section 6(f) property owner and coordinate the Land Replacement Plan with CPW for concurrence. In some cases, it may be advisable to obtain a binding agreement concerning the Land Replacement Plan. Once the CPW concurs with the plan, CPW will submit the plan to the NPS for their concurrence. CDOT will then work with the NPS, CPW, and the Section 6(f) land owners to resolve any comments. Upon concurrence in the plan by the NPS, CDOT will incorporate it into the environmental document.

As a part of the Section 4(f) Evaluation for federal-aid transportation improvements, CDOT must determine ownership of the property and whether or not the Section 4(f) resource was purchased or some improvement made to the property using Act funds. Once it is determined that Act funds were used to purchase the property, then Section 6(f) of the Act applies.

CDOT, in cooperation with the local government land owner, must identify replacement land of equal value, location, and usefulness before a transfer of property under Section 6(f) can occur. The process is as follows:

- ▶ Upon identification of such land(s), CDOT and the local government must develop a written plan, which demonstrates that the Section 6(f) replacement land is acceptable to the local government entity. The plan must also include any special conditions, mutually agreed to by both parties, as deemed necessary, to bring about equal value, location, and usefulness in the replacement land as required under Section 6(f).
- ▶ Coordination with the CPW and NPS will occur during the process
- ▶ Upon agreement of the plan by the region and the local government land owner, CDOT will submit the Section 6(f) Land Replacement Plan to the CPW for concurrence. The CPW may comment on the plan to resolve any issues.
- ▶ Upon acceptance of the plan by the CPW a letter concurring in the Section 6(f) Land Replacement Plan will be sent by the CPW to CDOT with a copy to the local government land owner.





- ▶ CDOT will discuss the Section 6(f) property and the plan, as mitigation, in the Section 4(f) Evaluation.
- ▶ The plan and the CPW concurrence letter should be incorporated into the appendix of the Section 4(f) Evaluation.

For Programmatic or *de minimis* Section 4(f) Evaluations, the Section 6(f) issue is to be resolved prior to processing the Programmatic Section 4(f) Evaluation. In this case, CDOT, through FHWA, would work directly with the NPS to obtain concurrence in the Section 6(f) Land Replacement Plan. The results of this coordination effort would be documented in the appendix of the Programmatic Section 4(f) Evaluation and submitted to FHWA for approval. If the NPS objects to the conversion or transfer of the land under Section 6(f), then an individual Section 4(f) Evaluation must be prepared.

The conversion of the Section 6(f) land to transportation right-of-way and the acquisition of the replacement land occur during the right-of-way acquisition phase. Subsequent Reevaluations must include, in their Mitigation Status and Commitment Compliance sections, status discussions on the implementation of the Section 6(f) Land Replacement Plan. Coordination with the CPW and the NPS must occur to assure their cooperation in the land conversion transaction. The CPW and NPS will not permit the conversion of Section 6(f) land to occur until the replacement property has been fully acquired and is available to serve the public outdoor recreational uses of the Section 6(f) property it is meant to replace. Therefore, the acquisition or conversion of the Section 6(f) land cannot take place until after the replacement land has been purchased and integrated into the recreational facility involved. Be aware that because the functional replacement must occur prior to the conversion of the Section 6(f) property, it is imperative to contact the Right-of-way Office and inform them of the requirements of Section 6(f) land for the project. The Right-of-way Office should participate in the development of the Land Replacement Plan, as failure to implement the Land Replacement Plan will cause delays in subsequent project construction.

9.20.3 NEPA Document Sections

The content of the sections on Section 6(f) evaluation in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

The Affected Environment chapter of the NEPA document should include the definition of the Section 6(f) resource, general requirements for determining a Section 6(f) resource, and a brief discussion of each





Section 6(f) resource(s) in the project area including value, location, and use.

ENVIRONMENTAL CONSEQUENCES

In the Environmental Consequences section, identify Section 6(f) lands that would be impacted by any of the project alternatives as well as any lands proposed to replace them. Show the Section 6(f) properties on a map and describe them, focusing particularly on any losses or gains in specific attributes associated with the purposes for which the properties were acquired.

Additionally, information should be included in this section such as any CPW/NPS coordination/communication and any approvals obtained from the agency(ies). A mitigation plan should be included that indicates where mitigation will occur and during what phase of the project it should occur (preliminary design, final design, construction).

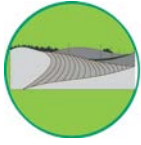
Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.21 Farmlands



Farmlands are a valuable economic and cultural resource that is protected by the Farmland Protection Policy Act, 7 CFR Part 658. The two sections below provide guidance on the treatment of farmlands for CDOT's NEPA projects.

The first section discusses the process for evaluating farmlands. The second section discusses farmlands information that should be in each NEPA document.

9.21.1 Farmland Evaluation Process

The project team is responsible for reviewing the applicability of the Farmland Protection Policy Act and obtaining the Farmland Protection clearance from the USDA – Natural Resources Conservation Service, if necessary.

The “Impacted Farmlands of Colorado” county maps may have copies of the maps, but the most current data is available online or from the county NRCS office. If the maps indicate that the impacted area is farmland but visual inspection of the area indicates it is clearly not being utilized as farmland, the Farmland Protection Policy Act does not apply.

The farmlands evaluation should be completed when alternatives for the proposed action are first being designed and developed, prior to the formal initiation of NEPA. **Figure 9-6** is a representation of the steps involved in the completion of a Farmland Protection Policy Act Analysis.

REASONS FOR EVALUATION OF FARMLANDS UNDER NEPA

CDOT evaluates farmlands for several reasons:

- ▶ To enable identification and protection of important farmlands
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with several legal mandates required under the Farmland Protection Policy Act

The Federal Farmland Protection Policy Act, 7 CFR Part 658, requires federal agencies to consider the adverse effects their programs may have on the preservation of farmland, review alternatives that could lessen adverse effects, and ensure that their programs are compatible with private, local, and state programs and policies to protect farmland.



Farmland Regulations and Guidance

- 7 CFR Part 658 – Farmland Protection Act
- 23 CFR Part 771 – Environmental Impact and Related Procedures





COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

The Farmland Protection Policy Act defines farmlands as follows:

- ▶ Prime farmland is land that has the best combination of physical and chemical characteristics for production of food, feed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Prime farmland includes land that possesses the above characteristics but is being used currently to produce livestock and timber.
- ▶ Unique farmland is land other than prime farmland that is used for production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of specific crops.
- ▶ Other than prime or unique farmland that is of statewide importance for the production of food, feed, and other crops, as determined by the appropriate state government agency or agencies.
- ▶ Other than prime or unique farmland that is of local importance for the production of food, feed, and other crops, as determined by the appropriate local government agency or agencies.

Clearance and coordination with the NRCS and other appropriate state and local agricultural agencies is required for all projects that require acquisition of right-of-way. Once the alternative right-of-way requirements are conceptually defined and the study area is identified as farmland the RPEM should complete the farmland conversion impact rating, NRCS form AD-1006 and submit it to NRCS for review. **Figure 9-6** is a flow diagram for completing the Farmland Protection Policy Act analysis. Note: for corridor projects, Form NRCS-CPA-106 should be used.

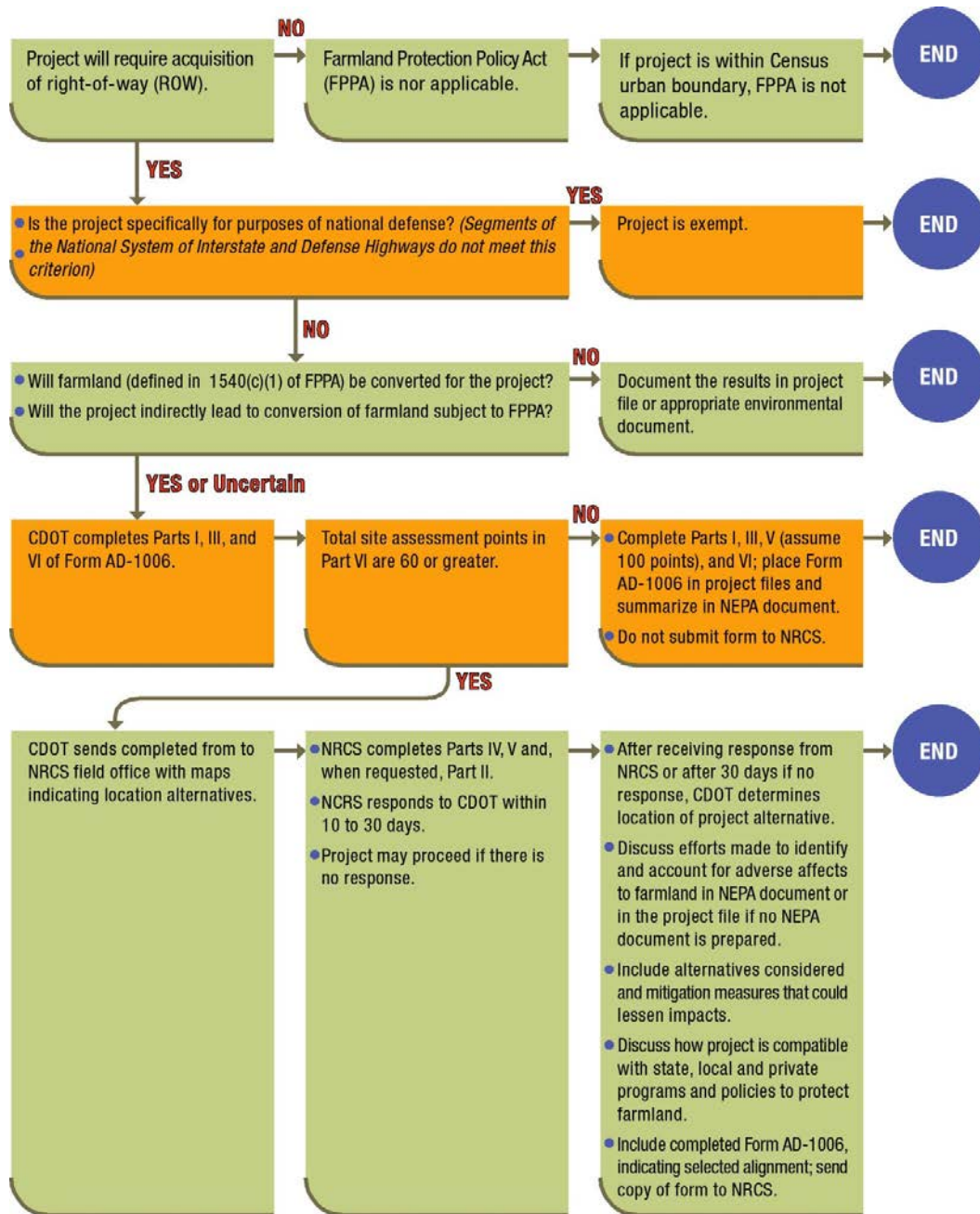


Farmlands Clearance Documentation

- Identify whether conversion of farmland may occur
- If so, follow process outlined in Form AD-1006
- For corridor projects, use Form NRCS-CPA-106
- Incorporate alternatives to avoid farmland, potential impacts to farmland, and appropriate mitigation in the NEPA document



Figure 9-6 Completing the Farmland Protection Act Analysis





OTHER ISSUES TO CONSIDER

As part of the process for Form AD-1006, a farmland conversion impact rating score for the proposed project is established that is based on the severity of impacts on the farmland. If the site assessment criteria score (Part VI completed after return of form from NRCS) is less than 60 points for each alternative, then Form AD-1006 need not be sent to back to the NRCS. If the score is 160 points or greater and/or an area qualifies as prime farmland, Form AD-1006 must be submitted to the NRCS.

9.21.2 NEPA Document Sections

An EA or EIS typically should include only one to three paragraphs concerning farmland resources in the Affected Environment, Environmental Consequences and Mitigation section(s).

AFFECTED ENVIRONMENT

The farmlands section of the Affected Environment chapter should describe:

- ▶ The general abundance of farmland in the project vicinity
- ▶ The land's primary use and economic and cultural importance

ENVIRONMENTAL CONSEQUENCES

A copy of the completed Farmland Conversion Impact Rating must be included in the document, as well as correspondence to and from the NRCS. Discuss alternatives that have the same farmlands impacts together and contrast those that differ so that similarities and differences in alternative farmlands impacts are clear. The extent to which alternatives avoid farmland impacts should be discussed in the NEPA document. Measures to minimize and mitigate impacts to farmland should be included in the document if avoidance is not possible. Mitigation measures to consider include:

- ▶ Replacement of any lost or damaged irrigation pipes or ditches
- ▶ Assurance that all remaining farmland can be irrigated
- ▶ Payment for any crops damaged during construction or restriction on a farmer's access to fields

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view





9.22 Noise



Noise is generally defined as unwanted or excessive sound and is an undesirable by-product of our modern way of life. It can be annoying, can interfere with sleep, work, or recreation, and in extremes may cause physical or psychological damage. While noise emanates from many different sources, transportation noise is perhaps the most pervasive and difficult source to avoid in society today. Highway traffic noise is a major contributor to overall transportation noise. A broad-based effort is needed to control transportation noise. This effort must achieve the goals of personal privacy and environmental quality while continuing the flow of needed transportation services for a quality society.

Many transportation projects, during both construction and operation, cause noise levels to either decrease or increase. Physical and operational changes associated with a highway project can lead to changes in the noise levels in the environment. If a highway project is on a new alignment, highway and construction noise levels may be considerably higher than existing noise levels. At the other end of the spectrum is a transportation project along an existing alignment in a highly developed urban area where existing noise levels are already high. Both the neighboring land uses and the resulting traffic noise levels are important in determining traffic noise impacts. The specific thresholds and processes for this are detailed in *CDOT's Noise Analysis and Abatement Guidelines* (CDOT, 2011).

The two sections below provide guidance on the treatment of noise for CDOT's NEPA projects. The first section discusses the process for evaluating noise. The second section discusses noise information that should be in each NEPA document.

9.22.1 Noise Evaluation Process

The CDOT project manager in coordination with the RPEM and the EPB or Regional Noise Specialist is responsible for ensuring that appropriate noise impact analyses and mitigation evaluations are performed. Typically, a consultant is hired to perform the noise analyses, prepare the noise technical report, and evaluate mitigation measures as part of these studies.

Noise analyses must be performed on Type I projects if: noise sensitive receptors are present within the project study zone. A 500-foot study zone represents the minimal noise study zone, so that if there is reasonable expectation that noise impacts would extend beyond that boundary, the study zone must be expanded. Note that if any portion of a project qualifies as Type I, the entire project is considered to be Type I.



Noise Regulations and Guidance

- Federal-Aid Highway Act of 1970
- Noise Control Act of 1972
- FHWA Highway Traffic Noise: Analysis and Abatement Guidance
- CDOT Noise Analysis and Abatement Guidelines
- 23 CFR 772, FHWA Noise Regulations





Type I projects are proposed federal or federal-aid highway projects for the construction of a highway on a new location or the physical alteration of an existing highway that significantly changes the horizontal or vertical alignment or increases the number of through traffic lanes (CDOT, 2011). Type II projects provide noise abatement on an existing highway (retrofit noise barriers)—CDOT does not currently fund a Type II program. Type III projects are any projects that are not Type I or Type II and these do not require a noise analysis.

The process of evaluating noise associated with a transportation project involves identification of land uses adjacent to the transportation project, determination of existing noise levels, and then prediction as to how the project will affect this setting. *CDOT's Noise Analysis and Abatement Guidelines* (CDOT, 2011) contain specific information on conducting noise studies. If it is determined that noise barriers or other mitigation measures will be recommended, this can substantially affect project costs. Therefore, noise evaluations should be performed as soon as proposed alignments for project alternatives have been identified and traffic projections are available. This will allow timely revisions in project design to be made if information from these studies indicates that alternate alignments should be considered.

In general, changes in noise levels less than 3 A-weighted decibels (dBA) are barely detectable to the human ear. A 5-dBA change would be readily perceptible to most people, while a change of 10 dBA would be perceived as either halving or doubling the relative loudness. For example, a sound at 70 dBA would seem twice as loud as a sound level of 60 dBA.

REASONS FOR EVALUATION OF NOISE UNDER NEPA

CDOT evaluates noise impacts for several reasons:

- ▶ Noise can adversely affect people and their use/enjoyment of properties near transportation facilities
- ▶ To comply with 23 CFR 772 and related legal mandates
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner

Regulations and guidance on noise evaluations are provided in the sidebars. Both FHWA and CDOT have well-developed guidance and protocols for evaluating noise impacts on people.

The two key working documents used by these agencies are FHWA's *Highway Traffic Noise: Analysis and Abatement Guidance* (FHWA, 2011)

Noise Guidance

FHWA Highway Traffic Noise Regulations and Guidance
http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/

CDOT Environmental Noise Guideline and Policies
<http://www.coloradodot.info/programs/environmental/noise/guidelines-policies/>





and CDOT's *Noise Analysis and Abatement Guidelines* (CDOT, 2011). The latter document provides the primary foundation for the protocols discussed below.

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

The discussion of the collection and evaluation of baseline information in this manual represents a summary of information provided in CDOT's *Noise Analysis and Abatement Guidelines* (CDOT, 2011). Please refer to those guidelines for further detail before implementing a noise analysis under NEPA.

The baseline information needed to perform a noise analysis for a Type I project is dictated by the requirements of the prescribed process. There are five general steps that should be completed to analyze noise for each project alternative (CDOT, 2011):

- ▶ Identification of nearby land uses
- ▶ Measurement and modeling of existing traffic noise
- ▶ Modeling of future traffic noise levels
- ▶ Determination of future traffic noise impacts
- ▶ Identification and evaluation of noise abatement measures for reducing or eliminating the traffic noise impacts (including construction noise), if necessary

Step 1: Identification of Nearby Land Uses - Land uses near a highway project should be reviewed and assigned to one of seven categories on the basis of the uses described in **Table 9-3**. Most land uses of noise concern along highway corridors will fall under Categories B, C, or E. Note that the use of Category A should be extremely rare and only considered for special facilities. Projects located where only Category F (non-noise sensitive) or G (undeveloped) uses are present or permitted may not require a full noise analysis.

Exterior areas having frequent human use are the primary locations where mitigation of traffic noise impacts is considered. CDOT established Noise Abatement Criteria (NAC) that are one dBA below the FHWA NAC to comply with requirements of 23 CFR 772. The CDOT NAC are provided in terms of the Hourly Equivalent Sound Level (Leq(h)) (**Table 9-3**).

To complete Step 1, information on land uses must be obtained for the project study zone (described above) and referenced to the appropriate NAC (**Table 9-3**). The NAC Categories are then used to characterize the affected environment and to establish the noise level(s) at which noise impacts occur



These units represent both the sound exposure level (a combination of the duration of a sound event and its intensity in dBA units—a mathematical combination of each frequency's sound energy corrected for the human hearing range) and the number of sound events over a one-hour period.





and noise abatement must be considered under the subsequent steps. The NACs are not to be used as a noise design goal. Traffic noise impacts can also occur at levels below the NAC if noise levels increase by 10 dBA or more.

Step 2: Measurement and Modeling of Existing Traffic Noise - Existing noise levels should be determined by a combination of field monitoring of sound levels and use of FHWA's Traffic Noise Model (TNM) Version 2.5 or "latest approved version" noise prediction model.

Table 9-3 CDOT Land Use Categories and Noise Abatement Criteria

Category	Leq(h) ^a	Evaluation Location	Description of Activity Category Use
A	56	Exterior	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is to continue to serve its intended purpose.
B ^b	66	Exterior	Residential
C ^b	66	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, schools, Section 4(f) sites, trails, trail crossings, and television studios
D	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or non-profit institutional structures, radio studios, recording studios, schools and television studios
E ^b	71	Exterior	Hotels, motels, offices, restaurants, bars and other developed lands, properties or activities not included in Categories A-D or F.
F	NA	NA	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, ship yards, utilities (water resources, water treatment, electrical), and warehousing
G	NA	NA	Undeveloped lands that are not permitted for development

Source: *CDOT Noise Analysis and Abatement Guidelines* (CDOT, 2011).

^a Hourly sound level in A-Weighted decibels (dBA), reflecting a 1-dBA approach value below 23 CFR 772 values

^b Includes undeveloped lands permitted for this activity category

NA = not applicable

The primary purpose of monitoring noise in the field is to validate the noise prediction model by comparing measurements of existing noise with levels predicted by TNM for those traffic conditions. It is desirable to monitor noise when traffic noise levels are greatest, but this is not necessary as long as traffic data are collected for the period of measurement. The period of the





greatest noise levels may be during peak traffic volumes or when the truck mix or vehicle speeds are greater. Typically, the noisiest hour will be when both the traffic volume and speed are the highest.

To complete Step 2, the “worst hour” existing noise levels are typically determined through TNM modeling. The hour with the highest traffic volumes traveling at the highest speeds in the project study zone is modeled to calculate noise levels at the noise-sensitive areas. These results are used to establish “worst hour” existing noise levels for the project study zone points and to identify any areas with existing traffic noise impacts.

Step 3: Modeling of Future Traffic Noise Levels - During Step 3, noise levels in the project study zone in the future design year (e.g., in 20 years) are predicted, again using TNM models. Future traffic noise levels for all project alternatives under consideration, including the No Action Alternative, should be modeled. Specific model inputs should be discussed with the CDOT EPB or noise specialist and the methodology used to predict traffic noise levels should be thoroughly documented in a technical report provided to CDOT for review (CDOT, 2011). Modeling should focus on all noise sensitive land uses in the project study zone, but especially those receptors in the “front row.” Generally, the noise analysis will focus on noise levels at ground level, but upper-floor receptors must be included as warranted (CDOT, 2011). In addition, FHWA requires noise analysis for undeveloped lands where development is “planned, designed, and programmed” (Table 9-3). In other words, if building permits have been issued for a development, the noise analysis must be performed for that property as if the development already existed.

To complete Step 3, the “worst hour” future noise levels for each alternative are determined through TNM modeling. The hours with the highest traffic volumes traveling at the highest speeds in the project study zone are modeled to calculate noise levels at the noise-sensitive areas. These results are used to identify noise impacts in Step 4.

Step 4: Determination of Future Traffic Noise Impacts - In Step 4, the modeled noise levels predicted for each location for each future alternative are compared to the NAC (Table 9-3). In addition, the future noise levels for each location for each alternative should be compared to the corresponding existing noise levels to determine whether future noise levels will increase by 10 dBA or more. Based on these comparisons, a traffic noise impact occurs when predicted traffic noise levels equal or exceed the relevant NAC, or when future traffic noise levels will increase by 10 dBA or more. Thus, for a Category B (residential) receptor, the noise level that would trigger identification of an impact from the NAC would be 66 dBA. Or, for example,





if the existing noise level for a Category B receptor was 46 dBA and the predicted future noise level was 59 dBA, this would result in identification of an impact even though the 66 dBA NAC had not been reached. Any location that is found to meet either of these thresholds is found to be impacted and must be evaluated for abatement in Step 5.

Step 5: Identification and Evaluation of Abatement Measures - In Step 5, noise abatement measures are considered as appropriate for the impacts identified in Step 4. A number of measures can be taken to reduce noise levels (CDOT, 2011). FHWA guidance directs that noise abatement measures should be designed to provide a “substantial” noise reduction, rather than to achieve a specific noise level such as the NAC. The minimum noise reduction for a receptor to “benefit” from an abatement action is 5 dBA. However, CDOT’s noise reduction design goal is 7 dBA, which must be achieved at one or more receptors.

Noise barriers in the form of walls often will be the best available traffic noise abatement option and are the actions examined in detail most frequently for projects. A robust evaluation of the prospective walls must be undertaken to examine the potential abatement outcomes. This may mean, in part, examining walls of different heights as well as different physical placements, possibly both on and off the CDOT right-of-way, to identify the best noise abatement option(s). The individual circumstances of each project need to be considered when formulating the range of abatement actions to be analyzed. The potential drawbacks associated with each abatement option (e.g., added right-of-way takes, long-term maintenance issues, etc.) must be catalogued, too, for the information necessary to complete the CDOT and FHWA evaluation criteria.

CDOT’s and FHWA’s guidelines identify two main elements in the consideration of noise abatement measures: feasibility and reasonableness. FHWA guidelines direct that noise abatement measures must be both feasible and reasonable to be recommended for inclusion in the project. CDOT’s process is to evaluate feasibility first, then reasonableness, which is described in detail in the technical guidance (CDOT, 2011). If, in the evaluation of an abatement measure, a specific criterion is found to be infeasible or unreasonable, the evaluation for that abatement measure can stop at that point and the abatement measure dismissed.

Feasibility - Feasibility deals primarily with these engineering considerations:

- ▶ Can a 5-dBA noise reduction be achieved?
- ▶ Are there any fatal flaw issues—safety, design, etc.?
- ▶ Is the potential barrier less than 20 feet tall?





A fatal flaw is a problem with the design of an abatement measure that presents hazards to vehicular traffic or creates major maintenance problems. Examples of a fatal flaw include restricted sight distance, icing of driving lanes due to barrier shadows, conflicts with snow removal operations, glare or reflection of sunlight off the noise barrier, drainage problems, and so on. CDOT has defined barriers more than 20 feet tall as infeasible.

Reasonableness - Reasonableness addresses a combination of economic, environmental and social factors affected by the potential noise abatement measure. This analysis ensures the recommendations are a prudent use of public funds. Reasonableness considers the following:

- ▶ Is the 7-dBA noise reduction design goal met at one or more receptors?
- ▶ Is the Cost Benefit Index \$6,800/receptor/decibel or lower?
- ▶ Are more than 50 percent of the potentially benefited receptors in favor of the abatement measure?

The potential noise abatement measure(s) must be found to be both feasible and reasonable by satisfying the six criteria above for the measure(s) to be recommended for inclusion in a CDOT project. Please note that for the NEPA document, this is a mitigation recommendation—the final decision on noise abatement measures is made during final design for the project.

Further detail on the construction and effectiveness of noise walls, on situations where noise barriers are needed on both sides of a highway (parallel barriers), and on the entire noise analysis procedure can be found at *CDOT's Environmental Noise Guidelines* website and websites addressing the TNM model (FHWA TNM website). The EPB or Regional Noise Specialist should be consulted prior to completion or submission of a final noise analysis.

9.22.2 NEPA Document Sections

CDOT Type I projects require the evaluation of noise impacts as part of the environmental clearance process. All CDOT projects that include a noise analysis require a stand-alone noise analysis report (CDOT, 2011). The technical report is summarized in the main NEPA document, except for a CatEx project where a formal NEPA document is not prepared (CDOT, 2011). Noise topics in the Affected Environment and Environmental Consequences section of NEPA documents are discussed below. Note that noise studies for Tier 1 NEPA documents are very general in nature and



TNM Model

FHWA TNM website
http://www.fhwa.dot.gov/environment/noise/traffic_noise_model/





cannot be used to make detailed impact determinations and mitigation commitments.

TECHNICAL REPORT

The noise technical report must describe the methods and findings from the project noise impacts analysis and the findings from any abatement action evaluations. Different levels of noise reports are acceptable—an EIS would require a more thorough noise report than a CatEx—but technical documentation is required for the project if a formal noise analysis is performed.

The noise technical report must include discussion of each of the five steps of the noise analysis described above. It must also include a completed version of CDOT Form 1209 for each noise abatement action that was evaluated for the project.

A project is considered “cleared” when a final analysis has been submitted and reviewed by the EPB and/or Regional Noise Specialist. All comments submitted during these reviews must be resolved before the analysis can be finalized.

AFFECTED ENVIRONMENT

Documentation for the Affected Environment chapter of EAs and EISs is discussed in this section. At a minimum, the Affected Environment chapter should contain a discussion of the following two elements:

Land Use Categories and Noise Receptors – Discuss the various land uses adjacent to the project, cross-reference the discussion of land use elsewhere in the NEPA document, and discuss the land use categories as they are relevant to noise. Characterize the receivers of noise within each type of land use.

Measured and Modeled Existing Noise Levels – Present a discussion of the measured and modeled existing noise levels, and briefly discuss how and for which locations these were calculated plus any relevant points regarding how they differ. Note any locations where existing noise levels equal or exceed the relevant NAC as impacted. Detailed results are tabulated in the technical report.

ENVIRONMENTAL CONSEQUENCES

Documentation for the Environmental Consequences section of EAs and EISs is discussed in this section. The information presented in the NEPA document on noise impacts is typically a summary of the detailed information in the noise technical report.



Affected Environment Chapter of NEPA Document

- Land use attributes relevant to noise, including receptors
- Measured and modeled existing noise levels
- Comparison and discussion of measured and modeled existing noise levels

Environmental Consequences Chapter of NEPA Document

- Summarize impact analysis from the noise technical report
- Document location-specific noise impacts and their basis
- Provide sufficient detail to support any mitigation measures recommended





The modeling results for the alternatives must be described. The locations calculated to have noise impacts in the future design year, based on either NAC exceedences or substantial increases in noise (as discussed above), should be identified. This should be provided for each alternative being considered by the project and the alternatives should be compared to each other. Noise considerations other than traffic, such as construction, should be described.

MITIGATION EVALUATION

If noise impacts are identified for the project under Environmental Consequences, noise abatement measures must be evaluated for the impacted properties for the alternatives other than No Action. Several noise abatement measures are available for consideration, but noise walls are the most common in developed areas. These noise walls are costly. Therefore, it is important to thoroughly justify and describe abatement measures for the specific locations are recommended for the project.

Discussion of Noise Abatement Evaluations – For each of the identified noise impact areas, an evaluation of noise abatement is needed. The types of abatement actions considered should be described and the findings from the feasibility and reasonableness assessments for each should be presented. The dimensions of the proposed abatement structures should be summarized. This should be provided for each action alternative being considered by the project. It is important to note that the desires of the benefitting receptors must be determined for an abatement measure to be found reasonable. It should be clearly indicated which potential mitigation actions were found to be feasible and reasonable and are being recommended for inclusion in the project. All investigated abatement measures must be described in the noise mitigation evaluation, including areas where noise abatement was not found to be feasible or reasonable. Note whether residual noise impacts will remain after the suggested mitigation measures are applied, and quantify the residual impacts if possible.

Statement of Likelihood – The NEPA document must identify the recommendations for construction of noise abatement measures, if any. This analysis is completed to the extent that design information is available at the time the NEPA decision document is completed. A Statement of Likelihood must be included in the NEPA document because feasibility and reasonableness determinations may change due to changes in final project design after approval of the environmental document. The Statement of Likelihood includes the preliminary location and physical description of noise abatement measures determined to be feasible and reasonable in the preliminary analysis. Note that the final noise abatement decision will be



An important and challenging criterion is the preference of benefitting receptors. More than half of these receptors must support the abatement action for it to be reasonable. A preliminary survey of these receptors may be needed during the NEPA process – it may be blended into the public involvement process – to reach a NEPA recommendation on whether or not abatement should be implemented for noise impacts. A final survey is needed during final design for the formal determination on whether abatement will be implemented.





made during the completion of the project's final design and the public involvement processes.

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.



9.23 Visual Resources/Aesthetics



Visual resources include those elements that define the visual character of an area. These can be important natural features, vistas, or view sheds, but can also include urban or community visual characteristics, including architecture, skylines, or other characteristics that create a visual definition for an area. The long-term goal is to consider transportation design in a broader, sustainable and contextual perspective.

Visual resources and aesthetics are important because of their uniqueness and the strong emotion they inspire in human viewers. Such special places often provide a sense of community to the inhabitants of an area and may attract tourism and drive its economy.

The two sections below provide guidance on the treatment of visual resources and aesthetics for CDOT's NEPA projects. The first section discusses the process for evaluating visual resources and aesthetics. The second section discusses visual resource and aesthetics information that should be in each NEPA document.

9.23.1 Visual Resource/Aesthetic Evaluation Process

The CDOT project manager, together with the EPB Visual Resource Specialist and Landscape Architect, is responsible for the evaluation of visual resources and aesthetics. Typically the development of a visual resource and aesthetics baseline and evaluation of potential project impacts is done by a consultant. The public should also contribute to identification of visual resources and aesthetics because they are important in defining "a sense of place" for the local community.

All visual resources and aesthetics that are visible from key observation points within the project area should be evaluated.

The presence of visual resources and aesthetics may influence the routing of the proposed project or its alternatives because such resources may need to be avoided by a roadway that passes too closely, or it may be advantageous to enhance the view of a particularly important visual resource from the project or its turnouts. Therefore, information on visual resources and aesthetics should be collected as early as possible during project development. Identification of local visual resources, design elements and aesthetics principles should be a goal of the first public scoping meetings.



Visual Resource/Aesthetics Regulations and Guidance

- Guidance for Preparing Environmental and Section 4(f) Documents
- Streamlined EIS Review and Approval Process
- Colorado Regional Transportation Planning Guidebook
- CDOT Landscape Aesthetic and Environmental Manual





REASONS FOR EVALUATION OF VISUAL RESOURCES AND AESTHETICS UNDER NEPA

CDOT evaluates visual resources and aesthetics for several reasons:

- ▶ They are important components of the nation's environmental heritage and in the definition of local communities' sense of place
- ▶ To create design guidelines in the design process that address architectural and view shed objectives developed during the process
- ▶ To conduct a contextual analysis of the study area setting
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with legal mandates or guidance that refer to visual resources and aesthetics in the context of NEPA implementation

Most of the mandate for considering visual resources and aesthetics under NEPA is found in guidance regarding the conduct of NEPA. For example, the FHWA Technical Advisory 6640.8A (FHWA, 1987) includes visual impacts among those that should be evaluated in a NEPA document. The FHWA's *Streamlined Environmental Impact Statement (EIS) Review and Approval Process* (FHWA, 1996b) includes visual resources among the resource topics that should be addressed in the affected environment chapter and notes that the discussion of visual resources should indicate whether a project is in a visually sensitive urban or rural setting. In addition, areas of potential environmental concern recognized in the *2035 Regional and Statewide Transportation Plan* Guidebook (CDOT, 2006c) include visual resources. CDOT's vision regarding context-sensitive solutions is provided in *Chief Engineer's Policy Memo 26 Context Sensitive Solutions (CSS) Vision for CDOT* (CDOT, 2005b). Aesthetic guideline considerations are included in CDOT's *Landscape and Aesthetic Manual* (CDOT, current edition)

In addition to guidance relating specifically to visual resources and aesthetics, is guidance on CSS, since being sensitive to a project's context includes being sensitive to its visual setting.



Direction on CSS is provided on the FHWA Context Sensitive Solutions website
<http://www.fhwa.dot.gov/environment/flex/index.htm>

FHWA document on Flexibility in Highway Design
www.fhwa.dot.gov/environment/flex/index.htm

Context Sensitive Solutions Organization
<http://www.contextsensitivesolutions.org/>





COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

Collection of Baseline Information

Information on locally important visual resources and aesthetics should be gathered from the local community at public scoping meetings. The study area of the proposed project is composed of its view shed. A view shed is the area that can be seen from various viewpoints within the project area. In addition, survey the views and vistas in the study area to determine whether there are visual resources and aesthetics that the project should avoid. When a project involves modification of an existing roadway, a quick survey of visual resources and aesthetics is all that's required. When a project is along a new alignment, it may be necessary to survey it from a helicopter to see its new vantage points. The goal is to collect baseline information on the scenic quality of an area and its sensitivity to modification, as well as to identify particular visual treasures and gateways. Creating visual models that use topography to determine view sheds from specified vantage points can also be used. Negative visual impacts should also be assessed during the project evaluation such as utilities lines, views created by location of alignment and other visual issues.

In addition to impacts of the project on the physical character of locally important visual resources and aesthetics, the project itself may intrude on views of its setting from elsewhere, such as viewpoints along frequently used hiking trails or scenic byways. Baseline information should include descriptions of local trails, scenic byways, or other routes that are locally enjoyed because of their views, if their view sheds include the alignment of any of the project alternatives.

Evaluation of Baseline Information

The importance of visual resources and aesthetics is defined by their visibility and the number of people who view them as well as by their innate character. The extent of impact to them is typically based on their visual importance in the community, as well as the compatibility of project facilities with their character.

The most current FHWA guidance for evaluating visual resources is somewhat general (FHWA, 1987). There are two FHWA documents that address the evaluation of visual resources and aesthetics (*Appendix I: FHWA Memorandum on Aesthetics and Visual Quality Guidance Information*, August 18, 1986; *Appendix 5.23-B: FHWA Environmental Impact Statement, Visual Impact Discussion*) but the more recent protocols developed by agencies such as the BLM and USFS are generally used when detailed analysis is required.





These more detailed protocols evaluate the scenic quality and sensitivity of a study area. Sensitivity is based on such factors as the type of users, amount of use, public interest, adjacent land uses, special areas, natural landscape characteristics and other factors. A prescribed or ad hoc rating scale may be used to delineate and evaluate scenic quality and sensitivity. The study area is often subdivided into mapping distance zones (e.g., foreground, middle ground, background, and seldom-seen zones) on the basis of their visibility. Finally the study area is typically assigned to visual resource management classes that have established objectives for retention of the existing character of the landscape, the level of change permissible in the landscape, and the extent to which a proposed project is required to blend into the landscape. In the BLM Manual, management classes and their objectives are the following:

- ▶ Class I Objective - To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.
- ▶ Class II Objective - To retain the existing character of the landscape. The level of change to the characteristic landscape should be low

Implementation of such an approach can be accomplished by using topographic maps and familiarity with an area, or by use of software packages such as Environmental Systems Research Institute's Spatial Analyst, which electronically defines view sheds from selected particular viewpoints.

For most transportation projects, visual resource analysis can be generalized from the process outlined above. The level of detail provided in the analysis should be commensurate with the complexity of the proposed project and the importance of the visual resources present.

Contextual Analysis

A contextual analysis document consists of study area photographs and maps often supplemented with corridor drawings created by a Landscape Architect. This visual tool should identify key elements such as parks, major drainages, business areas, unique land features, vegetation or elements identified during the community review. The Contextual Analysis will help achieve class I and II objectives and fulfill the objective to best fit the alternatives to the physical setting.

View Shed Analysis

The purpose of a view shed analysis is to identify existing character of the terrain involved in the study area. Basically the analysis is focused on line





mass, texture and color. Visual analysis is very important in a mountain setting with mountainous terrain and forest cover.

When working in US Forest Service Lands a FHWA's Visual Prioritization Process (VPP) is required and should be conducted by a Licensed Landscape Architect. The VPP is similar to a view shed analysis and is intended to focus on mitigation in response to visual impacts and visual goals.

OTHER ISSUES TO CONSIDER

More information on how to approach the evaluation of visual resources and aesthetics is available from the handbooks on visual resource analysis prepared by other agencies such as the BLM (e.g., *Manual H-8410-1 – Visual Resource Inventory*). A review of such guidance can help to identify the types of issues that should be considered in an analysis of visual resources and aesthetics for CDOT.

9.23.2 NEPA Document Sections

Visual resources and aesthetics in the Affected Environment and Environmental Consequences section of NEPA documents are discussed below.


AFFECTED ENVIRONMENT

Documentation for the Affected Environment chapter of EAs and EISs is discussed in this section. At a minimum, the Affected Environment chapter should contain a discussion of the following three elements:

Existing Visual Resources and Aesthetics – Describe the general visual character of the study area and identify important visual resources and aesthetics that are present

Common Viewpoints – Note any other travel routes (hiking trails, biking trails, scenic byways, favored local routes) in the study area that have important views of the location

Graphics – Include topographic maps and photographs of the important visual resources and aesthetics identified (Figure 9-7)



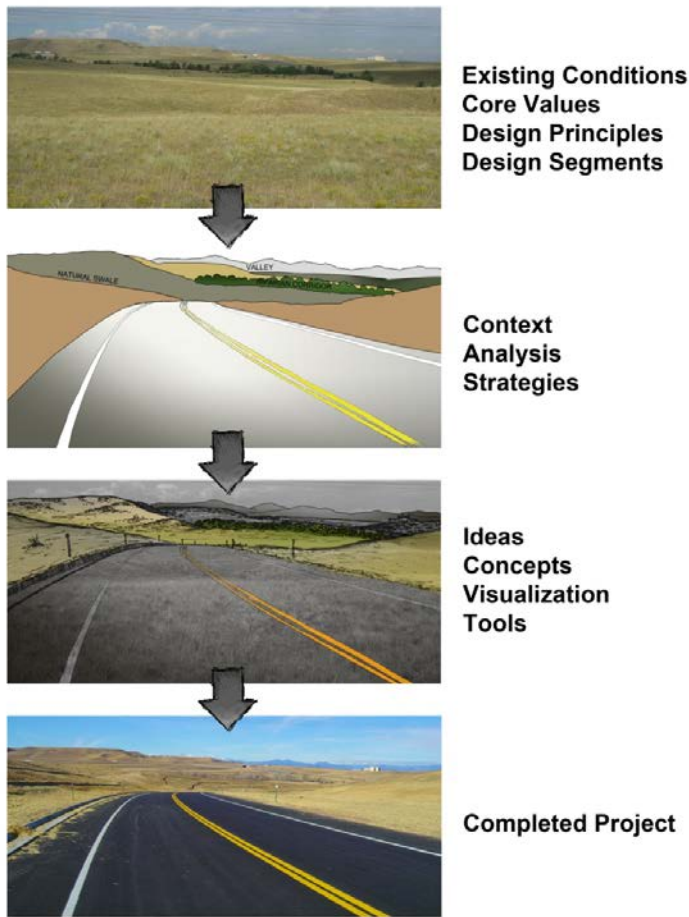
Affected Environment
Chapter of NEPA Document

- Description of visual character
- Identification of important visual resources and aesthetics
- Documentation of other travel routes from which the project can be seen





Figure 9-7 Visual Resource Evaluation



ENVIRONMENTAL CONSEQUENCES

Documentation needs for the Environmental Consequences section of EAs and EISs are discussed in this section. At a minimum, the Environmental Consequences section should compare the effects of each alternative carried forward for detailed analysis in the following four categories:

Visual Analysis – Identify desirable view sheds and seeks to preserve them while maintaining compliance with other resources. Consider both natural and cultural impacts during preservation. Conversely, visual analysis must identify negative views within the project and adjacent to the project. Consider screening negative view points and address alternatives to improve undesirable areas within the design templates. For example, above ground utilities intersecting a view shed of the mountains should be





addressed as a negative visual impact. The process for doing this is as follows:

- ▶ On the map of visual resources, identify key viewpoints along each of these routes from which the project can be seen and also identify key viewpoints from which local visual resources can be observed from the project
- ▶ If appropriate to the project complexity, illustrate the view shed visible from each viewpoint
- ▶ Perform this analysis for key viewpoints off/from each of the project alternatives
- ▶ If the project is complex, individual alternatives may need to be illustrated on separate maps
- ▶ Use the map showing topography, visual resources/aesthetics, viewpoints, and view sheds as the basis for a text discussion of impacts

As noted in FHWA Technical Advisory 6640.8A (FHWA, 1987), "when the project alternatives have potential visual impacts, the draft NEPA document should identify impacts to the existing visual resource, the relationship of the impacts to potential viewers of and from the project, as well as measures to avoid, minimize, or reduce the adverse impacts."

FHWA Technical Advisory T6640.8A suggests that when there is potential for visual quality impacts, the draft NEPA document should explain the consideration given to design quality, art, and architecture in project planning. Such considerations represent early recognition and avoidance of potential project impacts through project design.

Additionally, when a proposed project will include features associated with design quality, art, or architecture, be certain that circulation of the draft NEPA document includes officially designated state and local arts councils and, as appropriate, other organizations with similar interests.

Sustainability – Aesthetic mitigation must blend into the existing environment by using adaptive restoration methods and matching native plant communities of the natural landscape. Utilizing natural character types will fit the facility to the landscape and better respond to the local influences.

Continuity – Evaluating existing landscape enables fitting the landscape to adjacent landscape characteristics. Uniform visual guidelines should be developed that apply to the entire study area based on consensus and compliance with land manager agencies (USFS, BLM, and NPS), local





agencies, and the local community. Studies should commit to developing master guidelines addressing aesthetics and architectural standards.

Conclusion of Effects – The conclusion should restate the biggest visual resource/aesthetics concerns associated with each alternative and identify the alternative with the least expected effect on visual resource and aesthetics.

Depending on project complexity and the effort entailed in developing mitigation measures, it may be appropriate to suggest mitigation measures for each of the project alternatives, or only for the preferred alternative once it has been identified on the basis of overall impacts (including unmitigated visual resource and aesthetics impacts). In either case, the final NEPA document should identify any proposed mitigation for the preferred alternative.

Aesthetic Design Criteria

Mitigation of impacts to visual resources and aesthetics can include such measures as:

- ▶ Minimization of cut-and-fill so a roadway's scar on the landscape is as small as possible
- ▶ Modification of facility alignment to fit the template into the physical setting.
- ▶ Modification of facility shape, texture, and color to help it blend in with the surrounding landscape
- ▶ Construction on the backside of hillsides included in important view sheds
- ▶ Routing of alternatives away from visual resources and aesthetics that might be damaged
- ▶ Inclusion of turnouts, parking areas, and signage that promote public enjoyment of visual resources and aesthetics from the project
- ▶ Planting to soften/minimize cuts, fills, bridge abutments, and so on, mitigate vegetation taken, and block negative views

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from: http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.24 Energy



Energy resources typically include liquid or gaseous fuels, petroleum products, or electricity. The term “energy” is used in many other contexts and might be universally defined as “the potential for causing change.” It is a conserved quantity, which means the total energy of the universe remains constant, but may be converted from one form into another. The efforts to conserve such energy sources are in part efforts to conserve currently available energy resources that can do useful work such as propel vehicles. Such efforts are also intended to minimize the consumption of energy resources, which contributes to air and water pollution.

Wise use of energy resources is important because those that are readily available are in dwindling supply and subject to political constraints.

The two sections below provide guidance on the treatment of energy for CDOT’s NEPA projects. The first section discusses the process for evaluating energy use and conservation. The second section discusses information about energy that should be in each NEPA document.

9.24.1 Energy Evaluation Process

The aspects of the current transportation system that contribute to inefficient use of energy should be discussed as should the ways in which project components will contribute toward more efficient use of energy. The discussion should focus on the project system as a unit (rather than on specific locations), including construction and operation time frames, and project aspects and components that contribute to energy economy.

Energy use should be considered throughout the design, development, construction, and use of a transportation project. Efficiencies can be incorporated in each of these phases.

REASONS FOR EVALUATION OF ENERGY UNDER NEPA

CDOT evaluates energy for several reasons:

- ▶ Available and readily useable energy is a resource that is important to the nation’s economy and sustainability
- ▶ To comply with CDOT’s environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner



Energy Regulations and Guidance

- National Energy Policy Act of 2005 provides incentives for traditional energy production and for newer, more efficient energy technologies and conservation.
- Executive Order 13211 requires preparation of a Statement of Energy Effects from federal agencies responsible for “significant energy actions”
- FHWA policy on Environmental Best Practices mentions energy efficiency in numerous contexts
- SAFETEA-LU Section 1121 identifies fuel efficient vehicles among the exceptions that may be allowed in HOV lanes





- ▶ To comply with several legal mandates that pertain to energy production, use, and conservation

The regulations and guidance listed in the previous sidebar are variously relevant to transportation. As a result of these, as well as broad-based national policy, energy conservation is an important factor in the design and analysis of highway projects and in the conduct of day-to-day life at CDOT. Beyond the legal requirements for energy conservation are environmental benefits under the NEPA umbrella.

COLLECTION AND EVALUATION OF BASELINE INFORMATION UNDER NEPA

Collection of Baseline Information

Because the topic of energy is complex, care must be taken to focus the collection of baseline information specifically on the types of energy that will be affected by the project. The level of detail obtained for the baseline should not be greater than that which can be predicted for project construction and operation energy uses.

For existing roadways, obtain information on the traffic mix, speed, and volume at key times of day. Use this information to characterize the annual energy consumption of current vehicular traffic. Data could also be collected on other annual expenditures of energy, such as in maintenance of the existing roadway and on lighting and signage. The specific information collected should be guided by the changes in energy use that will be brought about by the project. The larger the scale and complexity of the proposed project, the greater the level of detail should be in collecting baseline data on energy consumption. Except for large scale projects, a detailed energy analysis including computations of British thermal unit requirements, and so on, is not needed.

Evaluation of Baseline Information

Evaluate all aspects of the proposed project to identify how it will be different from the existing situation in ways that affect energy consumption or conservation. Consider questions such as the following for each of the alternatives:

- ▶ Will the new roadway be longer and require vehicles to travel further, as well as require more lighting and more maintenance?
- ▶ Will the design, speed limit posting, and LOS of the new roadway cause vehicles to travel at speeds of maximum efficiency, or at speeds higher or lower than that?



- ▶ How much energy will be expended during construction of the project and what energy conservation measures will be employed during construction?
- ▶ Will HOV lanes be installed to encourage efficient use of the roadway and, if so, what energy savings are likely to result?
- ▶ Will incentives be provided to encourage and promote the use of fuel-efficient vehicles on the new roadway?
- ▶ Will the new roadway and the materials used for it require less maintenance?

To evaluate the energy impacts of the project, develop tables that compare the existing and proposed future energy use for the entire road network affected by each of the project's alternatives.

OTHER ISSUES TO CONSIDER

Beyond regulations and guidance directed specifically at energy policy, energy conservation is woven throughout the fabric of CDOT activities. CDOT's *Lighting Design Guide* (CDOT, 2006) which provides current recommended practice for roadway lighting and criteria for typical Colorado applications, focuses on energy efficiency repeatedly as a primary benefit of various lighting fixtures. Energy dissipation is also a factor in roadside barrier material selection and drainage system design. In this and other documents, energy efficiency is an environmental and safety concern, as well as an economic consideration.

9.24.2 NEPA Document Sections

The content of the sections on energy in the Affected Environment and Environmental Consequences chapter is discussed below.

AFFECTED ENVIRONMENT

In the energy section of the Affected Environment chapter of the NEPA document, present the data collected on current energy use. Include only information on the types of energy use that the proposed project will alter, at a level of detail that can be matched with reasonable projections for the project alternatives.

ENVIRONMENTAL CONSEQUENCES

Discuss in general terms the construction and operational energy requirements and conservation potential of various alternatives under consideration. The discussion should be reasonable, supportable, and, when appropriate, do the following:



Affected Environment Chapter of NEPA Document

- Constrain to types of energy use that the proposed project would alter
- Quantify the existing energy use to the same level of detail that can be projected for the project





- ▶ Recognize that the energy requirements of various construction alternatives are similar and are generally greater than the energy requirements of the No Action Alternative.
- ▶ Point out that the post-construction, operational energy requirements of the facility should be less with one or more of the build alternatives. In such a situation, one could conclude that the savings in operational energy requirements would more than offset construction energy requirements and thus, in the long term, result in a net savings in energy usage.
- ▶ For large-scale projects with potentially substantial energy impacts, the Draft EIS should discuss the major direct and/or indirect energy impacts and conservation potential of each alternative.
- ▶ Direct energy impacts refer to the energy consumed by vehicles using the facility.
- ▶ Indirect impacts include construction energy and such items as the effects of any changes in automobile usage.
- ▶ The alternative's relationship and consistency with a state and/or regional energy plan, if one exists, should also be indicated.

The NEPA document should identify any energy conservation measures that would be implemented for each of the alternatives. Once the preferred alternative is identified, the energy conservation measures to be implemented for that alternative should be highlighted. Measures to conserve energy could include:

- ▶ Use of HOV incentives
- ▶ Measures to improve traffic flow
- ▶ Reduction of the energy used in lighting
- ▶ Reduction of the roadway maintenance extent or frequency
- ▶ Limiting the idling of construction equipment
- ▶ Encouraging employee carpooling or vanpools for construction workers
- ▶ Encouraging the use of the closest material sources
- ▶ Locating construction staging areas close to work sites
- ▶ Using cleaner and more fuel-efficient construction vehicles
- ▶ Using alternative fuels and asphalt binders





- ▶ Implementing traffic management schemes that minimize motorist delays and vehicle idling
- ▶ Carrying out maintenance activities during periods of reduced traffic volumes
- ▶ Promoting carpooling/vanpooling
- ▶ Encouraging transit

Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.25 Hazardous Materials



The term hazardous materials is an all-inclusive term for materials that are regulated as a solid waste, hazardous waste, and other materials contaminated with hazardous substances, radioactive materials, petroleum products, toxic substances, and pollutants. The regulations that apply to the acquisition, investigation, and cleanup of sites containing hazardous materials that may be present in a project area include but are not limited to:

- ▶ Resource Conservation Recovery Act (RCRA) (40 CFR Parts 260–299) is the primary law governing the management and disposal of solid and hazardous waste. Subtitle C regulates hazardous waste and Subtitle I regulates underground storage tanks containing hazardous materials and petroleum products.
- ▶ Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC Part 103, Sec. 9601 et seq.) established prohibitions and requirements concerning closed and abandoned hazardous waste sites; provided for liability of persons responsible for releases of hazardous substances at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified.
- ▶ US Environmental Protection Agency (EPA) Standards and Practices for All Appropriate Inquiry (AAI)/ASTM (40 CFR Part 312) establishes federal standards and practices for conducting all appropriate inquiries related to the previous ownership and uses of a property to qualify for landowner liability protections under CERCLA.
- ▶ Underground Storage Tank (UST) Remediation Colorado Department of Labor and Employment-Division of Oil and Public Safety (OPS) (7CCR 1101-14)
- ▶ Colorado Hazardous Waste Regulations (6 CCR 1007-3, Part 260)
- ▶ Radiation Control, Colorado Department of Health and Environment, Hazardous Materials and Waste Management Division (6 CCR 1007-1)

The sections below provide guidance on the assessment and management of hazardous materials and the process for collecting information on and evaluating the presence of hazardous materials for CDOT's NEPA projects.





9.25.1 Hazardous Material Evaluation Process

The RPEM or designee should be responsible for completing hazardous material studies and for assessment of the potential for encountering hazardous materials on a CDOT project. Consultants or others conducting hazardous materials investigations/studies on behalf of CDOT should coordinate with CDOT Environmental staff in advance to determine the scope of work (level of effort, type of document) required. CDOT has contracted with a database firm to generate environmental database reports for hazardous materials clearances. CDOT staff and consultants should use these reports rather than ordering environmental reports at an additional cost to the project, unless otherwise directed by CDOT.

The goal of a hazardous material study is to provide information needed for planning efforts related to hazardous materials and contaminated sites. A hazardous material study should be conducted to assess past and present uses which indicate that hazardous materials might be present.

The discovery of hazardous materials within the proposed project area may have an adverse impact on budgets and the timely completion of the project; therefore, an assessment of potential areas of contamination should be conducted early in the project development process. This assessment will:

- ▶ Supply information for property evaluation during the right-of-way acquisition process, in order to limit or avoid CDOT liability
- ▶ Assess project alternatives for feasibility based on impacts from hazardous materials
- ▶ Allow estimation of the cost of any required remediation
- ▶ Prevent delay claims during construction
- ▶ Identify worker health and safety concerns
- ▶ Develop specific materials management or institutional controls required during construction

When hazardous materials are discovered early in the project development process, the affected areas can either be avoided entirely or addressed in a timely manner.

REASONS FOR EVALUATION OF HAZARDOUS MATERIALS UNDER NEPA

CDOT conducts site assessments during the planning or project development process to evaluate hazardous materials at proposed project areas for several reasons:



- ▶ To assess project alternatives during the alternatives screening and evaluation process for feasibility based on impacts related to hazardous materials
- ▶ To identify potential soil and groundwater contamination issues so they do not affect a project in terms of mitigation, cost, schedule, and project environmental and personnel health and safety issues
- ▶ To comply with state and federal regulations and laws
- ▶ To facilitate the development of project plans and specifications
- ▶ To develop specific materials management or institutional controls required during construction and include in project costing and schedule

EPA has delegated enforcement of the federal hazardous waste regulations to CDPHE. USTs, aboveground storage tanks (AST), and leaking USTs (LUST) are regulated by OPS.

9.25.2 Collection and Evaluation of Baseline Information

CDOT has developed a guidance table to streamline and provide consistency on information gathered for NEPA documents. There are three types of hazardous material documents that CDOT utilizes for hazardous material analysis to support NEPA: Initial Site Assessments (ISA), Phase I Environmental Site Assessment (Phase I), and Modified Environmental Site Assessment (MESA). These three documents are described in the **Table 9-4**.



Table 9-4 CDOT Hazardous Material Document Guidance Table

Hazardous Material Document	When Prepared	Purpose	Typical Limitations	Guidance/Resources	Modifications	Notes
Initial Site Assessment (ISA)	<p>In support of a Categorical Exclusion <u>OR</u> Right-of-Way Acquisition.</p> <p>For properties that are to be acquired by, dedicated to, or disposed by CDOT and <u>have minimal</u> hazardous materials concerns.</p>	Provide an approach that is less comprehensive than a MESA for clearance of the Hazardous Materials section of Form 128, or acquisition and dedication of right-of-way.	Site access is preferred, but may not be available.	<p>CDOT. October 2003. Right of Way Manual.</p> <p>ASTM. E 1528-05 Standard Practice for Environmental Site Assessments: Transaction Screen Process.</p> <p>CDOT ISA Checklist Form #881</p> <p>CDOT Asbestos-Contaminated Soil Management Standard Operating Procedure (August, 2011)</p>	None	<p>Consider the potential for asbestos-containing materials and heavy metal-based paint – notably for the demolition of structures.</p> <p>Findings and conclusions should be specific and give an opinion for additional assessment or investigation. Information should include what monitoring during construction may be appropriate (and where), and what remediation or monitoring actions may be needed.</p>
Phase I Environmental Site Assessment (Phase I)	For properties that are to be acquired by or dedicated to CDOT and <u>have known or are suspected of</u> storing hazardous materials.	Provide a site-specific assessment of known or suspected soil and groundwater contamination, asbestos containing materials, and heavy metal-based paint for liability protection.	Right-of-entry required. Site access necessary.	<p>ASTM. E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.</p> <p>CDOT Asbestos-Contaminated Soil Management Standard Operating Procedure (August, 2011)</p>	<p>Extend the ASTM Minimum Search Radius by 0.25 – 1 mile, at the discretion of the CDOT environmental professional and/or where project footprint is uncertain.</p> <p>Include a brief description of CDOT's most current plans regarding acquisition, excavation areas, temporary and permanent dewatering, and other issues that may affect liability in acquisition.</p>	<p>A general discussion of asbestos-containing materials, heavy metal-based paint, and suspected drug lab waste should be included – notably for the demolition of structures. The site reconnaissance and historical document review should identify sites with potential concerns that could affect project design, right-of-way acquisition, construction, and decisions regarding the preferred alternative.</p>





Hazardous Material Document	When Prepared	Purpose	Typical Limitations	Guidance/Resources	Modifications	Notes
					<p>Include a map that summarizes the important features of the project and locations of sites with recognized environmental conditions and those of concern that may affect the project.</p>	<p>Findings and conclusions should be specific and give an opinion for additional assessment or investigation. Information should include what monitoring during construction may be appropriate (and where), and what remediation or monitoring actions may be needed.</p>
<p>Modified Environmental Site Assessment (MESA)</p>	<p>In support of a technical report for an Environmental Assessment (EA) or Environmental Impact Statement (EIS).</p> <p>At the discretion of the regional Environmental Staff.</p>	<p>Corridor or project-wide assessment of soil and groundwater contamination, asbestos containing materials, and heavy metal-based paint.</p>	<p>Site access is preferred, but may not be provided and property owners may not be available for interviews.</p>	<p>ASTM. E 1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.</p> <p>CDOT Asbestos-Contaminated Soil Management Standard Operating Procedure (August, 2011)</p>	<p>Perform a limited site reconnaissance ("windshield survey"), if site access is not available.</p> <p>Extend the ASTM project minimum search radius 0.25 – 1 mile, at the discretion of the CDOT environmental professional and/or where the project footprint is uncertain.</p> <p>Include a general project description including the project footprint and any right-of-way to be acquired.</p> <p>Include a brief description of the environmental setting, such as topography, geology, and groundwater hydrology including estimated depth to</p>	





Hazardous Material Document	When Prepared	Purpose	Typical Limitations	Guidance/Resources	Modifications	Notes
					groundwater and shallow groundwater flow direction. Include a map that summarizes the important features of the project and locations of sites with recognized environmental conditions and those of concern that may affect the project. Indicate if sites are up or down gradient of the corridor.	

Note – CDOT Environmental reserves the right to designate whether an ISA or Phase I is prepared





OTHER ISSUES TO CONSIDER

During site reconnaissance and documentation activities hazardous material investigations for CDOT projects must identify properties adjacent or within project areas for the following items:

- ▶ USTs
- ▶ Liquid waste
- ▶ Above ground storage tanks
- ▶ Electrical/transformer equipment
- ▶ Cisterns, sumps, drains
- ▶ Surface staining
- ▶ Suspected methamphetamine lab waste
- ▶ Chemical storage facilities
- ▶ Structures constructed prior to 1980 – suspect asbestos containing materials
- ▶ Painted/preserved materials – lead based paint
- ▶ Oil/gas wells/natural gas pipeline
- ▶ Exposed/buried landfills
- ▶ Miscellaneous storage, dumping, stockpiles, surface trash, debris
- ▶ Railroad tracks/railyards
- ▶ Vehicle maintenance activities
- ▶ Evidence of remediation activities

9.25.3 NEPA Document Sections

The content of the sections on hazardous materials in the Affected Environment and Environmental Consequences chapter is discussed below. Generally, the information in the EA or EIS should be sufficient to compare the scope of potential hazardous waste involvement among the project alternatives and support the determination of a preferred alternative.

In the case of a CatEx, where a full NEPA document is not required, CDOT expects that the appropriate hazardous material information to confirm the presence/absence of hazardous materials be evaluated prior to the final approval of the CatEx.





AFFECTED ENVIRONMENT

The hazardous materials section of the Affected Environment chapter in the NEPA document should be based on the results of the preliminary hazardous materials work and include the following information, at a minimum:

- ▶ Text description of work performed during the ISA/MESA
- ▶ Summary of reports and databases compiled during the ISA/MESA
- ▶ Description of properties that may affect the project due to recognized environmental conditions or other hazardous materials concerns
- ▶ Map showing properties of concern
- ▶ Table listing properties of concern, including their addresses and the potential issues
- ▶ General discussion of asbestos-containing materials and heavy metal-based paint, particularly with respect to structures that must be demolished
- ▶ Location and description of any suspected or known methamphetamine laboratories

ENVIRONMENTAL CONSEQUENCES AND MITIGATION

The discussion of hazardous materials in the Environmental Consequences section should do the following:

- ▶ Identify the types and locations of any hazardous materials that may affect the project, using the conclusions of the ISA, site-specific Phase I Environmental Site Assessment, or MESA
- ▶ Provide a map that shows the proposed project alignments and the nature and location of known or suspected hazardous materials
- ▶ Discuss where, specifically, the hazardous materials are located with respect to project activities that will take place on site
- ▶ Note where further investigation of some sites is necessary before the property is acquired
- ▶ Discuss the potential for dispersal of hazardous materials through project-related activities
- ▶ Note whether any hazardous materials will be used during project construction or operation and, if so, how these will be handled to avoid impacts



Environmental Consequences Chapter of NEPA Document

- Conclusions and recommendations regarding future actions that are needed to mitigate potential public health or worker safety concerns and limit potential agency liability
- Discussion of whether or not any properties affect the decision of proposed action or preferred alternative
- Discussion of hazardous material use associated with project construction or operation



If the ISA, site-specific Phase I Environmental Site Assessment, or MESA identifies one or more sites within the project area that are known or suspected to contain hazardous materials there are several methods to mitigate the impact of the hazardous material on the project. The three primary mitigation methods are: 1) altering the alignment to avoid the contamination, 2) modifying the project construction procedures, or 3) remediating the site to remove the contamination. All of these actions associated with potential hazardous materials sites should be considered during the alternatives screening process.

If hazardous materials are identified in a project area that cannot be avoided (e.g., the project must go through this property), CDOT must coordinate with State Regulators and/or EPA to determine the required mitigation as shown in Figure 9-8.

Figure 9-8 Mitigation Process for CDOT Projects



Impacts and mitigation should be listed in a summary of impacts and mitigation table at the end of the resource evaluation chapter of the NEPA document. The first seven columns of CDOT's Mitigation Tracking Spreadsheet should be used as this summary table. The spreadsheet can be retrieved from:

http://www.coloradodot.info/programs/environmental/resources/forms/CDOT%20Mitigation%20Tracking%20Spreadsheet_June%202012.xlsx/view.





9.26 Cumulative Impacts

Cumulative impacts are defined in Section 1508.7 of (Council on Environmental Quality (CEQ), 40 CFR § 1500 – 1508):

The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Past, present, and reasonably foreseeable future actions are considered in the analysis to identify:

- ▶ Whether the environment has been previously degraded and to what extent
- ▶ Whether ongoing activities are causing impacts
- ▶ What the trends are for activities and impacts in the area
- ▶ Whether the environment will be degraded in the foreseeable future and to what extent

The cumulative impact analysis must take into consideration all of the aspects of the environment affected by the proposed action, as well as the impacts of that action in relation to other past, present, and reasonably foreseeable actions in the vicinity and/or region. Reasonably foreseeable actions are those future activities that have been committed to or that are known proposals, which could take place within the defined planning horizon.

In selecting the cumulative impacts to analyze and discuss, consider scoping direction, and:

- ▶ Whether a resource(s) is important and especially vulnerable to incremental impacts
- ▶ If the proposed action is one of several actions within the same resource study area with common impacts
- ▶ Whether other proposed activities in the area will have similar impacts
- ▶ If these impacts have been historically significant for the resource
- ▶ If other environmental or planning analysis in the area has identified a cumulative impact concern



Cumulative Impacts Regulations and Guidance

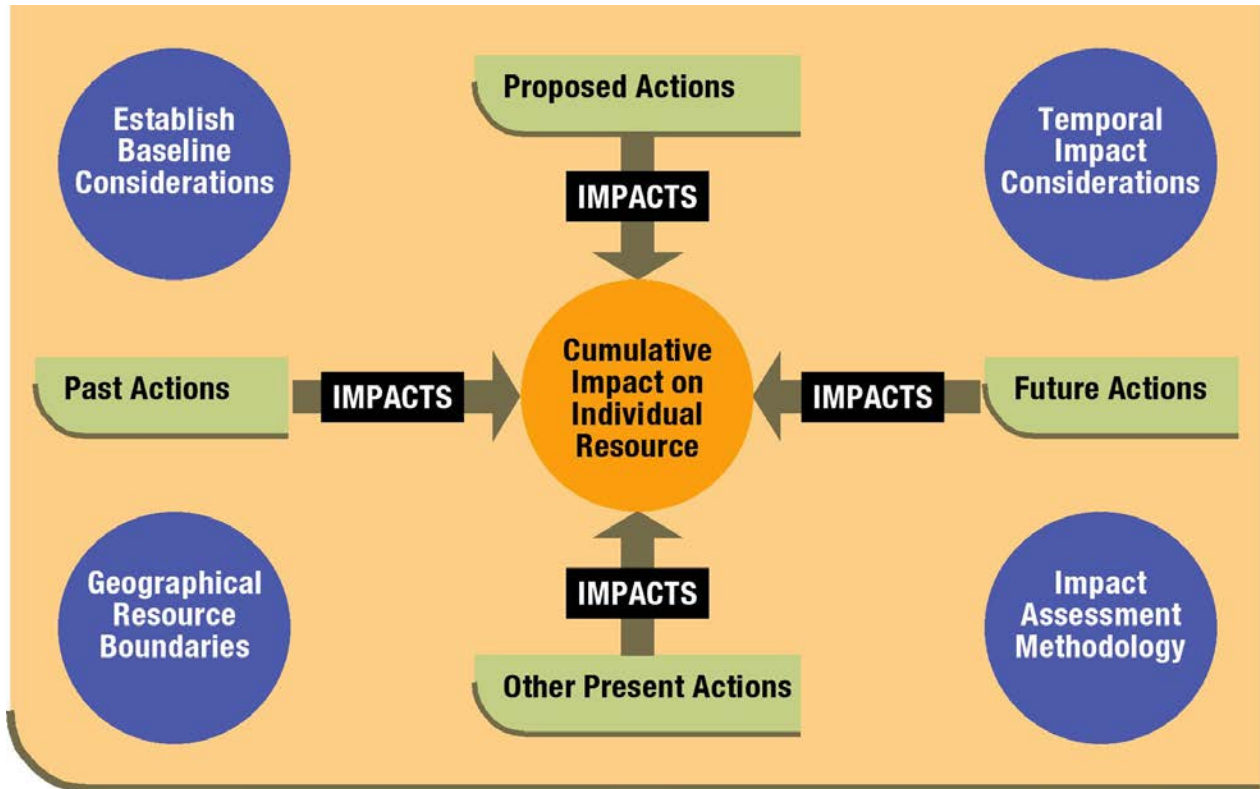
- CEQ Regulations Implementing NEPA
http://www.nepa.gov/nepa/regs/ceq/toc_ceq.htm
- Considering Cumulative Effects under NEPA
<http://ceq.hss.doe.gov/nepa/ccenepa/ccenepa.htm>
- FHWA Technical Advisory T6640.8a
<http://environment.fhwa.dot.gov/projdev/impTA6640.htm>
- FHWA Secondary and Cumulative Impact Assessment in the Highway Project Development Process
http://www.environment.fhwa.dot.gov/guidebook/content/Secondary_Cumulative_Impact_Assessment.asp
- Guidance On The Consideration Of Past Actions In Cumulative Effects Analysis
<http://energy.gov/nepa/downloads/guidance-consideration-past-actions-cumulative-effects-analysis>





Individual resource studies and consultation with federal, state, and local agencies should provide the basis for identifying cumulative impact issues. Previous environmental documents prepared for local and regional plans can provide guidance regarding adopted mitigation that may be applicable to reducing the cumulative impact of a specific proposed highway or off-highway project. Figure 9-9 depicts the process for determining cumulative impacts.

Figure 9-9 Determining Cumulative Impacts



The potential cumulative impacts are described for each resource within a defined cumulative impact analysis area. Generally, these areas are larger for resources that are mobile (e.g., wildlife) compared to resources that are stationary (e.g., historic and archaeological resources). In the cumulative impacts discussion, only substantial impacts to those resources that may be affected need be discussed. The following components are required for a cumulative analysis:





- ▶ **Spatial and Temporal Boundaries** – In establishing appropriate spatial and temporal boundaries for cumulative impact analysis, the EPA points out that there are no set or required formulas for determining appropriate scope. Decisions must be made on a case-by-case basis depending on the magnitude of the project impacts and the environmental setting. For a given project, decisions are also made on a resource-by-resource basis. Generally, the boundaries for cumulative analysis are broader than the scope of analysis used in assessing direct or indirect impacts. Geographic boundaries should be defined for each resource of concern, and the periods of time considered should include the period in which the proposed action's impacts will persist. The geographic boundaries and periods of time being considered are likely to vary among different resources. The rationales used to establish the spatial and temporal boundaries of the cumulative analysis should be identified in the NEPA document. Some thought must be given to whether the CDOT project is the cause or the effect of cumulative impacts. A larger development may be drawing all the growth, and the CDOT project could just be a response to that growth.

- ▶ **Past, Present, and Reasonably Foreseeable Future Actions** – In identifying past, present, and reasonably foreseeable future actions to be considered, only those actions that incrementally contribute to the cumulative impacts on resources need be addressed. Consideration should be given to current level of degradation, ongoing activities in the area that are causing impacts, and trends for activities and impacts in the area. To be considered “reasonably foreseeable” an action need not be a specific proposal; however, the courts have excluded actions that can be considered purely “speculative.” Near-term projects identified in local, state, and federal agency planning documents are usually considered reasonably foreseeable. In general, the description of past, present and reasonably foreseeable projects for a cumulative impact analysis should be inclusive, but does not need to identify every project in the defined spatial and temporal boundaries of the analysis.

The CEQ and EPA have highlighted the importance of cumulative impact analysis and recognized the complexity of delineating the cause-and-effect relationships between the multiple actions and the resources, ecosystems, and human communities of concern. Both CEQ and EPA have issued detailed guidance to assist in formulating cumulative analysis. The latter document was prepared to assist EPA staff in evaluating and commenting on EISs; however, it contains substantial information of use to NEPA practitioners.



EPA's Consideration of Cumulative Impacts in EPA Review of NEPA Documents (1999)

<http://www.epa.gov/compliance/resources/policies/nepa/cumulative.pdf>





Cumulative impacts result when the impacts of an action are added to or interact with impacts of other actions that result in a compounded impact from all actions in the same geographic area over time. It is the combination of these impacts, and any resulting environmental degradation on its sustainability, is the focus of the cumulative impact analysis.

While ecological and land use cumulative impacts are of particular importance, other resource areas are considered, including social resources, economic resources, recreation, quality of life or community values, global climate change, and cultural resources. The level of analysis and scope in the cumulative analysis should be commensurate with the potential impacts, resources affected, scale, and other relevant factors associated with the project. These assessments involve determinations that are often complex and, to some degree, subjective.

The two sections below provide guidance on the treatment of cumulative impacts for CDOT's NEPA studies. The first section discusses the process for evaluating cumulative impacts. The second section discusses information on cumulative impacts that should be in each NEPA document.

9.26.1 Cumulative Impact Process

The CDOT project manager, together with the specialists responsible for each environmental resource that is expected to be impacted by the project, is responsible for evaluating cumulative impacts. Typically, the resource specialists who perform resource-specific impact analyses will collaborate, together and with their CDOT counterparts in EPB or the CDOT Regions, in providing information for the cumulative impact analysis.

The collective impacts of the proposed project and all other past, present, and future projects in the region of influence (ROI) regardless of their ownership, sponsorship, or funding source, should be evaluated for each resource. The ROI is the physical area that bounds the environmental, sociological, economic, or cultural resources of interest for the purpose of cumulative analysis. The practical bounds of this statement are discussed below in this section of this Manual.

Detailed consideration of cumulative impacts should occur after project-specific impacts have been identified for each resource. However, even at the start of project development it should be possible to identify resources in the project vicinity that have been historically impacted by talking with local planning and agency personnel and asking the public at scoping meetings. Whenever possible, further impacts on the resources identified should be avoided and/or minimized through project design.



Variation in the areas for which resource data are available may also influence the size of the ROI. For example, socioeconomic data may be available for census blocks, economic data may be available for counties, and wildlife data may be available for game management units – none of which have the same boundaries.





REASONS FOR EVALUATION OF CUMULATIVE IMPACTS UNDER NEPA

CDOT evaluates cumulative impacts for several reasons:

- ▶ Cumulative impact analysis considers total project impacts in combination with the impacts from other past, present, and reasonably foreseeable future actions to provide a measure of overall impacts to environmental resources
- ▶ It provides the decision-maker information on the health of an environmental resource due to past, present and reasonably foreseeable future actions
- ▶ It is a required analysis in NEPA documents
- ▶ To comply with CDOT's environmental stewardship policy, which ensures that the statewide transportation system is constructed and maintained in an environmentally responsible, sustainable, and compliant manner
- ▶ To comply with several legal mandates that pertain to cumulative impacts as discussed below.

The original wording of NEPA in 1969 does not contain the word "cumulative," but does direct that agencies "recognize the worldwide and long-range character of environmental problems." CEQ's Regulations for Implementing NEPA introduce the consideration of cumulative impacts CEQ, 40 CFR § 1500 – 1508. The concept of cumulative impacts has continued to be developed and refined through subsequent guidance from CEQ and federal agencies.

EVALUATION OF CUMULATIVE IMPACTS UNDER NEPA

Collection of Baseline Information

The main components in the cumulative impact analysis process include:

- ▶ Determining temporal and spatial boundaries for the analysis
- ▶ Generating a list of planned projects or foreseeable activities for consideration
- ▶ Gathering data to supplement the list generated
- ▶ Achieving agreements on which resources to count, the baseline data and its sources

The approach for each of these components is further described below:





- ▶ Develop temporal (timeframe) and spatial (ROI) boundaries for the cumulative analysis based on all resources of concern and all of the actions that may contribute. Generally, the temporal and spatial boundaries would be based on the period of time that the impacts would persist and the natural boundaries of resources of concern (as opposed to jurisdictional boundaries), for example:
 - The most common temporal scope is from the naturally occurring baseline (as depicted in the affected environment) through the life of the project.
 - The size and shape of the ROI boundaries vary by resource and are larger for resources that are mobile or migrate (e.g., elk populations) compared with stationary resources. Occasionally, spatial boundaries may be contained within the project area or just a portion of the project area
- ▶ Generate a list of past, present, and reasonably foreseeable future actions through informal contacts and a formal meetings with cooperators, local agencies, and other stakeholders.
- ▶ Gather data to supplement the list of projects and activities accumulated through telephone calls, website searches, and document reviews. Enough information should be gathered to generally describe the project and impacts that occurred or may potentially occur from the project or activity.

To successfully assess cumulative impacts, the analysis must consider other projects with a broad range of activities and patterns of environmental degradation that are occurring in the vicinity of the project. The following factors are considered in identifying actions that may relate to the project:

- ▶ Proximity (either spatially or temporally)
- ▶ Probability of an action affecting the same environmental system
- ▶ The likelihood a project leads to a range of impacts or other associated activity
- ▶ Whether the impacts are similar to the project proposed
- ▶ The likelihood a project will occur, and if the project is imminent

Constraints of time, money, and reliable data make detailed consideration of the past unrealistic, although some recognition of the undeveloped natural state of an area should be provided so that the abundance of predevelopment ecosystems will not be forgotten. In 2005, CEQ issued *Guidance on the*





Consideration of Past Actions in Cumulative Effects Analysis (CEQ, 2005), which states in part:

CEQ interprets NEPA and CEQ's NEPA regulations on cumulative effects as requiring analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for action and its alternatives may have a continuing, additive and significant relationship to those effects. In determining what information is necessary for a cumulative effects analysis, agencies should use scoping to focus on the extent to which information is "relevant to reasonably foreseeable significant adverse impacts," is "essential to a reasoned choice among alternatives," and can be obtained without exorbitant cost.

Evaluation of Baseline Information

To evaluate the cumulative impact information collected, the following should be done:

- ▶ Characterize each resource within the project ROI by obtaining data on past trends in the state of the resource and its current state. This information should be documented in the Affected Environment chapter of the NEPA document.
- ▶ Locate the projects identified on a map to enable easy comparison for each resource. It may be possible to combine several resources, such as vegetation and fish and wildlife, on a single map.
- ▶ Evaluate only the effects of resources that are expected to receive impacts under one or more of the project alternatives
- ▶ Assess the magnitude and importance of cumulative impacts by comparing the environment in its naturally occurring state with the expected impacts of the project alternatives and other actions in the same geographic area. Base magnitude on the extent of difference between the naturally occurring environment and the anticipated condition. Base importance on whether the long-term sustainability of a resource or social system would be affected.
- ▶ Describe any cumulative impacts in somewhat general terms. Note any cumulative benefits, as well as detriments, in the analysis.
- ▶ Note the relative importance of this impact to the overall resource as it currently exists and in relation to historic trends.





- ▶ Describe the degree to which impacts from the proposed transportation project will contribute to the cumulative impacts for this resource.

OTHER ISSUES TO CONSIDER

When considering the appropriateness of evaluating a project as a CatEx, it should be remembered that a CatEx should only be used for projects that do “not individually or cumulatively have a significant effect on the human environment (Sec. 1508.4) and . . . [that] are therefore exempt from requirements to prepare an environmental impact statement.” (CEQ, 40 CFR § 1500 – 1508).

9.26.2 NEPA Document Sections

The description of cumulative impacts in the NEPA document should provide a brief summary of cumulative impacts

This section would include the temporal and spatial boundaries used, the baseline condition used (typically documented in the affected environment section), and any additional factors considered, such as:

- ▶ Federal, nonfederal, and private actions
- ▶ Potential for synergistic impacts or synergistic interaction among or between impacts
- ▶ Potential for impacts to cross political and administrative boundaries
- ▶ Other spatial and temporal characteristics of each affected resource
- ▶ Comparative scale of cumulative impacts across alternatives
- ▶ Discuss the past, present, and reasonably foreseeable future actions considered in the analysis and how the list of actions was developed (note any public meetings, agency meetings, etc.)
- ▶ Discuss cumulative impacts identified through the analysis by resource
- ▶ Conclude the discussion with project-specific text that states: When combined with other past, present, and reasonably foreseeable future actions, the preferred alternative (or build alternatives) are (or are not) expected to negatively (or beneficially) impact the resource.

If some of the impacts would occur only during construction and be temporary while others would be more permanent and last throughout the project's operation, mention this. Also note which cumulative impacts are direct and which are indirect. Tables may provide a useful way to present cumulative impacts if a project is complex.





Global climate change must also be addressed in the cumulative impact analysis section of the NEPA document.

The CEQ issued draft guidelines in 1997 on how global climate change should be addressed in NEPA documents. The CEQ guidance calls on federal agencies to consider how major federal actions could affect sources and sinks of greenhouse gases and how climate change could potentially influence such actions. The CEQ bases its guidance on the NEPA regulations which mandate that all “reasonably foreseeable” environmental impacts of the proposed action be considered.

FHWA has standard language for global climate change that should be incorporated in the cumulative impacts section of CDOT NEPA documents. This language is provided as **Appendix F** of this Manual.





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ATTACHMENT A: WATER QUALITY TEMPLATE AND WATER QUALITY MODEL PROGRAM DECISION TREE



Attachment A

Water Quality Template

This document should serve as an outline to your water quality technical report. The main bullet points should all be included. Some sub-bullets include prompts for information which may or may not apply to your project. Text in blue should be inserted verbatim. Various options are provided to fit your project. Please be sure to check with a water quality specialist for assistance.

1. Introduction

- a. Where is the project located?
- b. What is the purpose and need for the project?
- c. What are the alternatives? What is the Preferred Alternative?
- d. The following analysis was conducted in compliance with the Clean Water Act and the Colorado Department of Public Health and Environment's Total Maximum Daily Loads database was consulted. Additionally, all Municipal Separate Storm Sewer System and New Development and Redevelopment guidelines were followed. OR The following analysis was conducted in compliance with the Clean Water Act and the Colorado Department of Public Health and Environment's Total Maximum Daily Loads database was consulted. This project is outside any designated Municipal Separate Storm Sewer System areas.

2. What is the receiving water body of interest?

- a. What is its name and is it a river, creek, lake, etc?
- b. Is it a sensitive water body and if so, what is its 303(d) list of impaired waters status or the 305(b) list status?¹

3. Issues

- a. What are the potential construction phase issues? Sedimentation? Pollutant runoff?
- b. What are the post-construction phase (long-term operations) issues? Sedimentation? Pollutant runoff? Increased impervious surface?

4. Method

- a. Based on CDOT's Water Quality Model Program Decision Tree and Evaluation Handbook and the pollutant criteria, the (insert name) model was chosen to determine potential impact to the (insert name of water body/bodies). OR Based on CDOT's Water Quality Model Program Decision Tree and Evaluation Handbook it was determined that no modeling was necessary for this project.
- b. How did you collect your data? Checked 303(d) list of impaired waters database? Sampling and analysis procedures?
- c. When did you collect this data?

5. Context Summary

- a. What is the water body's listed beneficial use(s)?²
- b. Are there constituents/impairments present? If so, what types and at what levels or Total Maximum Daily Loads?

6. Impact Summary

- a. Insert one of the following as appropriate to address permanent impacts.

- No water bodies are present in the project area and no runoff from the project will reach a water body. (Note: this is unlikely)
 - Water quality in (water body) will not be impacted.
 - Water quality in (water body) will not be impacted due to project modifications.
 - Water quality in (water body) will benefit from this project.
 - Water quality in (water body) will be negatively affected but will not be mitigated.
 - Water quality in (water body) will be negatively affected but will be mitigated.
 - b. Insert one of the following as appropriate to address temporary construction impacts.
 - Temporary impacts during construction include working within (water body) to install structures. (Add details as necessary.)
 - Temporary impacts during construction include working adjacent to and runoff potentially reaching (water body).
 - Temporary impacts during construction include working within and adjacent to (water body).
 - c. Add text to explain how water quality in the water body will be affected.
- 7. Mitigation Strategies
 - a. The following are preliminary strategies for mitigation of impacts and are subject to change. Final mitigation measures will be defined in the NEPA Decision Document.
 - b. What efforts have been/will be made to avoid the impact?
 - c. What efforts have been/will be made to minimize the impact (i.e. design modifications)?
 - d. What efforts will be made to mitigate the impact during construction?
 - e. What efforts will be made to mitigate the impact after construction (long-term operations)?
- 8. What agencies did you consult with for this project?
- 9. What departments within CDOT did you consult with for this project (i.e. Region water quality staff, EPB water quality staff, maintenance, etc.)
- 10. Permits
 - a. What permits will be needed for this project (401, Stormwater Construction Permit, dewatering, etc.)?
 - b. When will those permits be obtained?
 - c. Who will obtain the permits?

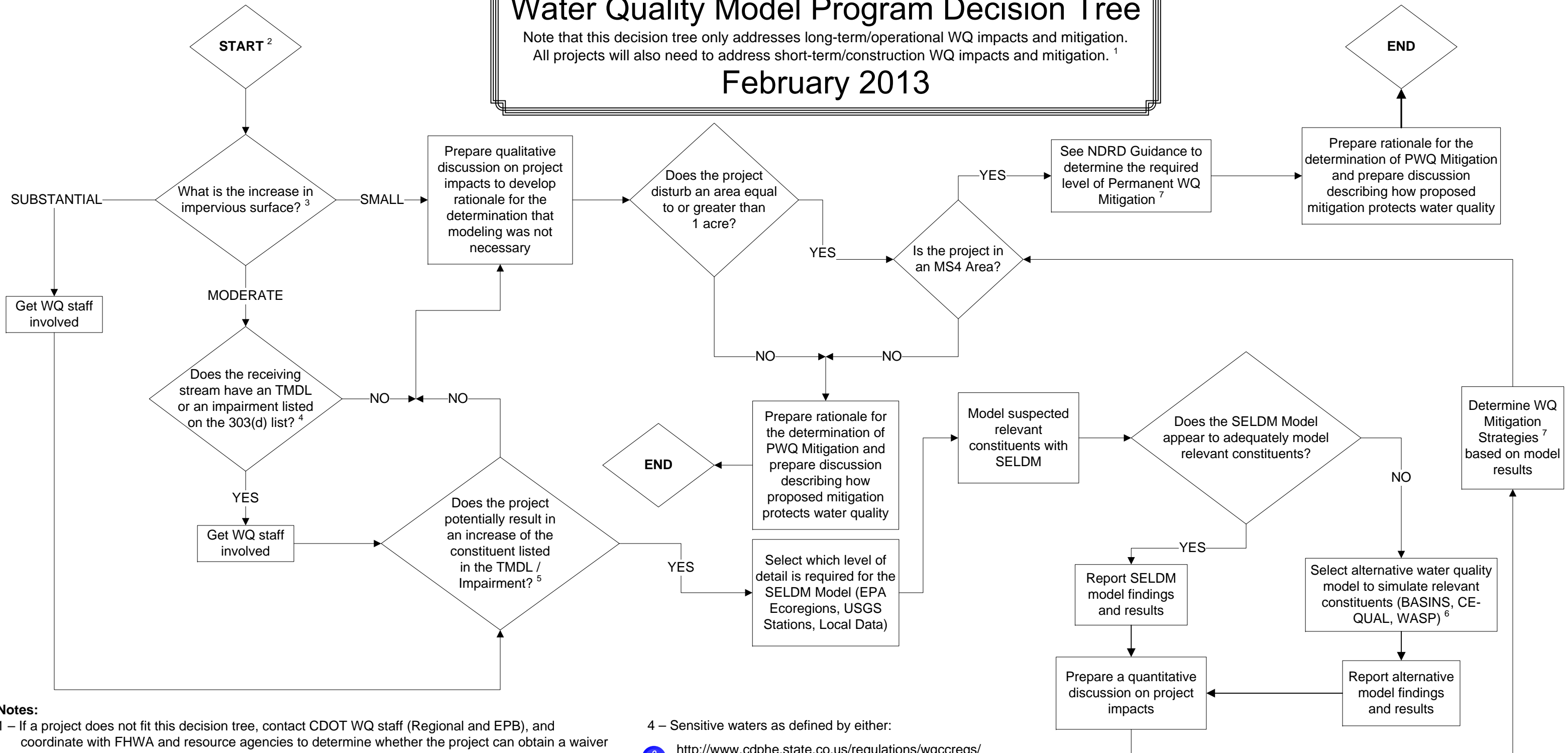
1 –For Colorado's Section 303(d) List of Impaired Waters and Monitoring and Evaluation List go to <http://www.cdphe.state.co.us/regulations/wqccregs/index.html>. Follow the Regulation 93 link for the most current list.

2 – For CDPHE Current Effective Standards go to <http://www.cdphe.state.co.us/op/wqcc/Standards/RegsCurrent/RegsCurrent.html>.

Water Quality Model Program Decision Tree

Note that this decision tree only addresses long-term/operational WQ impacts and mitigation.
All projects will also need to address short-term/construction WQ impacts and mitigation. ¹

February 2013



Notes:

- 1 – If a project does not fit this decision tree, contact CDOT WQ staff (Regional and EPB), and coordinate with FHWA and resource agencies to determine whether the project can obtain a waiver from this process.
- 2 – If a project is a bridge project, FHWA strongly recommends that all drainage from bridges be conveyed to the ends of the bridge and is mitigated before being discharged.
- 3 – An “increase in impervious surface” is split into three categories*:
 - a) Small** – less than a 1 acre increase in impervious area.
 - b) Moderate – an increase of impervious area between 1 and 10 acres.
 - c) Substantial – greater than 10 acres of increase in impervious area.

*Based on preliminary data and best professional judgment, the numbers defined above for the three categories will be changed as more data is gathered and analyzed.
**Activities that are listed as excluded from NDRD permanent water quality BMP requirements per CDOT’s MS4 permit, as of 12/31/2011 shall automatically be placed in the Small category.

- 4 – Sensitive waters as defined by either:
 - <http://www.cdphe.state.co.us/regulations/wqccregs/100293wqlimitedsegtdmsnew.pdf>
 - or
 - <http://www.cdphe.state.co.us/wq/assessment/TMDL/TMDLs.html>

- 5 – If sufficient WQ commitments are included within the NEPA document, so that the project will not exacerbate WQ impairment, then the answer to this decision point is "No," and subsequent decisions follow the "No" path.

- 6 – Refer to the Technical Report
- 7 – WQ Mitigation includes: BMPs, PWQ, or any other approved type of mitigation

Definitions:

BASINS	– Better Assessment Science Integrating Point & Non-Point Sources
BMP	– Best Management Practice
EPA	– Environmental Protection Agency
MS4	– Municipal Separate Storm Sewer System
PWQ	– Permanent Water Quality Structure
SELDM	– Stochastic Empirical Loading and Dilution Model
TMDL	– Total Maximum Daily Limit
USGS	– United States Geological Survey
WASP	– Water Quality Analysis Simulation Program
WQ	– Water Quality



ATTACHMENT B: ENVIRONMENTAL JUSTICE CENSUS 2010 DIRECTIONS



COLLECTION OF BASELINE DATA SOURCES

The US Census data are the best primary source of data to help define the community study area. Information regarding a specific geographic area, such as race, income, and household size, can be obtained from the US Census American Fact Finder website: <http://factfinder2.census.gov>. Census tracts and block groups within a particular geographic area can be identified using the US Census Interactive Population Map website: <http://2010.census.gov/2010census/popmap/index.php>.

INSTRUCTIONS FOR COLLECTION & EVALUATION OF BASELINE INFORMATION

CDOT HEADQUARTERS AT 4201 E. ARKANSAS AVE., DENVER, CO 80222 WILL BE USED AS THE GEOGRAPHIC AREA LIKELY TO BE AFFECTED BY THE PROJECT AS AN EXAMPLE FOR THE PURPOSE OF THIS GUIDE.

STEP 1- Go to the website <http://2010.census.gov/2010census/popmap/index.php>

STEP 2- Click the **Total Population** button to get started, for purposes of defining the census tracts and block groups within a particular geographic area. (However, any of the categories can be clicked to see that information within a particular geographic area.)

United States Census 2010
IT'S IN OUR HANDS

2010 Census Home | Press & Media | Partners | Students & Teachers | Census.gov

ABOUT | **DATA** | CONNECT | MULTIMEDIA | Search

Text View: 2010 Census Interactive Population Search

Print | Share this page

Many of the 2010 Census Demographic Profiles are ready for viewing. These profiles provide more subject detail than the recently released 2010 Census redistricting data files. These profiles provide details about race and Hispanic groups, age, sex and housing status. The profiles will be released on a state-by-state basis for each of the 50 states, the District of Columbia and Puerto Rico. Use this map to explore 2010 Census Demographic Profile data. Learn more about the demographic profiles and which states are next.

United States Census 2010 | Interactive Population Map

The 2010 Census reported 308.7 million people in the United States, a 9.7 percent increase from the 2000 Census population of 281.4 million. Find out who we are, where we are and compare your community with others across America. Learn more about the new Portrait of America.

Navigation Menu: TOTAL POPULATION (highlighted), RACE, ETHNICITY, AGE / SEX, HOUSEHOLD

Most Populous Places

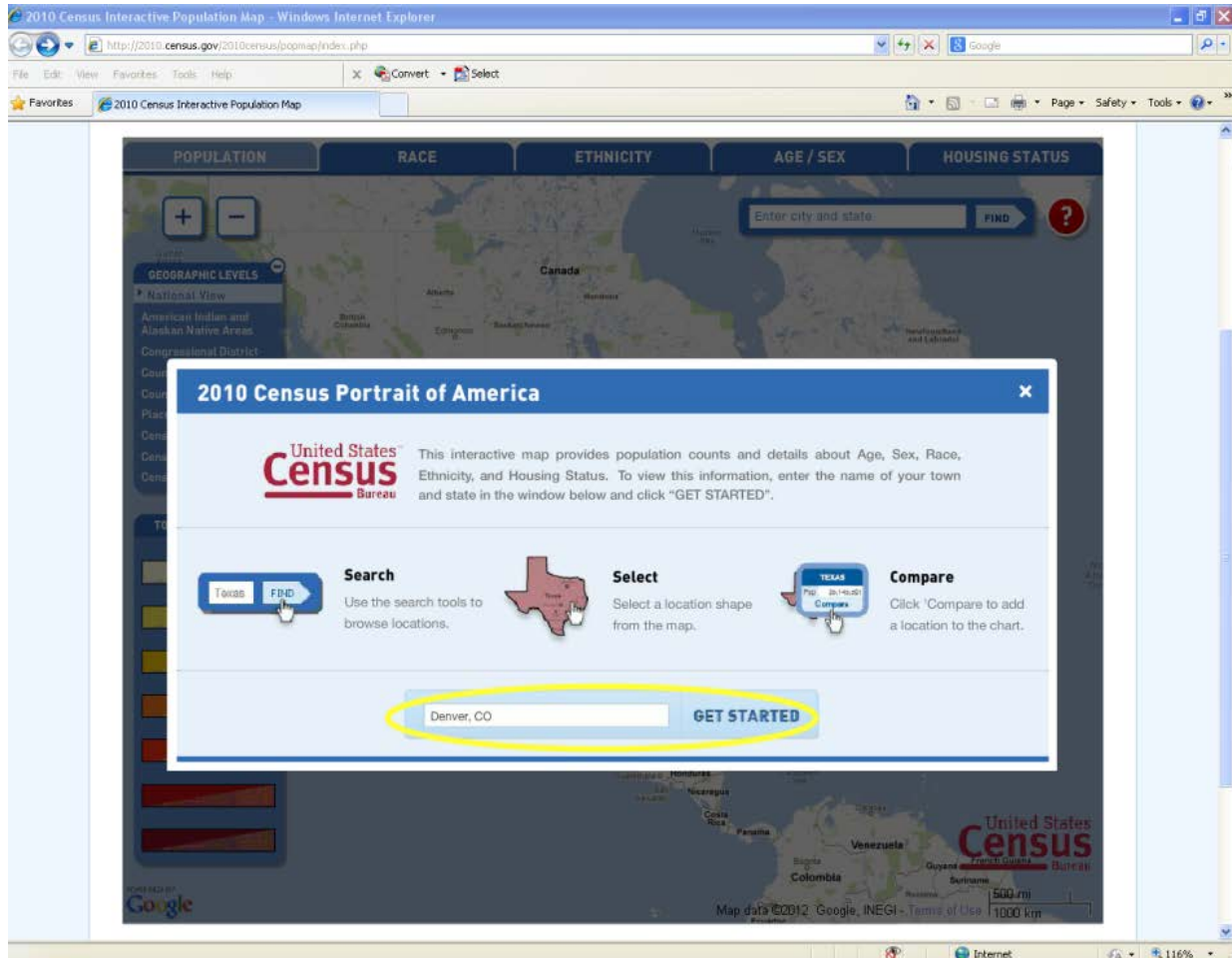
NAME	POPULATION
1 New York city, NY	8,175,133
2 Los Angeles city, CA	3,792,421
3 Chicago city, IL	2,695,598
4 Houston city, TX	2,099,451
5 Philadelphia city, PA	1,526,006
6 Phoenix city, AZ	1,445,632
7 San Antonio city, TX	1,327,407
8 San Diego city, CA	1,307,402
9 Dallas city, TX	1,197,816
10 San Jose city, CA	945,942
11 Jacksonville city, FL	821,784
12 Indianapolis city (balance), IN	820,445
13 San Francisco city, CA	805,235
14 Austin city, TX	790,390
15 Columbus city, OH	787,033

National Population : 308,745,538

Top 5 States

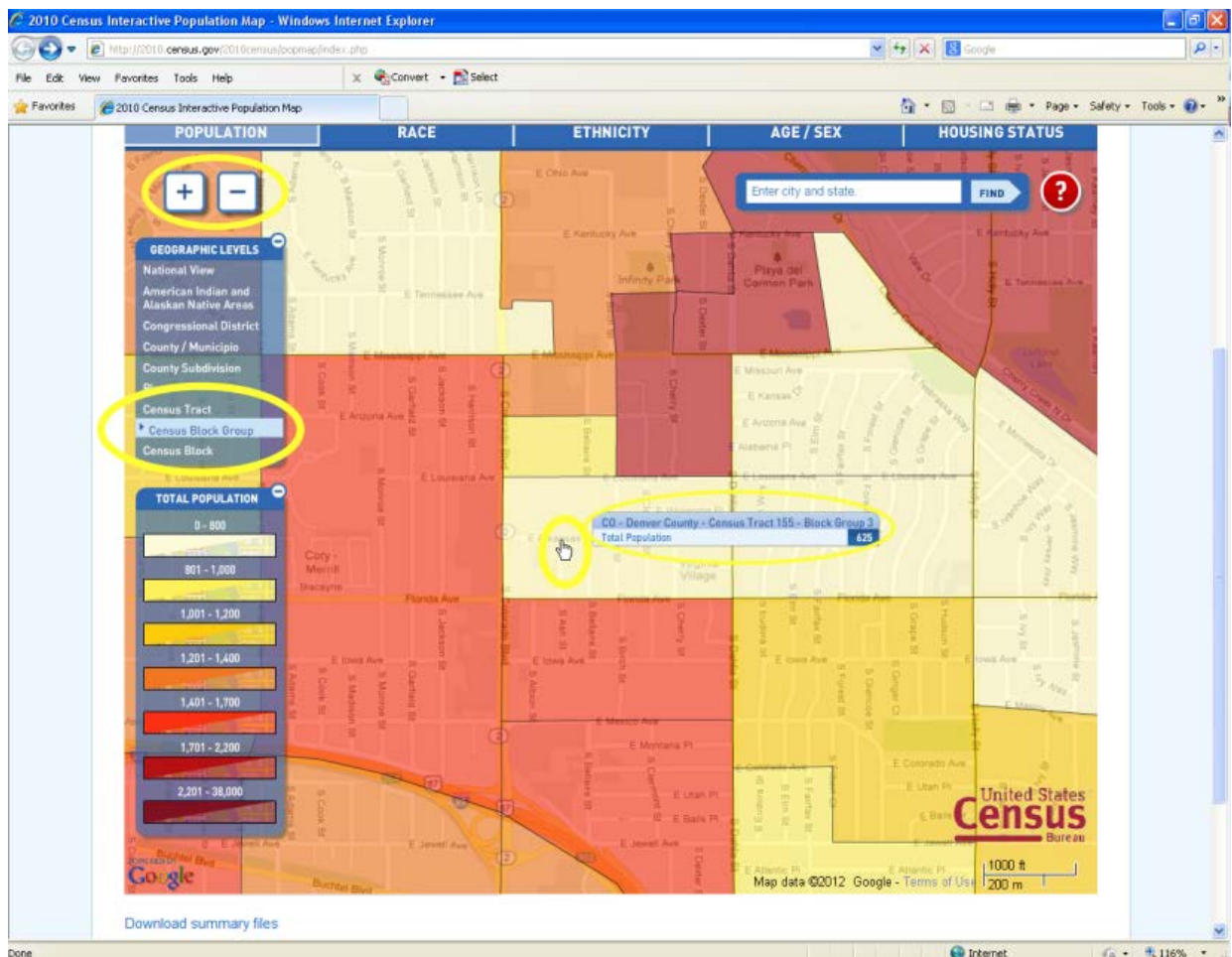
State	Population
California	37,263,956
Illinois	12,838,432
New York	19,378,102

STEP 3- In the pop-up box, type the *City* and *State* where the project is located and click the **Get Started** button.
(EX: DENVER, CO)



STEP 4- Click **Census Block Group** on the left-hand side of the screen under the **Geographic Levels** menu, which will display both the census tract and census block group. (However, any of the categories can be clicked to see that information within a particular geographic area.)

- ▶ Zoom in to your project area by clicking the + button on the left-hand side of the screen and navigate to your project area by single-clicking the left mouse button and dragging the map in the direction you want to move it. Scroll the mouse over your project area to identify the census tracts/census block groups. (EX. *CENSUS TRACT 155, BLOCK GROUP 3*)



STEP 5- Go to the US Census American Fact Finder website: <http://factfinder2.census.gov>.

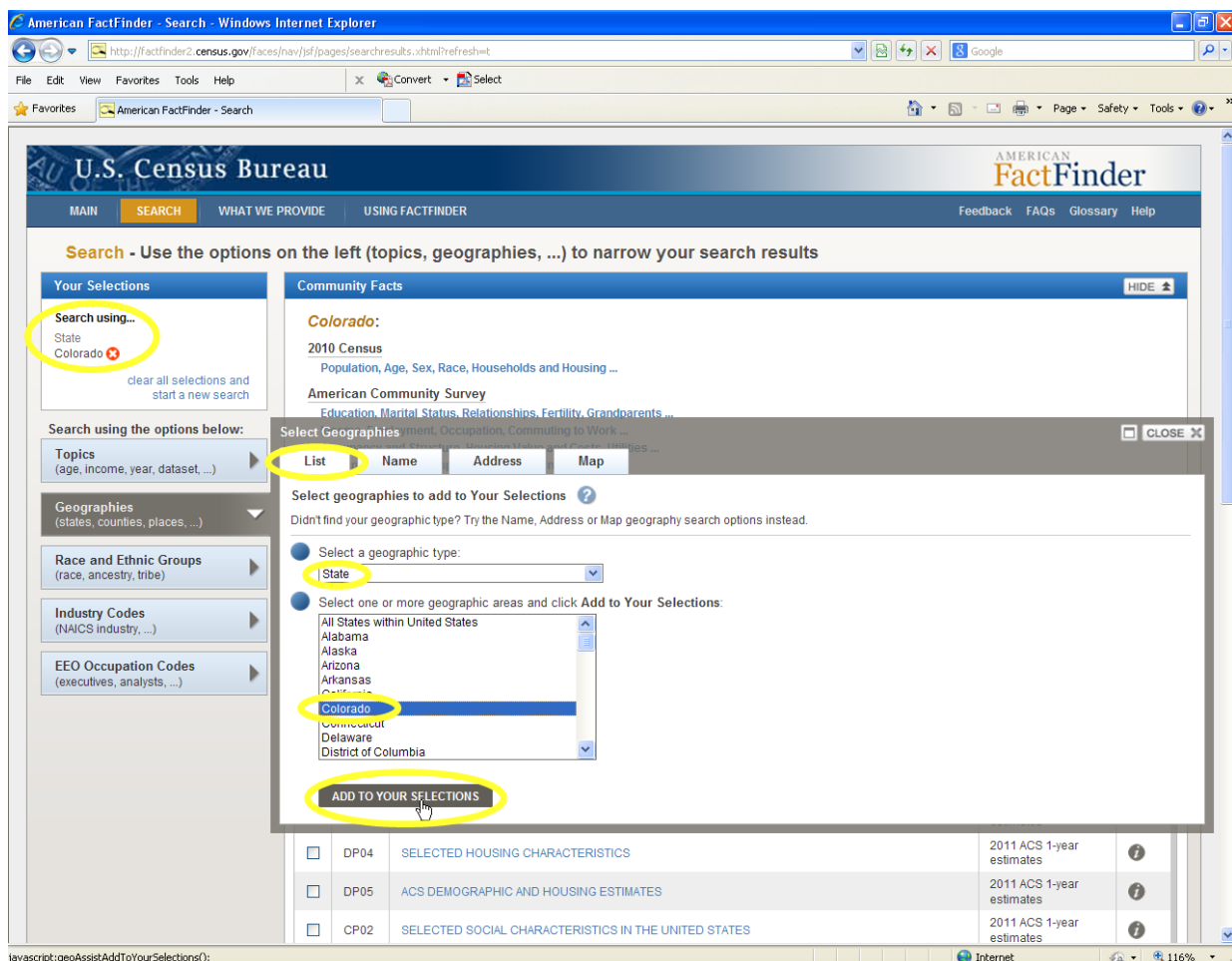
STEP 6- Click the **Geographies** option on the left-hand side of the screen.

- ▶ Once **Geographies** is selected, you will see the following tab options: **List, Name, Address, Map**.

STEP 7- Select the **List** tab.

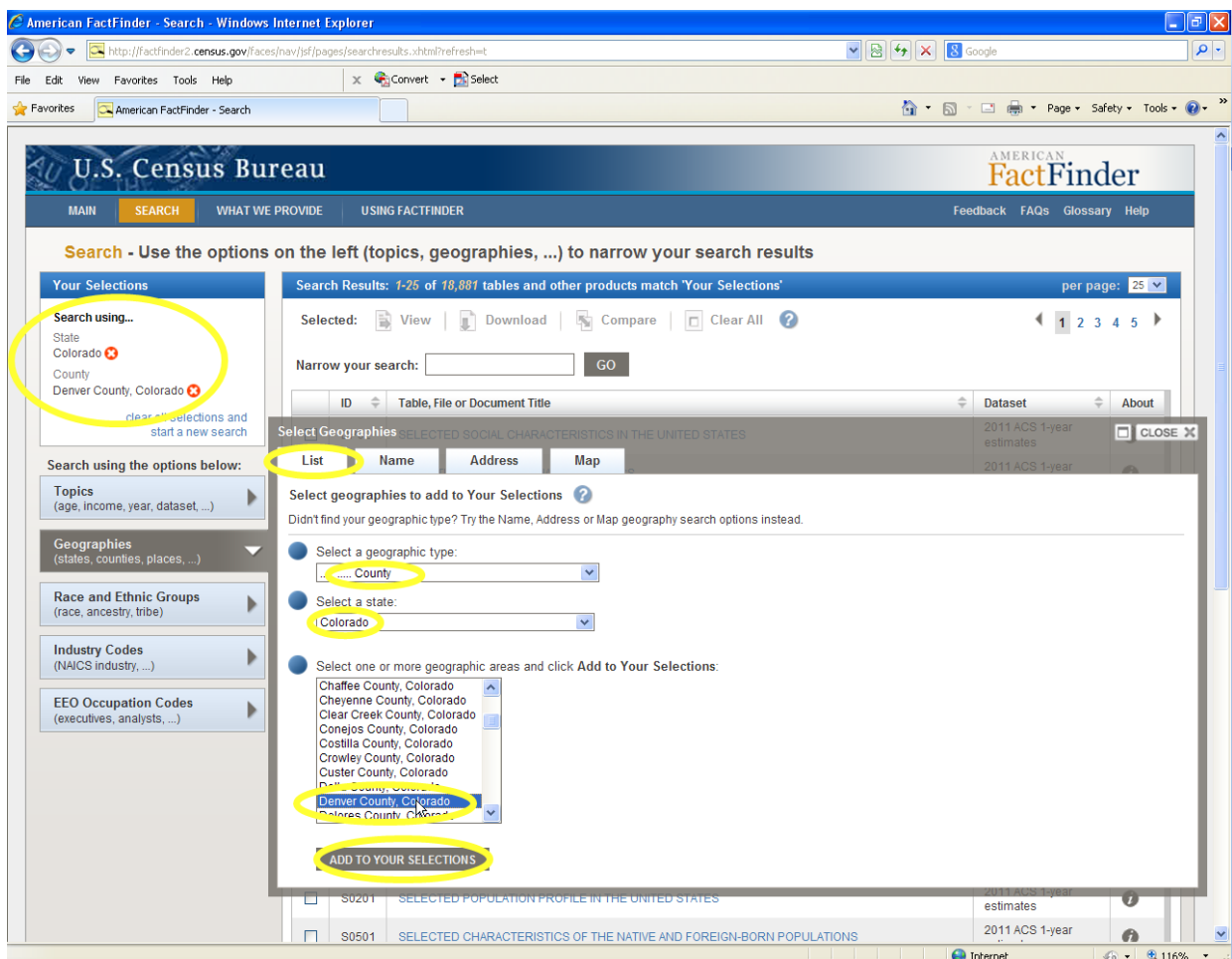
STEP 8- Select **State** from the **Select a geographic type** drop down menu.

- ▶ Select **Colorado** from the **Select a geographic area** drop down menu.
- ▶ Click the **Add To Your Selections** button. You will see the selection you made appear in the **Your Selections** box on the upper left-hand side of the screen.



STEP 9- Select County from the Select a geographic type drop down menu.

- ▶ Select **Colorado** from the **Select a state** drop down menu.
- ▶ Select the appropriate county under the **Select one or more geographic areas** drop down menu. You may select multiple counties by holding down the CTRL key and clicking the counties. (EX. DENVER COUNTY, COLORADO)
- ▶ Click the **Add to Your Selections** button. You will see the selections you made appear in the **Your Selections** box on the upper left-hand side of the screen.



STEP 10- Select the Name tab.

STEP 11- Type the appropriate *County* Name in the **Enter a geography name** box for a particular geographic area.
(EX. "DENVER COUNTY, COLORADO")

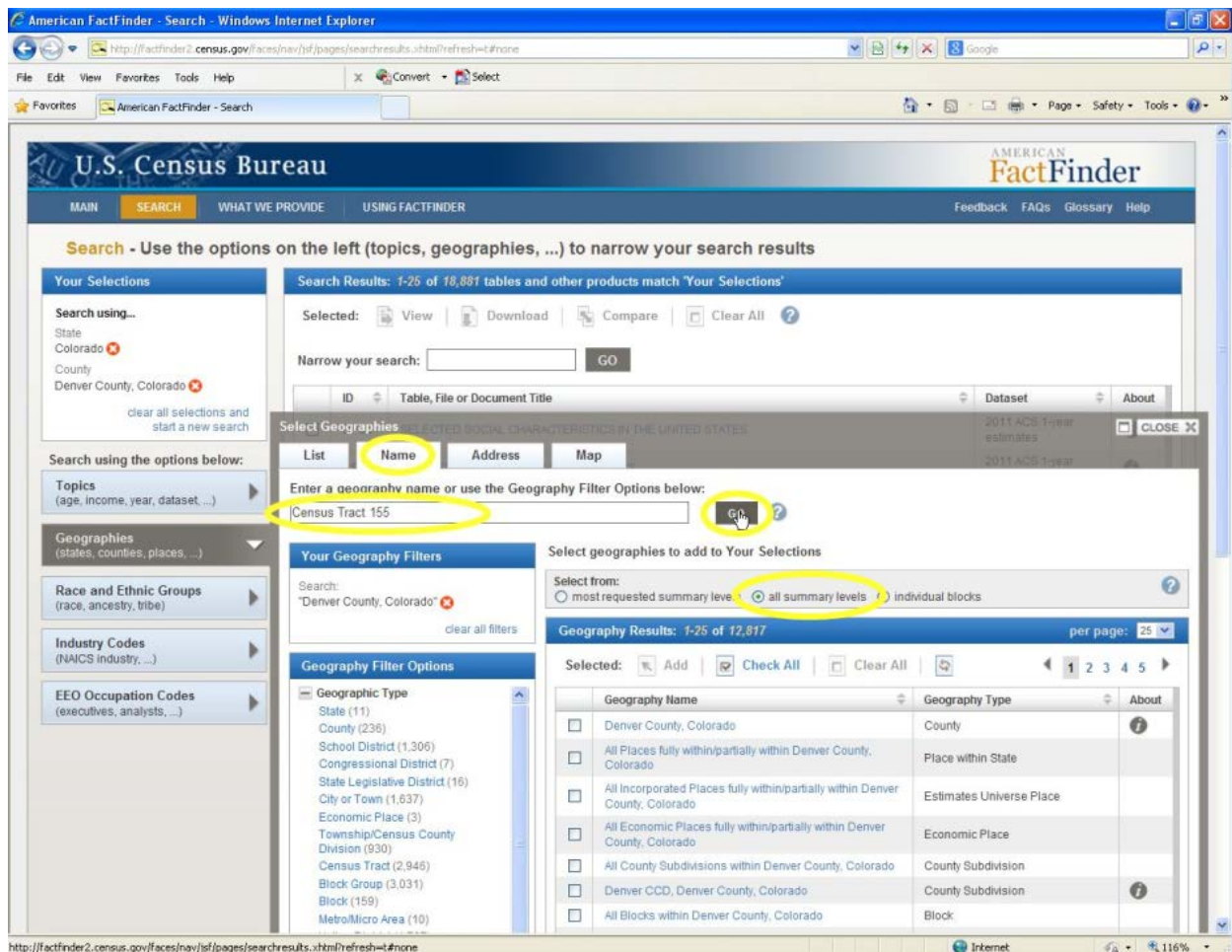
▶ Click Go

The screenshot shows the American FactFinder search interface in a Windows Internet Explorer browser. The page title is "U.S. Census Bureau AMERICAN FactFinder". The search results show "1-25 of 18,881 tables and other products match 'Your Selections'". The "Name" tab is selected under "Select Geographies". The search box contains "Denver County, Colorado" and a "GO" button is highlighted. The "Geography Results" table shows a list of geographies including United States, All States within United States, Alabama, Alaska, Arizona, Arkansas, California, and Colorado.

Geography Name	Geography Type	About
<input type="checkbox"/> United States	United States	?
<input type="checkbox"/> All States within United States	State	?
<input type="checkbox"/> Alabama	State	?
<input type="checkbox"/> Alaska	State	?
<input type="checkbox"/> Arizona	State	?
<input type="checkbox"/> Arkansas	State	?
<input type="checkbox"/> California	State	?
<input type="checkbox"/> Colorado	State	?

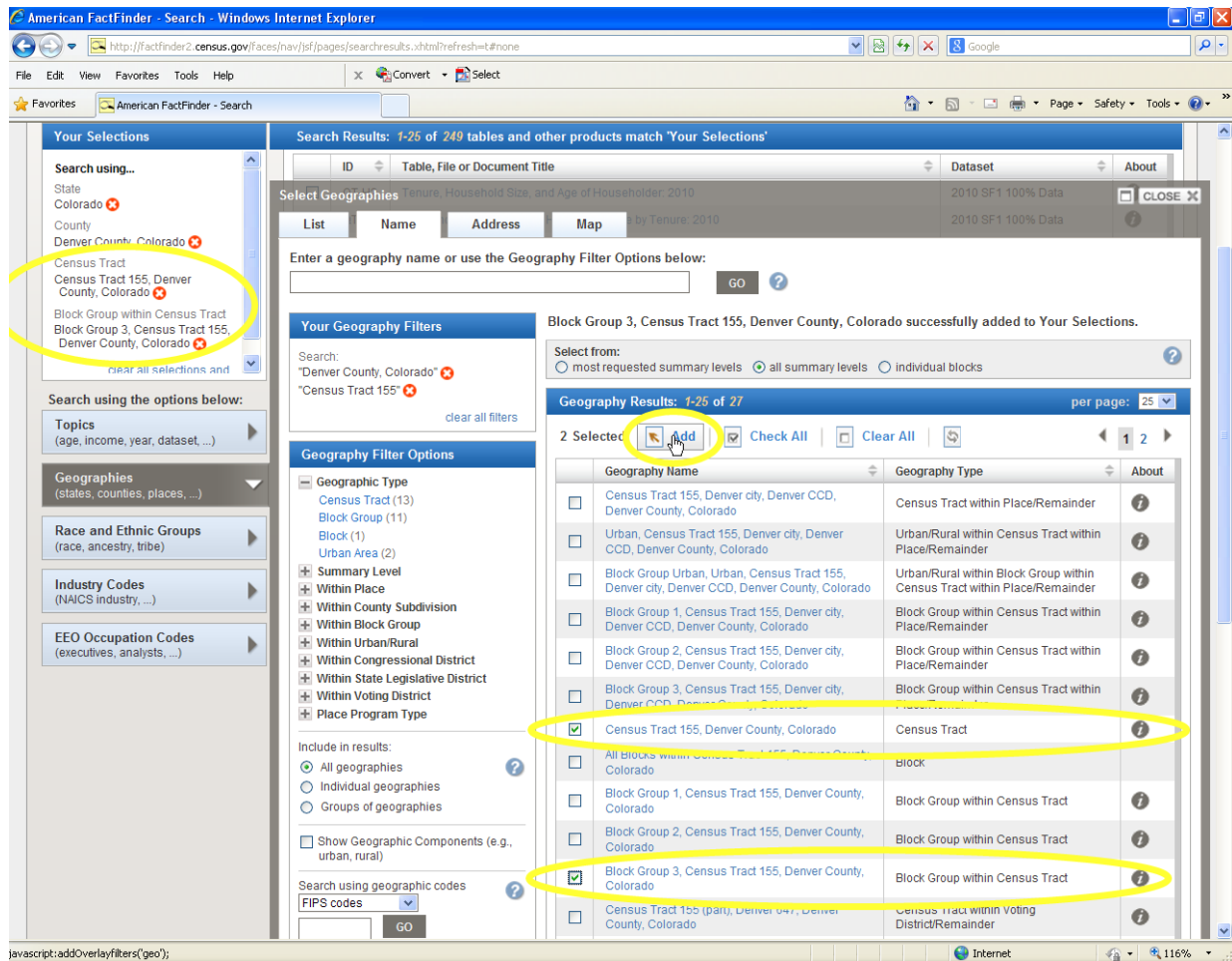
STEP 12- Type *Census Tract #* identified earlier in STEP 4 in the Enter a geography name box.
(EX. "CENSUS TRACT 155")

- ▶ Make sure that the all summary levels option is selected in the Select from box.
- ▶ Click Go



STEP 13- Select the boxes next to the appropriate Census Tract and Block Group within Census Tract rows (under Geography Type) from the **Geography Results** shown. (Ex. CENSUS TRACT 155, DENVER COUNTY, COLORADO AND BLOCK GROUP 3, CENSUS TRACT 155, DENVER COUNTY COLORADO)

- ▶ Click the **Add** button. You will see the selections you made appear in the **Your Selections** box on the upper left-hand side of the screen.



- ▶ After selections are added, click the **Close** button on the **Select Geographies** box to close out of the Geography results.
- ▶ Repeat STEPS 11 - 13 if project is within multiple counties

STEP 16- Select the appropriate ID: Table for total population figures.

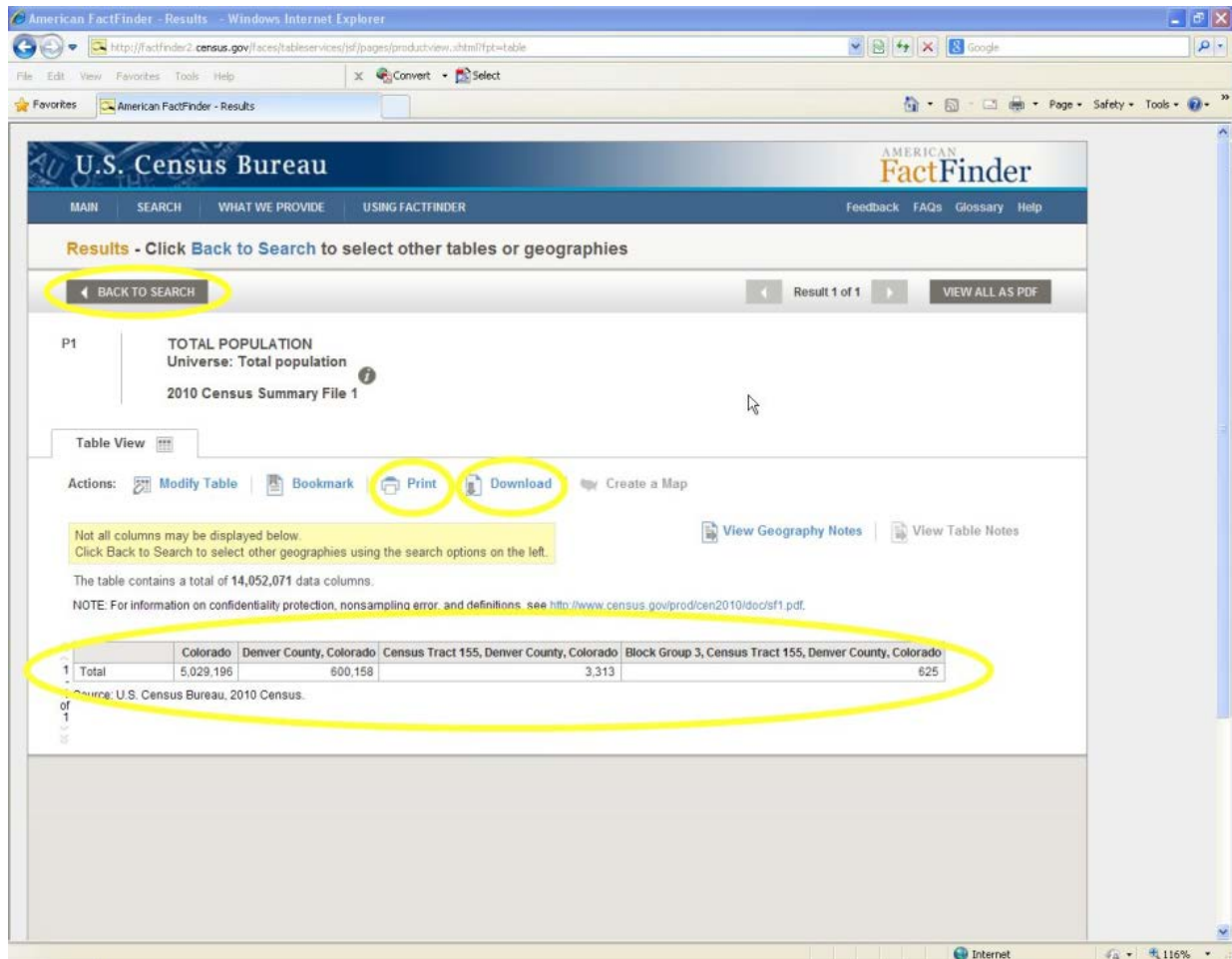
- ▶ Select the **P1: Total Population** row from your search results. You can also type the appropriate ID: Table in the **Narrow your search** box to find the table. Be sure to select the most recent dataset for the tables (2010 SF1 100% Data at present).

The screenshot shows the American FactFinder search results page. The search criteria are: People: Basic Count/Estimate: Population Total; State: Colorado; County: Denver County, Colorado; Census Tract: Census Tract 155, Denver County, Colorado; Block Group within Census Tract: Block Group 3, Census Tract 155.

The search results table is as follows:

ID	Table	File or Document Title	Dataset	About
<input type="checkbox"/>	QT-P11	Households and Families: 2010	2010 SF1 100% Data	?
<input type="checkbox"/>	QT-P4	Race, Combinations of Two Races, and Not Hispanic or Latino: 2010	2010 SF1 100% Data	?
<input type="checkbox"/>	QT-P5	Race Alone or in Combination: 2010	2010 SF1 100% Data	?
<input type="checkbox"/>	QT-P6	Race Alone or in Combination and Hispanic or Latino: 2010	2010 SF1 100% Data	?
<input type="checkbox"/>	P1	RACE	2010 Redistricting Data SF (PL 94-171)	?
<input checked="" type="checkbox"/>	P1	<u>TOTAL POPULATION</u>	2010 SF1 100% Data	?
<input type="checkbox"/>	P12	SEX BY AGE	2010 SF1 100% Data	?
<input type="checkbox"/>	P12A	SEX BY AGE (WHITE ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P12B	SEX BY AGE (BLACK OR AFRICAN AMERICAN ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P12C	SEX BY AGE (AMERICAN INDIAN AND ALASKA NATIVE ALONE)	2010 SF1 100% Data	?

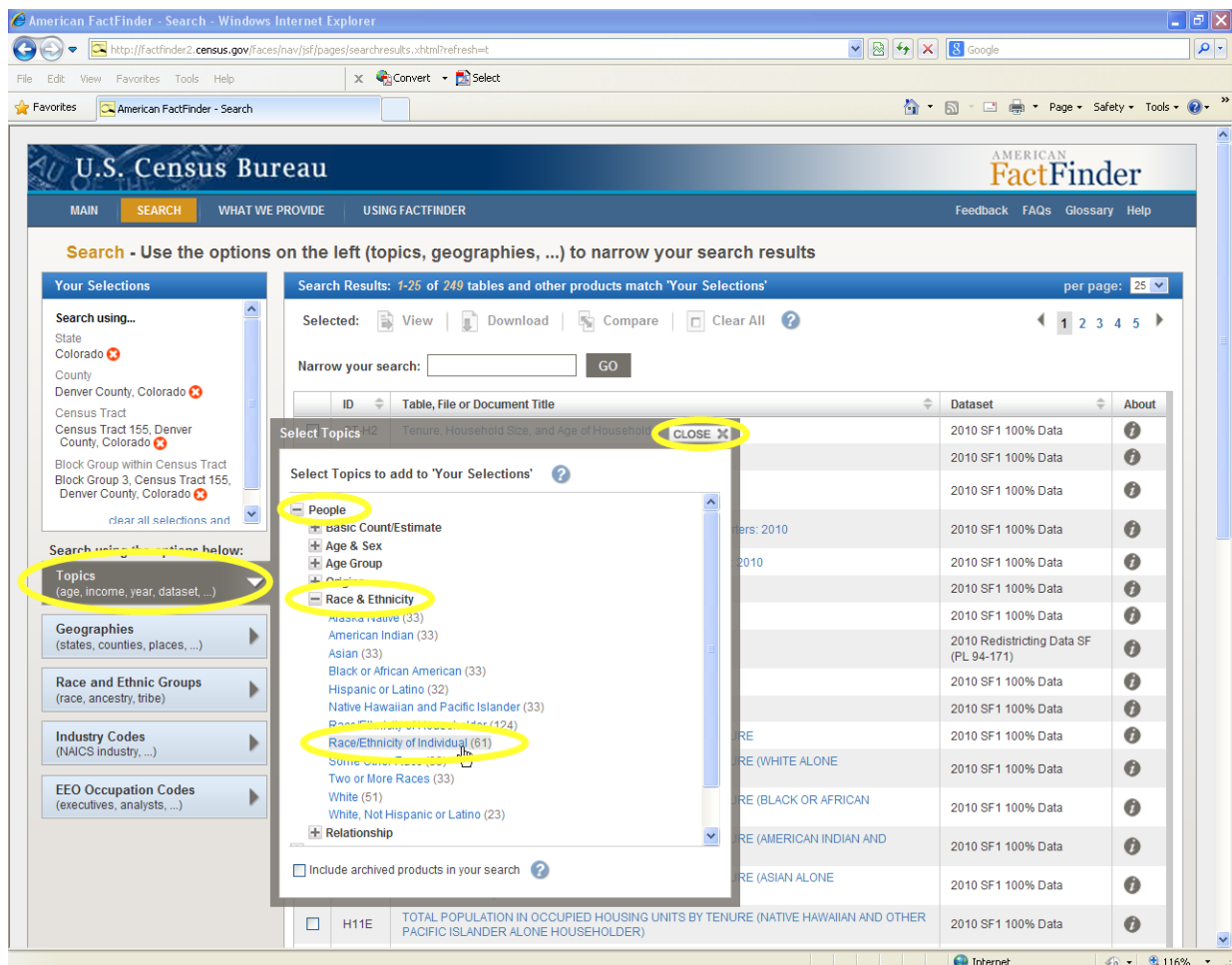
- ▶ To view the results click **View** or **Download**. The results can be printed or downloaded and formatted into PDF or Excel. Once it is confirmed that the dataset is correct the information should be downloaded and included in the project file. (EX. TABLE SHOWN BELOW FOR CDOT OFFICE GEOGRAPHICAL LOCATION)



- ▶ After the data has been viewed and/or downloaded, click the **Back to Search** button at the top left corner of the screen.
- ▶ Delete the **Population Total** category by clicking the small red x from the **Your Selections** box on the upper left-hand side of the screen before proceeding.

STEP 17- Click the **Topics** option on the left-hand side of the screen. You will see the following topic options: **People**, **Housing**, **Product Type**, **Program**, **Dataset**.

- ▶ Expand the **People** option
 - ▶ Expand the **Race & Ethnicity** subcategory
 - ▶ Click the **Race/Ethnicity of Individual** option.
- ▶ Click the **Close** button on the **Select Topics** box to view the Search Results. You will see the selections you made appear in the **Your Selections** box on the upper left-hand side of the screen.



STEP 18- Select the appropriate ID: Table for race figures.

- ▶ Select the P3: Race row from your search results. You can also type the appropriate ID: Table in the Narrow your search box to find the table. Be sure to select the most recent dataset for the tables (2010 SF1 100% Data).

The screenshot shows the American FactFinder search results page. The search criteria are: People/Race & Ethnicity: Race/Ethnicity of Individual, State: Colorado, County: Denver County, Colorado. The search results table is as follows:

ID	Table, File or Document Title	Dataset	About
<input type="checkbox"/>	P29A HOUSEHOLD TYPE BY RELATIONSHIP (WHITE ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P29B HOUSEHOLD TYPE BY RELATIONSHIP (BLACK OR AFRICAN AMERICAN ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P29C HOUSEHOLD TYPE BY RELATIONSHIP (AMERICAN INDIAN AND ALASKA NATIVE ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P29D HOUSEHOLD TYPE BY RELATIONSHIP (ASIAN ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P29E HOUSEHOLD TYPE BY RELATIONSHIP (NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P29F HOUSEHOLD TYPE BY RELATIONSHIP (SOME OTHER RACE ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P29G HOUSEHOLD TYPE BY RELATIONSHIP (TWO OR MORE RACES)	2010 SF1 100% Data	?
<input type="checkbox"/>	P29H HOUSEHOLD TYPE BY RELATIONSHIP (HISPANIC OR LATINO)	2010 SF1 100% Data	?
<input type="checkbox"/>	P29I HOUSEHOLD TYPE BY RELATIONSHIP (WHITE ALONE, NOT HISPANIC OR LATINO)	2010 SF1 100% Data	?
<input type="checkbox"/>	P3 RACE FOR THE POPULATION 18 YEARS AND OVER	2010 Redistricting Data SF (PL 94-171)	?
<input checked="" type="checkbox"/>	P3 RACE	2010 SF1 100% Data	?
<input type="checkbox"/>	P31A HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (WHITE ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P31B HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (BLACK OR AFRICAN AMERICAN ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P31C HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (AMERICAN INDIAN AND ALASKA NATIVE ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P31D HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (ASIAN ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P31E HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P31F HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (SOME OTHER RACE ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P31G HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (TWO OR MORE RACES)	2010 SF1 100% Data	?
<input type="checkbox"/>	P31H HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (HISPANIC OR LATINO)	2010 SF1 100% Data	?
<input type="checkbox"/>	P31I HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION UNDER 18 YEARS (WHITE ALONE,	2010 SF1 100% Data	?

- ▶ To view the results click **View** or **Download**. The results can be printed or downloaded and formatted into PDF or Excel. Once it is confirmed that the dataset is correct the information should be downloaded and included in the project file. (EX. TABLE SHOWN BELOW FOR CDOT OFFICE GEOGRAPHICAL LOCATION)

The screenshot shows the American FactFinder interface. At the top, there are navigation links: MAIN, SEARCH, WHAT WE PROVIDE, USING FACTFINDER, Feedback, FAQs, Glossary, and Help. Below this is a header for 'Results - Click Back to Search to select other tables or geographies'. A yellow circle highlights the 'BACK TO SEARCH' button. The main content area shows 'P3 RACE Universe: Total population 2010 Census Summary File 1'. Below this, there are action buttons: Modify Table, Bookmark, Print, and Download. The 'Download' button is circled in yellow. A yellow oval highlights the data table below. The table has the following structure:

	Colorado	Denver County, Colorado	Census Tract 155, Denver County, Colorado	Block Group 3, Census Tract 155, Denver County, Colorado
Total:	5,029,196	600,158	3,313	625
White alone	4,089,202	413,696	2,146	472
Black or African American alone	201,737	61,435	400	57
American Indian and Alaska Native alone	56,010	8,237	63	14
Asian alone	139,028	20,433	104	24
Native Hawaiian and Other Pacific Islander alone	6,623	607	4	0
Some Other Race alone	364,140	71,191	390	29
Two or More Races	172,456	24,559	206	29

Source: U.S. Census Bureau, 2010 Census.

- ▶ After the data has been viewed and/or downloaded, click the **Back to Search** button at the top left corner of the screen.
- ▶ Unselect the **P3: Race** row from your search results.

- ▶ Select the **P7: Hispanic or Latino Origin by Race (Total Races Tallied)** row from your search results. You can also type the appropriate ID: **Table** in the **Narrow your search box** to find the table. Be sure to select the most recent dataset for the tables (2010 SF1 100% Data).

U.S. Census Bureau
AMERICAN FactFinder

Search - Use the options on the left (topics, geographies, ...) to narrow your search results

Your Selections

Search using...
 People: Race & Ethnicity:
 Race/Ethnicity of Individual
 State
 Colorado
 County
 Denver County, Colorado
 Census Tract
 Census Tract 155, Denver County, Colorado
 Block Group within Census Tract
 Block Group 3, Census Tract

Search using the options below:

Topics (age, income, year, dataset, ...)

Geographies (states, counties, places, ...)

Race and Ethnic Groups (race, ancestry, tribe)

Industry Codes (NAICS industry, ...)

EEO Occupation Codes (executives, analysts, ...)

Recommendations (4)

2010 Population Totals can be found in most 2010 tables. Use the choices below to find popular population tables.
 Population Totals
 Data Profiles

The 2011 American Community Survey 1-year estimates provide detailed social, economic, demographic, and housing data for areas with populations of 65,000 or more.
 View Available Tables

Summary File 1 has been updated to include data on urban areas (including urbanized areas and urban clusters) and rural areas. Look for additional data on the urban and rural portions of population and housing units within larger geographic areas such as the Nation, regions, divisions, states, and counties, by selecting geographic components. Detailed tables P2 and H2 now provide the urban and rural population and housing unit counts, respectively. For more details on SF 1 updates, visit [http://factfinder.census.gov/servlet/tables](#).

The 2010 Census Summary File 2 provides detailed data on age, sex, households, families, the population in group quarters and occupied housing units for up to 331 race, Hispanic or Latino origin, and tribal population groups. Presentation of SF 2 tables for a population group is subject to a threshold of 100 or more people. This means that tables will not be shown for population groups with less than 100 people in a particular geographic area. For more details on SF 2 updates, visit [http://factfinder.census.gov/servlet/tables](#).

Search Results: 51-61 of 61 tables and other products match 'Your Selections' per page: 25

1 Selected: View Download Compare Clear All

Narrow your search: P7: HISPANIC OR LATINO GO

ID	Table, File or Document Title	Dataset	About
<input type="checkbox"/>	P34E HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION 65 YEARS AND OVER (NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P34F HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION 65 YEARS AND OVER (SOME OTHER RACE ALONE)	2010 SF1 100% Data	?
<input type="checkbox"/>	P34G HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION 65 YEARS AND OVER (TWO OR MORE RACES)	2010 SF1 100% Data	?
<input type="checkbox"/>	P34H HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION 65 YEARS AND OVER (HISPANIC OR LATINO)	2010 SF1 100% Data	?
<input type="checkbox"/>	P34I HOUSEHOLD TYPE BY RELATIONSHIP FOR THE POPULATION 65 YEARS AND OVER (WHITE ALONE, NOT HISPANIC OR LATINO)	2010 SF1 100% Data	?
<input type="checkbox"/>	P4 HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE FOR THE POPULATION 18 YEARS AND OVER	2010 Redistricting Data SF (PL 94-171)	?
<input type="checkbox"/>	P5 HISPANIC OR LATINO ORIGIN BY RACE	2010 SF1 100% Data	?
<input type="checkbox"/>	P6 RACE (TOTAL RACES TALLIED)	2010 SF1 100% Data	?
<input checked="" type="checkbox"/>	P7 HISPANIC OR LATINO ORIGIN BY RACE (TOTAL RACES TALLIED)	2010 SF1 100% Data	?
<input type="checkbox"/>	P8 RACE	2010 SF1 100% Data	?
<input type="checkbox"/>	P9 HISPANIC OR LATINO, AND NOT HISPANIC OR LATINO BY RACE	2010 SF1 100% Data	?

1 Selected: View Download Compare Clear All

- ▶ To view the results click **View** or **Download**. The results can be printed or downloaded and formatted into PDF or Excel. Once it is confirmed that the dataset is correct the information should be downloaded and included in the project file. (EX. TABLE SHOWN BELOW FOR CDOT OFFICE GEOGRAPHICAL LOCATION)

The screenshot shows the American FactFinder interface. At the top, there are navigation links: MAIN, SEARCH, WHAT WE PROVIDE, USING FACTFINDER, Feedback, FAQs, Glossary, Help. Below this is a search bar and a 'Results - Click Back to Search to select other tables or geographies' section. A yellow circle highlights the 'BACK TO SEARCH' button. Below the search bar, the results are displayed for 'P7 HISPANIC OR LATINO ORIGIN BY RACE (TOTAL RACES TALLIED)'. The universe is 'Total races tallied' and it's from the '2010 Census Summary File 1'. There are action buttons: Modify Table, Bookmark, Print, Download, and Create a Map. A yellow circle highlights the 'Print' and 'Download' buttons. Below the actions, there is a note: 'Not all columns may be displayed below. Click Back to Search to select other geographies using the search options on the left.' The table contains a total of 14,052,071 data columns. A yellow circle highlights the table area. The table has the following structure:

	Colorado	Denver County, Colorado	Census Tract 155, Denver County, Colorado	Block Group 3, Census Tract 155, Denver County, Colorado
Total races tallied:	5,216,665	627,086	3,536	654
Not Hispanic or Latino:	4,100,087	423,285	2,385	574
White alone or in combination with one or more other races	3,611,570	323,478	1,716	461
Black or African American alone or in combination with one or more other races	225,218	64,607	432	67
American Indian and Alaska Native alone or in combination with one or more other races	63,963	7,399	69	12
Asian alone or in combination with one or more other races	174,577	24,571	139	32
Native Hawaiian and Other Pacific Islander alone or in combination with one or more other races	12,023	1,198	16	1
Some Other Race alone or in combination with one or more other races	12,736	2,032	13	1
Hispanic or Latino:	1,116,578	203,801	1,151	80
White alone or in combination with one or more other races	628,661	110,314	605	36
Black or African American alone or in combination with one or more other races	24,594	5,392	44	3
American Indian and Alaska Native alone or in combination with one or more other races	43,869	7,596	47	8
Asian alone or in combination with one or more other races	11,012	1,568	7	0
Native Hawaiian and Other Pacific Islander alone or in combination with one or more other races	3,177	400	2	0
Some Other Race alone or in combination with one or more other races	405,265	78,531	446	26

NOTE: The alone or in combination categories are a collection of responses rather than respondents. That is, the alone or in combination categories are not mutually exclusive. Individuals

- ▶ After the data has been viewed and/or downloaded, click the **Back to Search** button at the top left corner of the screen.
- ▶ Delete the **Race/Ethnicity of Individual**, and **Block Group within Census Tract** categories by clicking the small red x from the **Your Selections** box on the upper left-hand side of the screen before proceeding.

TO IDENTIFY LINGUISTICALLY ISOLATED HOUSEHOLDS

STEP 19- Click the **Topics** option on the left-hand side of the screen. You will see the following tab options: **People**, **Housing**, **Product Type**, **Program**, **Dataset**.

- ▶ Expand the **People** option
 - ▶ Expand the **Language** subcategory
 - ▶ Click the **Language Spoken at Home** option.
- ▶ Click the **Close** button on the **Select Topics** box to view the Search Results. You will see the selections you made appear in the **Your Selections** box on the upper left-hand side of the screen.

The screenshot shows the American FactFinder search interface. On the left, the 'Your Selections' box shows 'Colorado' and 'Denver County, Colorado' selected. Below it, the 'Search using the options below:' section has 'Topics' selected. The 'Select Topics' dialog box is open, showing a list of categories. 'Language' is expanded, and 'Language Spoken at Home (35)' is selected. A 'CLOSE X' button is highlighted in the top right corner of the dialog box. The main search results area shows 'Search Results: 1-25 of 1,638 tables and other products match 'Your Selections''. The table below lists search results with columns for ID, Table, File or Document Title, Dataset, and About.

ID	Table, File or Document Title	Dataset	About
	Profile of General Population and Housing Characteristics		
	2010 Demographic Profile SF	2010 Demographic Profile SF	?
	2010 SF1 100% Data	2010 SF1 100% Data	?
	2010 SF2 100% Data	2010 SF2 100% Data	?
	2010 ACS 5-year estimates	2010 ACS 5-year estimates	?
	2010 ACS 5-year Selected Population Tables	2010 ACS 5-year Selected Population Tables	?
	2010 ACS 5-year estimates	2010 ACS 5-year estimates	?
	2010 ACS 5-year Selected Population Tables	2010 ACS 5-year Selected Population Tables	?
	2010 ACS 5-year estimates	2010 ACS 5-year estimates	?
	2010 ACS 5-year Selected Population Tables	2010 ACS 5-year Selected Population Tables	?
	2010 ACS 5-year estimates	2010 ACS 5-year estimates	?
	2010 SF1 100% Data	2010 SF1 100% Data	?
	2010 SF1 100% Data	2010 SF1 100% Data	?
	2010 SF2 100% Data	2010 SF2 100% Data	?
	2010 SF1 100% Data	2010 SF1 100% Data	?
	2010 SF2 100% Data	2010 SF2 100% Data	?
	2010 SF1 100% Data	2010 SF1 100% Data	?
	2010 SF2 100% Data	2010 SF2 100% Data	?
	2010 SF1 100% Data	2010 SF1 100% Data	?
	2010 SF2 100% Data	2010 SF2 100% Data	?
	2010 SF1 100% Data	2010 SF1 100% Data	?
	2010 SF2 100% Data	2010 SF2 100% Data	?
	Households and Families: 2010	Households and Families: 2010	?
	Households and Families: 2010	Households and Families: 2010	?

STEP 20- Select the appropriate ID: Table for linguistic isolation figures.

- ▶ Select the **B16002: Household Language by Linguistic Isolation** row from your search results. You can also type the appropriate ID: Table in the **Narrow your search box** to find the table. Be sure to select the most recent dataset for the tables (2009 ACS 5-year estimates Data).

The screenshot shows the American FactFinder search results page. The search criteria are: 'B16002: HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION', State: Colorado, and County: Denver County, Colorado. The search results table is as follows:

ID	Table, File or Document Title	Dataset	About
<input type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2009 ACS 1-year estimates	?
<input type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2009 ACS 3-year estimates	?
<input checked="" type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2009 ACS 5-year estimates	?
<input type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2008 ACS 1-year estimates	?
<input type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2008 ACS 3-year estimates	?
<input type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2007 ACS 1-year estimates	?
<input type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2007 ACS 3-year estimates	?
<input type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2006 ACS	?
<input type="checkbox"/>	B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION	2005 ACS	?

The 'Narrow your search' box contains the text 'B16002: HOUSEHOLD LA' and a 'GO' button. The row for '2009 ACS 5-year estimates' is highlighted with a yellow circle.

- ▶ To view the results click **View** or **Download**. The results can be printed or downloaded and formatted into PDF or Excel. Once it is confirmed that the dataset is correct the information should be downloaded and included in the project file.

Note: (EX. TABLE SHOWN BELOW FOR CDOT OFFICE GEOGRAPHICAL LOCATION) There was no linguistic isolation data available at the census tract level for the CDOT office geographical location example. Data was only available up to the county level. The **Census Tract** category was deleted from the **Your Selections** box on the upper left-hand side of the screen.

The screenshot shows the American FactFinder interface. At the top, there are navigation links: MAIN, SEARCH, WHAT WE PROVIDE, USING FACTFINDER, Feedback, FAQs, Glossary, and Help. Below this is a search bar and a 'Results' section with a 'BACK TO SEARCH' button and 'Result 1 of 1' indicator. The main content area displays the following information:

B16002 HOUSEHOLD LANGUAGE BY LINGUISTIC ISOLATION
 Universe: Households
 2005-2009 American Community Survey 5-Year Estimates

Actions: [Modify Table](#) | [Bookmark](#) | [Print](#) | [Download](#) | [Create a Map](#)

[View Geography Notes](#) | [View Table Notes](#)

NOTE: Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the population estimates of the nation, states, counties, cities and towns and estimates of housing units for states and counties. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see Survey Methodology.

	Colorado		Denver County, Colorado	
	Estimate	Margin of Error	Estimate	Margin of Error
Total:	1,869,276	+/-5,576	246,770	+/-1,662
English only	1,535,267	+/-5,549	184,231	+/-1,786
Spanish:	219,376	+/-2,375	44,633	+/-1,199
Linguistically isolated	57,498	+/-1,545	15,173	+/-892
Not linguistically isolated	161,880	+/-2,282	29,460	+/-1,021
Other Indo-European languages:	64,663	+/-1,555	9,362	+/-655
Linguistically isolated	6,902	+/-533	1,792	+/-273
Not linguistically isolated	57,761	+/-1,417	7,570	+/-607
Asian and Pacific Island languages:	36,135	+/-1,020	5,328	+/-402
Linguistically isolated	8,823	+/-636	1,834	+/-286
Not linguistically isolated	27,312	+/-946	3,494	+/-356
Other languages:	13,835	+/-943	3,216	+/-449
Linguistically isolated	2,902	+/-435	712	+/-179
Not linguistically isolated	10,933	+/-800	2,504	+/-362

Source: U.S. Census Bureau, 2005-2009 American Community Survey

- ▶ After the data has been viewed and/or downloaded, click the **Back to Search** button at the top left corner of the screen.
- ▶ Delete the **Language Spoken at Home** category by clicking on the red x from the **Your Selections** box on the upper left-hand side of the screen before proceeding.

TO IDENTIFY LOW-INCOME POPULATIONS

The process for identifying low-income populations is provided below, which includes the process for collecting the appropriate data from the US Census and HUD and the low-income threshold calculations.

HOUSEHOLD SIZE

STEP 21- Click the **Topics** option on the left-hand side of the screen. You will see the following tab options: **People, Housing, Product Type, Program, Dataset**.

- ▶ Expand the **Housing** option
 - ▶ Expand the **Occupancy Characteristics** subcategory
 - ▶ Click the **Household Size** option.
- ▶ Click the **Close** button on the **Select Topics** box to view the Search Results. You will see the selections you made appear in the **Your Selections** box on the upper left-hand side of the screen.

The screenshot shows the American FactFinder search results page. On the left, the 'Your Selections' box shows 'Colorado' selected under 'State'. Below it, the 'Search using the options below' section has 'Topics' selected. A 'Select Topics' dialog box is open, showing a tree view of categories. 'Housing' is expanded, and 'Occupancy Characteristics' is further expanded, with 'Household Size' selected. A 'CLOSE X' button is highlighted in the top right of the dialog box. The main search results table shows a list of datasets, including '2010 Demographic Profile SF', '2010 SF1 100% Data', and '2010 ACS 5-year estimates'.

STEP 18- Select the appropriate ID: Table for household size.

- ▶ Select the P17: Average Household Size by Age row from your search results. You can also type the appropriate ID: Table in the Narrow your search box to find the table. The values will normally be some whole number plus a decimal, e.g., 3.25. Be sure to select the most recent dataset for the tables (2010 SF1 100% Data).

The screenshot shows the American FactFinder search results page. The search criteria include 'Housing Occupancy Characteristic: Household Size', 'State: Colorado', and 'County: Denver County, Colorado'. The search results list various tables, with P17, 'AVERAGE HOUSEHOLD SIZE BY AGE', selected. The 'Narrow your search' box contains 'P17: AVERAGE HOUSEH' and the 'GO' button. The table below shows the selected row and other related tables.

ID	Table, File or Document Title	Dataset	About
<input type="checkbox"/>	HCT6 HOUSEHOLD SIZE	2010 SF2 100% Data	?
<input type="checkbox"/>	HCT7 TENURE BY HOUSEHOLD SIZE	2010 SF2 100% Data	?
<input checked="" type="checkbox"/>	P17 AVERAGE HOUSEHOLD SIZE BY AGE	2010 SF1 100% Data	?
<input type="checkbox"/>	P17A AVERAGE HOUSEHOLD SIZE BY AGE (WHITE ALONE HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P17B AVERAGE HOUSEHOLD SIZE BY AGE (BLACK OR AFRICAN AMERICAN ALONE HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P17C AVERAGE HOUSEHOLD SIZE BY AGE (AMERICAN INDIAN AND ALASKA NATIVE ALONE HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P17D AVERAGE HOUSEHOLD SIZE BY AGE (ASIAN ALONE HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P17E AVERAGE HOUSEHOLD SIZE BY AGE (NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P17F AVERAGE HOUSEHOLD SIZE BY AGE (SOME OTHER RACE ALONE HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P17G AVERAGE HOUSEHOLD SIZE BY AGE (TWO OR MORE RACES HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P17H AVERAGE HOUSEHOLD SIZE BY AGE (HISPANIC OR LATINO HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P17I AVERAGE HOUSEHOLD SIZE BY AGE (WHITE ALONE, NOT HISPANIC OR LATINO HOUSEHOLDER)	2010 SF1 100% Data	?
<input type="checkbox"/>	P19 HOUSEHOLD SIZE BY HOUSEHOLD TYPE BY PRESENCE OF OWN CHILDREN	2010 SF1 100% Data	?
<input type="checkbox"/>	P24 HOUSEHOLDS BY PRESENCE OF PEOPLE 60 YEARS AND OVER, HOUSEHOLD SIZE, AND HOUSEHOLD	2010 SF1 100%	?

- ▶ To view the results click **View** or **Download**. The results can be printed or downloaded and formatted into PDF or Excel for future reference. Once it is confirmed that the dataset is correct the information should be downloaded and included in the project file. (Ex. TABLE SHOWN BELOW FOR CDOT OFFICE GEOGRAPHICAL LOCATION)

The screenshot shows the American FactFinder interface. The search results are for 'AVERAGE HOUSEHOLD SIZE BY AGE' in 'Denver County, Colorado'. The 'Print' and 'Download' buttons are circled in yellow. A table of household sizes by age group is also circled in yellow.

	Colorado	Denver County, Colorado	Census Tract 155, Denver County, Colorado
Average household size --			
Total:	2.49	2.22	2.00
Under 18 years	0.62	0.49	0.41
18 years and over	1.87	1.73	1.59

- ▶ After the data has been viewed and/or downloaded click the **Back to Search** button at the top left corner of the screen.
- ▶ Delete the **Household Size** and **P17: Average Household Size by Age** categories by clicking on the red x from the **Your Selections** box on the upper left-hand side of the screen before proceeding.

TOTAL HOUSEHOLDS & HOUSEHOLD INCOME

To obtain the total households and table of ranges of household incomes, use the US Census American Community Survey 5-year Estimates, when available. Data is provided down to the Census Tract level, but is not yet available at the block group level (as of October 2012). The low-income households will be based on the low-income threshold calculation (see below).

STEP 21- Click the **Topics** option on the left-hand side of the screen. You will see the following tab options: **People**, **Housing**, **Product Type**, **Program**, **Dataset**.

- ▶ Expand the **People** option
- ▶ Expand the **Income & Earnings** subcategory
- ▶ Click the **Income/Earnings (Households)** option.
- ▶ Click the **Close** button on the **Select Topics** box to view the Search Results. You will see the selections you made appear in the **Your Selections** box on the upper left-hand side of the screen.

The screenshot shows the American FactFinder search interface. On the left, the 'Your Selections' box shows the search criteria: State (Colorado), County (Denver County, Colorado), and Census Tract (Census Tract 155, Denver County, Colorado). Below this, the 'Search using the options below' section has the 'Topics' dropdown menu expanded, showing 'Income & Earnings' selected. The 'Income & Earnings' subcategory is also expanded, with 'Income/Earnings (Households) (207)' highlighted. A 'Select Topics' dialog box is open, showing a list of topics to add to the search. The 'CLOSE X' button on the dialog is circled in yellow. The main search results area shows 'Search Results: 51-75 of 1,538 tables and other products match 'Your Selections''. Below this, there is a table with columns for ID, Table, File or Document Title, Dataset, and About. The table lists various income-related datasets, such as 'MEAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS)' and 'MEAN HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS)'. The 'Dataset' column for these entries is '2010 ACS 5-year estimates'.

STEP 22- Select the appropriate ID: Table for household income.

- ▶ Select the **B19001: Household Income in the Past 12 Months (In 2010 Inflation-Adjusted Dollars)** row from your search results. You can also type the appropriate ID: Table in the **Narrow your search** box to find the table. Be sure to select the most recent dataset for the tables (2010 ACS 5-year estimates Data).

The screenshot displays the American FactFinder search results interface. On the left, the 'Your Selections' sidebar shows filters for 'People: Income & Earnings' (Income/Earnings: Household), 'State: Colorado', and 'County: Denver County, Colorado'. The main search results table, titled 'Search Results: 1-25 of 207 tables and other products match "Your Selections"', lists various tables. The row for 'B19001 HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS)' is highlighted with a yellow oval. Below the table, a '1 Selected:' section includes buttons for 'View', 'Download', 'Compare', and 'Clear All'. The footer contains the text 'Source: U.S. Census Bureau | American FactFinder' and navigation links: 'Privacy Policy', '2010 Census', 'Data Tools', 'Information Quality', 'Product Catalog', 'Contact Us', and 'Home'.

ID	Table Description	Dataset
B17011	AGGREGATE INCOME DEFICIT (DOLLARS) IN THE PAST 12 MONTHS FOR FAMILIES BY FAMILY TYPE	2010 ACS 5-year estimates
B17015	POVERTY STATUS IN THE PAST 12 MONTHS OF FAMILIES BY FAMILY TYPE BY SOCIAL SECURITY INCOME BY SUPPLEMENTAL SECURITY INCOME (SSI) AND CASH PUBLIC ASSISTANCE INCOME	2010 ACS 5-year Selected Population Tables
B17022	RATIO OF INCOME TO POVERTY LEVEL IN THE PAST 12 MONTHS OF FAMILIES BY FAMILY TYPE BY PRESENCE OF RELATED CHILDREN UNDER 18 YEARS BY AGE OF RELATED CHILDREN	2010 ACS 5-year estimates
B17026	RATIO OF INCOME TO POVERTY LEVEL OF FAMILIES IN THE PAST 12 MONTHS	2010 ACS 5-year estimates
B19001	HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS)	2010 ACS 5-year estimates
B19001A	HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) (WHITE ALONE HOUSEHOLDER)	2010 ACS 5-year Selected Population Tables
B19001B	HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) (BLACK OR AFRICAN AMERICAN ALONE HOUSEHOLDER)	2010 ACS 5-year estimates
B19001C	HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) (AMERICAN INDIAN AND ALASKA NATIVE ALONE HOUSEHOLDER)	2010 ACS 5-year estimates
B19001D	HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) (ASIAN ALONE HOUSEHOLDER)	2010 ACS 5-year estimates
B19001E	HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS) (NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE HOUSEHOLDER)	2010 ACS 5-year estimates

- ▶ To view the results click **View** or **Download**. The results can be printed or downloaded and formatted into PDF or Excel for future reference. Once it is confirmed that the dataset is correct the information should be downloaded and included in the project file. (Ex. TABLE SHOWN BELOW FOR CDOT OFFICE GEOGRAPHICAL LOCATION)

Results - Click Back to Search to select other tables or geographies

← BACK TO SEARCH Result 1 of 1 VIEW ALL AS PDF

B19001 **HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2010 INFLATION-ADJUSTED DOLLARS)**
 Universe: Households
 2006-2010 American Community Survey 5-Year Estimates

Table View

Actions: [Modify Table](#) | [Bookmark](#) | [Print](#) | [Download](#) | [Create a Map](#)

[View Geography Notes](#) | [View Table Notes](#)

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, for 2010, the 2010 Census provides the official counts of the population and housing units for the nation, states, counties, cities and towns. For 2006 to 2009, the Population Estimates Program provides intercensal estimates of the population for the nation, states, and counties.

	Colorado		Denver County, Colorado		Census Tract 155, Denver County, Colorado	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Total:	1,918,959	+/-5,137	254,181	+/-1,499	1,744	+/-121
Less than \$10,000	122,798	+/-2,254	25,402	+/-962	294	+/-116
\$10,000 to \$14,999	89,897	+/-2,257	16,137	+/-989	179	+/-99
\$15,000 to \$19,999	87,998	+/-2,125	15,062	+/-888	127	+/-57
\$20,000 to \$24,999	95,805	+/-2,047	15,332	+/-852	191	+/-114
\$25,000 to \$29,999	90,578	+/-1,849	14,164	+/-928	233	+/-108
\$30,000 to \$34,999	96,417	+/-2,001	14,126	+/-975	116	+/-64
\$35,000 to \$39,999	90,485	+/-2,024	12,978	+/-834	51	+/-44
\$40,000 to \$44,999	94,378	+/-1,968	12,846	+/-823	98	+/-74
\$45,000 to \$49,999	82,657	+/-1,945	10,914	+/-802	110	+/-81
\$50,000 to \$59,999	158,573	+/-2,795	19,472	+/-996	128	+/-79
\$60,000 to \$74,999	204,702	+/-2,874	23,180	+/-947	43	+/-42
\$75,000 to \$99,999	252,226	+/-3,140	26,207	+/-1,036	102	+/-71
\$100,000 to \$124,999	168,931	+/-2,731	16,261	+/-787	34	+/-28
\$125,000 to \$149,999	100,441	+/-2,147	9,906	+/-592	38	+/-31
\$150,000 to \$199,999	96,480	+/-1,795	10,372	+/-606	0	+/-123
\$200,000 or more	86,593	+/-1,861	11,822	+/-584	0	+/-123

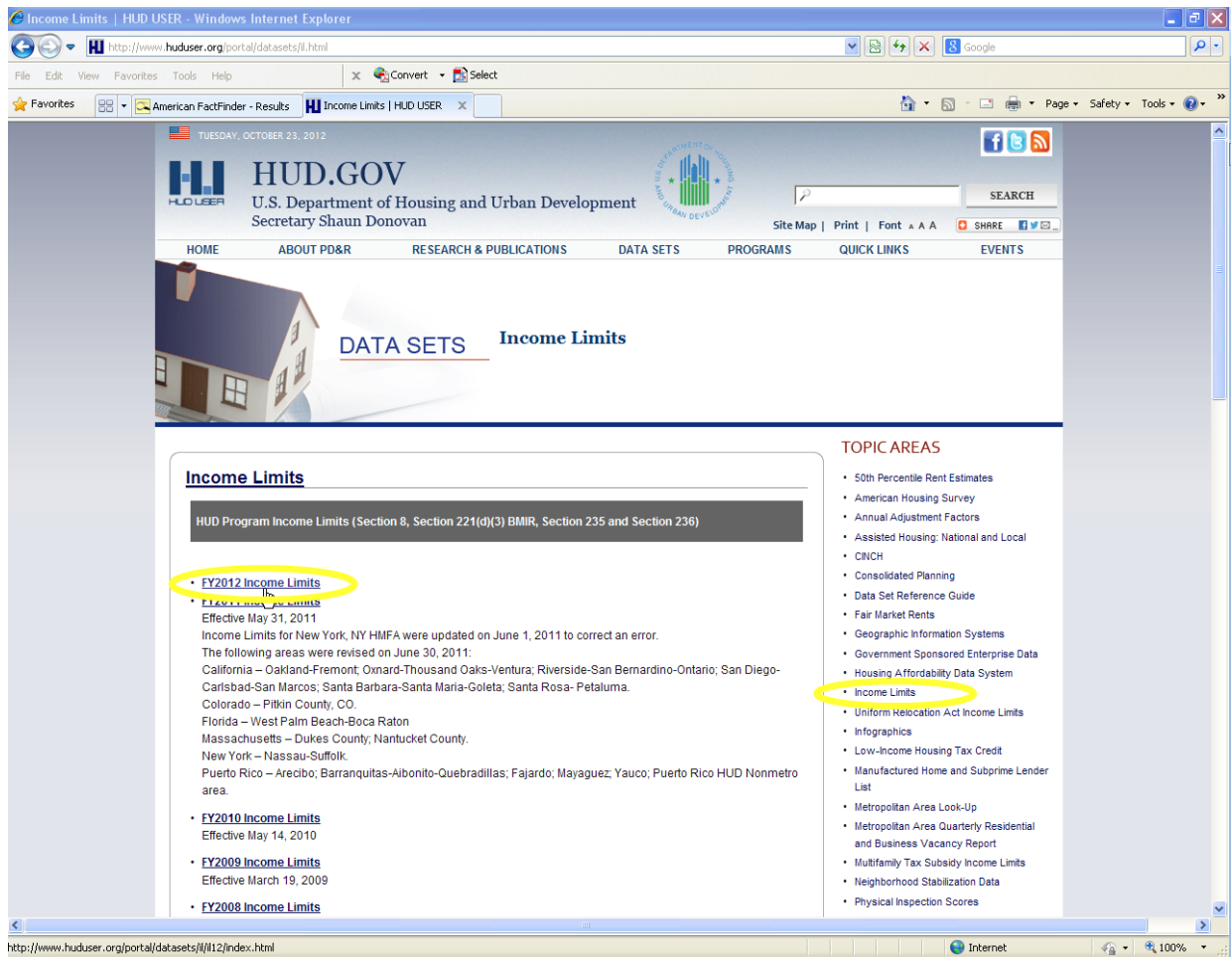
Source: U.S. Census Bureau, 2006-2010 American Community Survey

MEDIAN HOUSEHOLD INCOME

STEP 23- Go to the HUD website at: <http://www.huduser.org/portal/datasets/ii/ii12/index.html> to obtain the 30 percent median household income data set.

STEP 24- Click **Income Limits** from the **Topic Areas** on the right-hand side of the page.

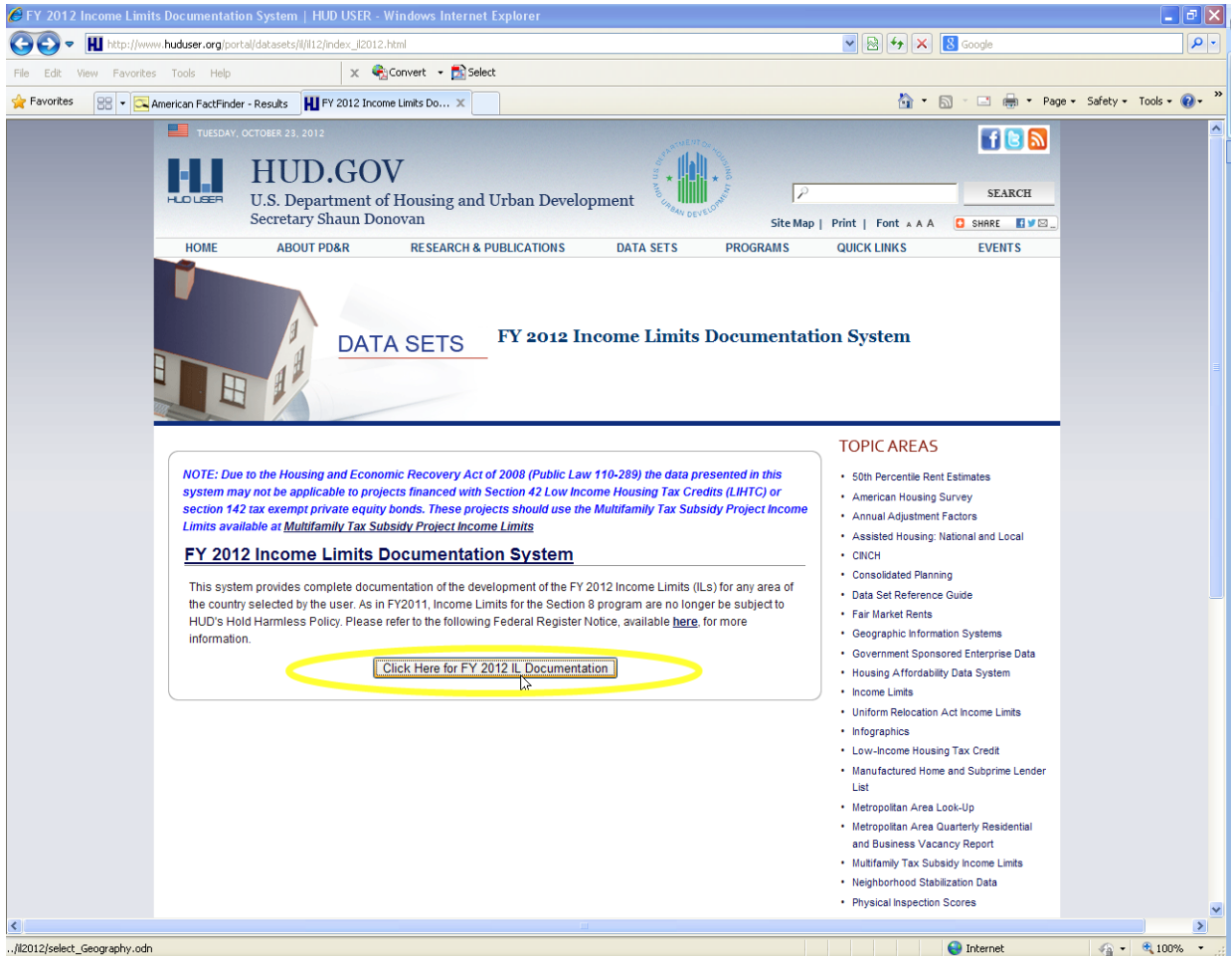
STEP 25- Click **FY 2012 Income Limits** from the Income Limits box.



The screenshot shows the HUD website's 'Income Limits' page. The page header includes the HUD logo, the text 'HUD.GOV U.S. Department of Housing and Urban Development Secretary Shaun Donovan', and a search bar. A navigation menu is located below the header, with 'DATA SETS' and 'Income Limits' highlighted. The main content area is titled 'Income Limits' and contains a sub-header 'HUD Program Income Limits (Section 8, Section 221(d)(3) BMR, Section 235 and Section 236)'. Below this, there is a list of links for various fiscal years: 'FY2012 Income Limits', 'FY2011 Income Limits', 'FY2010 Income Limits', 'FY2009 Income Limits', and 'FY2008 Income Limits'. The 'FY2012 Income Limits' link is circled in yellow. To the right of the main content is a 'TOPIC AREAS' section with a list of links, including 'Income Limits', which is also circled in yellow. The browser window shows the URL 'http://www.huduser.org/portal/datasets/ii/ii12/index.html' and the date 'TUESDAY, OCTOBER 23, 2012'.

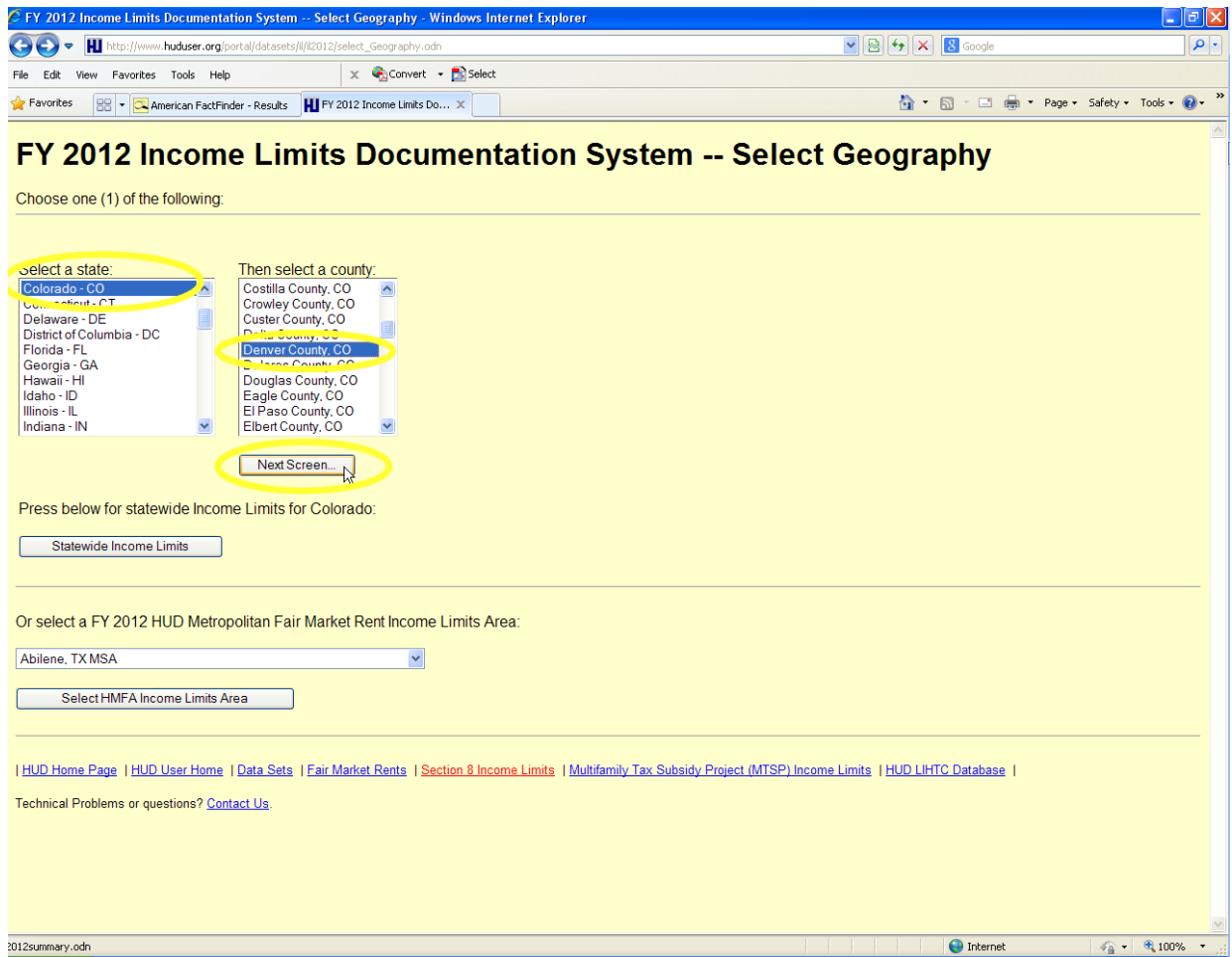
STEP 26- Click FY 2012 (or most current year) Income Limits Documentation from the FY 2012 Income Limits box.

STEP 27- Click the Click Here for FY 2012 IL Documentation button.



STEP 28- Select the appropriate geography within the community study area.

- ▶ Select **Colorado** from the **Select a state** box.
- ▶ Select the appropriate county/counties from the **Select a county** box. (Ex. *DENVER COUNTY*)
- ▶ Click the **Next Screen...** button.



STEP 29- Find the 30 percent median income for the appropriate county or counties in the community study area and then find the 30 % of median extremely low-income thresholds for the whole number above and below the average household size (e.g., if the average household size is 2.27, use the data from the FY Income Limit Category for the 2 person and 3 person household) by referring to the income amounts shown in the table.

FY 2012 Income Limits Documentation System
FY 2012 Income Limits Summary

Denver County, Colorado

FY 2012 Income Limit Area	Median Income	FY 2012 Income Limit Category	1 Person	2 Person	3 Person	4 Person	5 Person	6 Person	7 Person	8 Person
Denver County	\$79,300	Very Low (50%) Income Limits	\$27,800	\$31,750	\$35,700	\$39,650	\$42,850	\$46,000	\$49,200	\$52,350
		Extremely Low (30%) Income Limits	\$16,700	\$19,050	\$21,450	\$23,800	\$25,750	\$27,650	\$29,550	\$31,450
		Low (80%) Income Limits	\$44,450	\$50,800	\$57,150	\$63,450	\$68,550	\$73,650	\$78,700	\$83,800

NOTE: Denver County is part of the Denver-Aurora-Broomfield, CO MSA, so all information presented here applies to all of the Denver-Aurora-Broomfield, CO MSA. The Denver-Aurora-Broomfield, CO MSA contains the following areas: Adams County, CO ; Arapahoe County, CO ; Broomfield County, CO ; Clear Creek County, CO ; Denver County, CO ; Douglas County, CO ; Elbert County, CO ; Gilpin County, CO ; Jefferson County, CO ; and Park County, CO .

For details on the calculation steps for each of the various parameters, please click the "Median Income" column heading or the Income Limits row labels ("Very Low-Income (50%) Limits", "Extremely Low-Income (30%) Limits", and "Low-Income (80%) Limits").

Income Limit areas are based on FY 2012 Fair Market Rent (FMR) areas. For a detailed account of how this area is derived please see our associated FY 2012 [Fair Market Rent documentation system](#).

Select a different county or county equivalent:

STEP 30- Subtract the lower extremely low-income threshold dollar number from the higher low-income threshold dollar number and multiply by the decimal portion of the average household size (e.g., if 2.27, multiply by .27). Add this number to the lower whole dollar number (30 % of median low-income) identified in the last step. This will give you the low-income threshold amount for the actual average household size for the county.

- ▶ Calculate the extremely low-income threshold number and percentage of extremely low-income households for each census tract in your community study area. Use the county-level household size (# of low-income households (county level)/total # of households in census tract/block group). A detailed calculation example is provided below.

Note: If there are multiple counties in your community study area, follow these steps for each county.

EXTREMELY LOW-INCOME METHODOLOGY EXAMPLE

The following is an example extremely low-income calculation (Sample taken from "Environmental Justice in Transportation Planning Phase II, CDOT Research Branch, December 2003.)

DATA ASSUMPTIONS

The average household size is 3.25 people per household for this county, as provided in the 2010 Census data.

Extremely low-income thresholds for County X

Persons per household	1	2	3	4	5	6	7	8
Extremely Low-Income Limits	\$24,450	\$27,950	\$31,450	\$34,950	\$37,750	\$40,550	\$43,350	\$46,150

Tract 1, County X household income totals

Household Income	Total Households
Total	1,190
Less than \$10,000	50
\$10,000 to \$14,999	60
\$15,000 to \$19,999	70
\$20,000 to \$24,999	80
\$25,000 to \$29,999	90
\$30,000 to \$34,999	100
\$35,000 to \$39,999	100
\$40,000 to \$44,999	200
\$45,000 to \$49,999	100
\$50,000 to \$59,999	100
\$60,000 to \$74,999	100
\$75,000 to \$99,999	100
\$100,000 to \$124,999	100
\$125,000 to \$149,999	100
\$150,000 to \$199,999	100
\$200,000 or more	100

Given the data presented above, the number of households that are considered to be extremely low income in Tract 1 is calculated as follows.

LOW-INCOME THRESHOLDS

The value of the threshold extremely low-income based on an average 3.25 person household is calculated as follows:

- ▶ The average household is between 4 persons and 3 persons, so: $\$34,950$ (4-person household income) minus $\$31,450$ (3-person household income) = $\$3,500$.
- ▶ $\$3,500$ multiplied by 0.25 (decimal portion of county average household size) = $\$875$
- ▶ Extremely low-income threshold for Tract 1: $\$31,450$ (3-person household income) + $\$875$ = $\$32,325$

Referring back to the total household income, the total number of households with incomes at or below $\$32,325$ would be 450, or a total of the number of households within the first six income categories (refer to example table above) below the threshold range ($\$0$ to $\$34,999$), or $50+60+70+80+90+100=450$.



APPENDIX A
TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

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TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

- A -

AAI	All Appropriate Inquiries
AASHTO	American Association of State Highway and Transportation Officials
ACEC	American Consulting Engineers Council
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
APCD	Colorado Department of Public Health and Environment's Air Pollution Control Division
APE	area of potential effects
AST	aboveground storage tank
ASTM	American Society for Testing and Materials

- B -

BA	Biological Assessment
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	best management practice
BO	Biological Opinion
BOD	biological oxygen demand

- C -

CAA	Clean Air Act
CAL3QHC	transportation air quality dispersion model
CAQCC	Colorado Air Quality Control Commission
CatEx	Categorical Exclusion
CCR	Code of Colorado Regulations
CDNR	Colorado Department of Natural Resources
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	Colorado Geological Survey





CHS	Colorado Historical Society
CLOMR	conditional letter of map revision
CMAQ	Congestion Mitigation and Air Quality
CMGC	Construction Manager/General Contractor
CNAP	Colorado Natural Areas Program
CNHP	Colorado Natural Heritage Program
CO	carbon monoxide
CORA	Colorado Open Records Act
CORRACTS	Resource Conservation and Recovery Act Corrective Action
CORSIM	comprehensive microscopic traffic simulation tool
CPW	Colorado Parks and Wildlife
CRS	Colorado Revised Statutes
CSS	context sensitive solutions
CWA	Clean Water Act

- D -

dB	decibel
dBA	hourly A-weighted sound level in decibels
DEOG	diesel exhaust organic gases
DOD	US Department of Defense
DOI	US Department of the Interior
DOL	US Department of Labor
DPM	diesel particulate matter
DRCOG	Denver Regional Council of Governments
DTR	CDOT's Division of Transit and Rail

- E -

EA	Environmental Assessment
EAC	Early Action Compact
EIS	Environmental Impact Statement
EJ	environmental justice
EO	Executive Order
EOS	Environmental Overview Study
EPA	US Environmental Protection Agency
EPB	Colorado Department of Transportation's Environmental Programs Branch
ERNS	emergency response notification system
ESA	Endangered Species Act



- F -

FAA	Federal Aviation Administration
FACWet	Functional assessment of Colorado wetlands
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIA	Federal Insurance Administration
FINDS	facility index system
FIR	Foundation Investigation Report
FIRM	flood insurance rate map
FLPMA	Federal Land Policy and Management Act
FOIA	Freedom of Information Act
FONSI	Finding of No Significant Impact
FOR	final office review
FPPA	Farmland Protection Policy Act
FRA	Federal Railroad Administration
FTA	Federal Transit Administration

- G -

GAP	Gap Analysis Program
GHG	greenhouse gas
GIS	geographic information systems
GESOW	Generic Environmental Scope of Work
gpm	gallons per minute
gps	global positioning system

- H -

HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HAP	hazardous air pollutant
HB	House Bill
HOV	high occupancy vehicle
HUD	US Department of Housing and Urban Development

- I -

I-25	Interstate 25
I-70	Interstate 70
IAR	Interstate Access Request
INWMP	Integrated Noxious Weed Management Plan





ISA	Initial Site Assessment
ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	intelligent transportation systems

- L -

LEDPA	Least Environmentally Damaging Practicable Alternative
LEP	limited English proficiency
Leq(h)	hourly equivalent sound level
LOMR	letter of map revision
LOS	level of service
LOSS	level of service of safety

- M -

MAP-21	Moving Ahead for Progress in the 21 st Century
MBTA	Migratory Bird Treaty Act
MESA	Modified Phase I Environmental Site Assessment
µg/m ³	micrograms per cubic meter
µm	micrometers
µS/cm	micro-Siemens per centimeter
MOA	memorandum of agreement
MOU	memorandum of understanding
MPO	Metropolitan Planning Organization
MS4	municipal separate storm sewer system
MSAT	mobile source air toxics

- N -

NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAGPRA	Native American Graves Protection and Repatriation Act
NCHRP	National Cooperative Highway Research Program
NDIS	Colorado Natural Diversity Information Source
NEPA	National Environmental Policy Act of 1969
NFIA	National Flood Insurance Act
NFIP	National Flood Insurance Program
NFRAP	no further remedial action planned
NHPA	National Historic Preservation Act of 1966
NHS	National Highway System
NO ₂	nitrogen dioxide





NMFS	National Marine Fisheries Service
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWP	nationwide permit
NWS	National Weather Service

- O -

O ₃	ozone
OAHP	Office of Archaeology and Historic Preservation
OPS	Colorado Department of Labor and Employment's Division of Oil and Public Safety

- P -

PAH	Poly-aromatic hydrocarbons
ppb	parts per billion
ppm	parts per million
PA	Programmatic Agreement
PCN	pre-construction notification
PDM	Project Development Manual
PM	particulate matter
PMJM	Preble's Meadow Jumping Mouse
PSD	Prevention of Significant Deterioration

- Q -

QA	quality assurance
QC	quality control

- R -

RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RFP	Request for Proposal
ROD	Record of Decision
ROI	Region of Influence





ROW	Right-of-way
RPEM	CDOT Region Planning and Environmental Manager
RTD	Regional Transportation District
RTP	Regional Transportation Plan

- S -

SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SB	Senate Bill
SDWA	Safe Drinking Water Act
SO ₂	sulfur dioxide
SEO	State Engineer's Office
SGPI	Shortgrass Prairie Initiative
SHPO	State Historic Preservation Officer
SLS	System Level Study
SIP	State Implementation Plan
SPUI	single-point urban interchange
SRHP	State Register of Historic Places
STIP	State Transportation Implementation Plan
STP	Surface Transportation Program
SWAP	Source Water Assessment and Protection
SWLRTP	Statewide Long Range Transportation Plan
SWMP	Stormwater Management Plan

- T -

TAZ	transportation analysis zone
T&E	threatened and endangered
TCM	transportation control measure
TDM	transportation demand management
TEA-21	Transportation Equity Act for the 21st Century
THPO	Tribal Historic Preservation Officer
TIP	Transportation Implementation Program
TMDL	total maximum daily load
TNM	Traffic Noise Model
TOD	transit oriented development
TPR	Transportation Planning Region
TSM	transportation system management





- U -

UDFCD	Urban Drainage and Flood Control District
UMTA	Urban Mass Transportation Administration
US	United States
USACE	US Army Corps of Engineers
USC	US Code
USDA	US Department of Agriculture
USDOI	US Department of Interior
USDOT	US Department of Transportation
USFS	US Forest Service
USFWS	US Department of Interior Fish and Wildlife Service
USGS	US Geologic Survey
UST	underground storage tank
UTM	Universe Transverse Mercator

- V -

VE	value engineering
VCP	Colorado Department of Public Health and Environment's Voluntary Clean-up Program
VHT	vehicle hours of travel
VMT	Vehicle miles of travel
VPP	Visual prioritization process

- W -

WQCC	Water quality control commission
WQCD	Water quality control division



APPENDIX B TYPICAL NEPA TERMINOLOGY

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TYPICAL NEPA TERMINOLOGY

- # -

100-year floodplain: The area along the river corridor that would receive floodwaters during a 100-year flood event. A 100-year flood event has the probability of occurring 1% of the time during any given year. If a 100-year flood event occurs, the following year will still have the same probability for occurrence of a 100-year event.

1601 Policy Directive: The *Interchange Approval Process* (CDOT, 2001; CDOT, 2005a; CDOT, 2005c) was established by the Colorado Transportation Commission to provide fair and consistent procedures regarding the review and evaluation of requests for new interchanges and major improvements to existing interchanges on the state highway system. CDOT typically integrates the interchange approval process requirements with NEPA and the CDOT transportation planning and development process. Due to long-term financial commitments and other legal limitations associated with the requirements of this policy directive, this guidance is applicable to local municipal governments and quasi-governmental entities (such as special districts like the E-470 Public Highway Authority) requesting a new interchange or major improvements to an interchange that have not been programmed through CDOT's transportation planning and development process.

The 1601 process requires, among other things, that the interchange:

- ▶ Be part of the TPRs approved fiscally-constrained RTP, STIP, and SWP
- ▶ Be the subject of approved intergovernmental agreements which addresses the funding of the application development and review process, timeline and analytical expectations, and an intergovernmental agreement covering construction, operations, maintenance, and replacement of the interchange
- ▶ Have sufficient environmental and other studies performed consistent with FHWA interchange approval and NEPA requirements

Any Colorado Transportation Commission or CDOT action on the interchange request is contingent on approval of the appropriate environmental documentation.

401 Certification/Water Quality Certification: Section 401 of the Clean Water Act requires the States to issue a 401 Water Quality Certification for all projects that require a Federal Permit (such as a Section 404 Permit). The "401" is essentially verification by the State that a given project will not degrade Waters of the State or otherwise violate water quality standards.

- A -

Abatement [Noise]: A reduction in the degree or intensity of traffic and other noise sources through various forms of mitigation measures, such as noise barriers or walls.

Action: A highway or transit project proposed for FHWA or FTA funding. It also includes activities such as joint and multiple use permits, changes in access control, etc., which may or may not involve a commitment of Federal funds.



Adverse Effects: In the context of Section 106, an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

Adverse Impacts: Adverse impacts, (as defined by USDOT) and as applied to environmental justice, "may include, but are not limited to: air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and service; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organization; increased traffic congestion; isolation, exclusion or separation of minority or low-income individuals from the broader community; and the denial of, reduction in, or significant delay in the receipt of benefits of DOT programs, policies, or activities." Individuals potentially affected by a project should be identified through demographic analysis and targeted for early public involvement.

Advisory Council on Historic Preservation (ACHP): An independent agency of the U.S. government whose members are charged with advising the President and the Congress on matters relating to historic preservation; recommending measures to coordinate activities of Federal, State, and local agencies and private institutions and individuals relating to historic preservation; and advising on the dissemination of information pertaining to such activities. The Council reviews the policies and programs of federal agencies in regard to compliance with the National Historic Preservation Act (NHPA), as amended.

Affected Environment: The physical features, land area or areas to be affected by the alternatives presented in the NEPA document. This term also includes various social and environmental factors and conditions pertinent to an area.

Air Pollutants/Air Pollution: Substances in the air (generally considered man-made in origin) that could, at high enough concentrations, harm humans, animals, vegetation or materials. Three major air pollutants generally involving transportation projects include (ground-level) ozone, particulate matter, and carbon monoxide.

Alternative: One of a number of specific transportation improvements proposals, alignments, options, design choices, etc., in a defined study area for how, or whether to proceed with a proposed project.

Alternative Analysis: Process by which alternatives identified through the scoping process will be screened to determine how well each meets the Purpose and Need.

Americans with Disabilities Act: A national mandate for the elimination of discrimination against individuals with disabilities that provides clear, strong, consistent, enforceable standards addressing discrimination against individuals with disabilities; ensures that the Federal Government plays a central role in enforcing the standards established in the Act on behalf of individuals with disabilities; and invokes the sweep of congressional authority, including the power to enforce the fourteenth amendment and to regulate commerce, in order to address the major areas of discrimination faced day-to-day by people with disabilities.





Annual Average Daily Traffic (AADT): The total volume of traffic passing a point or segment of highway facility in both directions for 1 year, divided by the number of days in the year.

Approval: General term referring to any document other than a permit that needs a signature by someone in authority at the agency having statutory jurisdiction over that activity. The document may be called an approval, certification, concurrence, easement, or license, all of which represent an agency saying, "Yes we authorize you to conduct this activity as long as you do it in this manner." An approval may specify conditions under which the activity is approved.

Archaeological Resources: The locations of prehistoric or historic occupations or activities that can be used to reconstruct the way of life of cultures of the past. They may range from a single artifact to the extensive ruins of a historic military fortification.

Archaeological Resources Protection Act (ARPA): Regulates the taking of archaeological resources on federal lands by setting a broad policy that archaeological resources are important for the nation and should be protected. The act further establishes a requirement for the excavation or removal of archaeological resources from public or Indian lands with special permits. Violations of the law include civil and criminal penalties of fines and imprisonment.

Area of Potential Effect (APE): The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.

Average Daily Traffic (ADT): The total volume of traffic passing a point or segment of a highway facility in both directions for an average weekday.

Avoidance Alternative: A general term used to refer to any alignment proposal, which has been developed, modified, shifted, or downsized to specifically avoid impacting one or more resources (e.g., an alternative that avoids an eligible historic property).

- B -

Best Fit Alignment: Road widening design that utilizes symmetrical or asymmetrical widening alignments (or a combination of both) in order to provide a cost effective alternative that avoids and minimizes impacts to the natural and human environment.

Best Management Practices (BMPs): Effective, feasible (including technological, economic, and institutional considerations) conservation practices and land and water management measures that avoid or minimize adverse impacts to natural and cultural resources. BMPs may include schedules for activities, prohibitions, maintenance guidelines, and other management practices.

Biodiversity: Biodiversity, or biological diversity, is generally accepted to include genetic diversity within species, species diversity, and a full range of biological community types. The concept is that a landscape is healthy when it includes stable populations of native species that are well distributed across the landscape.



Biogenics: Vegetation sources of volatile organic compounds.

Biological Assessment (BA): The document or study prepared by the lead Federal agency or applicant under Section 7 of the ESA to determine if the Federal action will adversely affect listed species or modify designated critical habitat.

Biological Opinion (BO): A document prepared by USFWS (or National Marine Fisheries Service) that analyzes the effects of a Federal action on listed species and designated critical habitat, and states whether or not the action will jeopardize the continued existence of the listed species. If the BO authorizes incidental take, it will include an incidental take statement and terms and conditions that are binding. The USFWS will prepare a BO on whether the action will jeopardize the continued existence of a listed species. The USFWS has 135 days to formulate a final BO which completes formal consultation.

Bureau of Land Management (BLM): The BLM, an agency within the U.S. Department of the Interior, administers 262 million acres of America's public lands, located primarily in 12 Western States. The BLM sustains the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

- C -

Candidate Species: Any species of fish, wildlife, or plant considered for possible addition to the list of endangered and threatened species. These are taxa for which NOAA Fisheries or USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposal to list, but issuance of a proposed rule is currently precluded by higher priority listing actions.

Capacity Analysis: The use of engineering analytical tools to determine Level of Service for existing or projected traffic volumes. It is used to evaluate degrees of traffic congestion.

Categorical Exclusion (CatEx): A category of actions which do not individually or cumulatively have a significant effect on the human environment and which have been found to have no such effect in procedures adopted by a Federal agency and for which, therefore, neither an EA nor an EIS is required. An agency may decide in its procedures or otherwise, to prepare EAs for the reasons stated in 40 CFR Sec.1508.9 even though it is not required to do so. Any procedures under this section shall provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect. FHWA actions which typically qualify as Categorical Exclusions are specifically defined at 23 CFR 771.117(a).

Certified Local Governments (CLGs): Local government historic preservation entities participating in the national historic preservation program, certified by the SHPO. Existence may afford property owners in the CLG jurisdiction the opportunity to participate in local (State, county, etc.) preservation incentives (e.g., tax incentives).





Civil Rights Act of 1991: Amends the Civil Rights Act of 1964 to strengthen and improve Federal civil rights laws, to provide for damages in cases of intentional employment discrimination, to clarify provisions regarding disparate impact actions, and for other purposes. The purposes of this Act are:

- ▶ To provide appropriate remedies for intentional discrimination and unlawful harassment in the workplace;
- ▶ To codify the concepts of “business necessity” and “job related” enunciated by the Supreme Court in *Griggs v. Duke Power Co.*, 401 U.S. 424 (1971), and in the other Supreme Court decisions prior to *Wards Cove Packing Co. v. Atonio*, 490 U.S. 642 (1989);
- ▶ To confirm statutory authority and provide statutory guidelines for the adjudication of disparate impact suits under title VII of the Civil Rights Act of 1964 (42 U.S.C. 2000e et seq.); and
- ▶ To respond to recent decisions of the Supreme Court by expanding the scope of relevant civil rights statutes in order to provide adequate protection to victims of discrimination.

Clean Air Act (CAA) of 1990: Growing public awareness and concern for controlling air pollution led to enactment of the Federal Clean Air Act of 1970. As amended in 1990, this law protects and enhances the quality of the nation’s air resources, initiates and accelerates a national research and development program to prevent and control air pollution, provides technical and financial assistance to State and local governments for air pollution control programs, and encourages and assists regional air pollution control programs.

Clean Water Act (CWA): Growing public awareness and concern for controlling water pollution led to enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the Clean Water Act. The Act established the basic structure for regulating discharges of pollutants into the waters of the United States. It gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry. The Clean Water Act also continued requirements to set water quality standards for all contaminants in surface waters. The Act made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. It also funded the construction of sewage treatment plants under the construction grants program and recognized the need for planning to address the critical problems posed by non-point source pollution.

Code of Federal Regulations (CFR): The CFR is a codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the Federal government. The CFR is divided into 50 titles which represent broad areas subject to Federal regulation. Each title is divided into chapters which usually bear the name of the issuing agency. Each chapter is further subdivided into parts covering specific regulatory areas. Large parts may be subdivided into subparts. All parts are organized in sections, and most citations to the CFR will be provided at the section level.

Colorado Discharge Permit System (CDPS): EPA handed the stormwater regulatory authority for the NPDES program to the State of Colorado. CDPS is Colorado’s version of the NPDES program.

Comment Period: The period of time whereby a State or Federal agency requests public and other agency review input on a NEPA document.





Community Impact Assessment (CIA): A process to evaluate the effects of a transportation action on a community and its quality of life. The assessment process should include all items of importance to people, such as mobility, safety, employment effects, relocation, isolation and other community issues.

Compensatory Mitigation: The restoration, establishment, enhancement, or in exceptional circumstances, preservation of wetlands and/or other aquatic resources expressly for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization have been achieved. (See also Mitigation Bank.)

Conformity: Refers to air quality conformity regulated through 40 CFR 93 to assure attainment of criteria air pollutant standards set by the EPA for the purposes of protecting human health, and the natural and manmade environments. Projects are generally in conformity when they do not:

- ▶ Cause or contribute to any new violation of any standards in any area;
- ▶ Increase the frequency or severity of any existing violation of any standard in any area; or
- ▶ Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

Context Sensitive Solutions (CSS): A collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility. CSS is an approach that considers the total context within which a transportation improvement project will exist. CSS has alternatively been called Context Sensitive Design.

Cooperating Agency: Any Federal agency other than a lead agency which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal. The selection and responsibilities of a cooperating agency are described in 40 CFR Sec. 1501.6. A State or local agency of similar qualifications or, when the effects are on a reservation, an Indian Tribe, may by agreement with the lead agency become a cooperating agency.

Council on Environmental Quality (CEQ): Established by Congress within the Executive Office of the President as part of NEPA, the CEQ coordinates Federal environmental efforts and works closely with agencies and other White House offices in the development of environmental policies and initiatives. The Council's Chair, who is appointed by the President with the advice and consent of the Senate, serves as the principal environmental policy adviser to the President. The CEQ reports annually to the President on the state of the environment, oversees Federal agency implementation of the environmental impact assessment process, and acts as a referee when agencies disagree over the adequacy of such assessments.

Critical Habitat: An ecosystem or part of an ecosystem designated by the USFWS needing conservation or other protective measures to ensure the survival and potential recovery of a threatened or endangered species. Critical habitat is required to be designated at the time a species is listed under the ESA unless designation would not be prudent or the critical habitat is not determinable.



Cultural Resource: Cultural resources include archeological sites, traditional sites, and the built environment resources, such as buildings, structures, objects, districts, and sites. A cultural resource that is listed on, or is eligible for, the National Register of Historic Places (NRHP) is considered a historic property for purposes of Section 106.

Cumulative Impact/Effect: Impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

- D -

Decision Document: Identifies the selected alternative.

de minimis Impact: A category of impacts to Section 4(f) resources established in SAFETEA-LU whose impacts are of such a minor extent as to not require a full Section 4(f) evaluation.

Department of Transportation (DOT): The DOT was established by an act of Congress on October 15, 1966. The mission of the DOT is to serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future. The DOT's vision is to lead the way to transportation excellence and innovation in the 21st Century.

Design-Build Process: A construction project that combines two usually separate services into a single contract. Design-build allows an agency to contract a team of both designers and a contractor to simultaneously design and construct a project. The design-build entity may be a single firm, a consortium, joint venture or other organization assembled for a particular project.

Determination of Eligibility: Formal recognition (by the SHPO, State Advisory Council, the Keeper of the National Register, or an agency) of a property's eligibility for inclusion, but not actual listing, in the NRHP. Determinations of Eligibility may be prepared on National Register Registration Forms.

Direct Impact/Effect: A direct impact (or effect) is caused by the proposed action or alternative and occurs at the same time and place, most often during construction. Impacts may be ecological, aesthetic, historic, cultural, economic, social, or health-related. For example, a highway crossing a stream may directly impact its water quality, though such impacts can be mitigated.

Disproportionately High and Adverse Impact: The adverse impact is disproportionately high if it is predominately borne by a minority and/or low-income population, or if the adverse impact that could be suffered by the minority or low-income community is more severe or greater in magnitude than the adverse impact that could be suffered by the non-minority or non-low-income community. Cultural differences need to be factored into this analysis.

Disturbed/Maintained Land: A general land use category contained in environmental documents that includes lawns, parking lots, cleared areas, and other properties which have been substantially altered or developed. It does not include terrestrial forests, wetlands, prime farmlands and other specific natural resource land uses.





Draft Environmental Impact Statement (DEIS): The preliminary environmental document prepared by a State or Federal agency on the environmental impacts of its project and/or program proposals. The general FHWA criteria for preparing DEISs are found at 23 CFR 771.115 and the procedures for issuance at 23 CFR 771.123.

- E -

Easement: Access given to individuals other than the owner, allowing them to use a property for a specific purpose. Some examples are temporary construction and utility easements.

Effects: The CEQ regulations (40 CFR Sec. 1508.8) define several different types of effects that should be evaluated under NEPA. "Effects" include:

- ▶ Direct effects, which are caused by the action and occur at the same time and place; and
- ▶ Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Endangered Species: Species identified by either the State or the Federal government as likely to be in danger of becoming extinct through a significant portion of or all of its range.

Endangered Species Act: Provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved and a program for the conservation of such endangered species and threatened species. All Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of the Endangered Species Act. Federal agencies shall also cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of a wetland site to heighten, intensify or improve specific function(s) or to change the growth stage or composition of the vegetation present. Enhancement is undertaken for specified purposes such as water quality improvement, flood water retention or wildlife habitat. Activities typically consist of planting vegetation, controlling non-native or invasive species, modifying site elevations or the proportion of open water to influence hydroperiods, or some combination of these. Enhancement results in a change in wetland functions and can lead to a decline in other wetland functions, but does not result in a gain in wetland acres.





Environmental Assessment (EA): A concise public document for which a Federal agency is responsible that serves to briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a FONSI; aid an agency's compliance with NEPA when no EIS is necessary; and facilitate preparation of an EIS when one is necessary. Includes brief discussions of the need for the proposal, of alternatives as required by section 102(2)(E) of the NEPA, of the environmental impacts of the proposed action and alternatives, and a listing of agencies and persons consulted. The FHWA criteria and procedures for EAs are contained at 23 CFR 771.115 and 771.119.

Environmental Features Map: A topographic or photogrammetric map of the study area illustrating resource areas of concern, both natural and human environment. This mapping is used to identify alternatives that warrant study on a screening level basis.

Environmental Impact: See Direct Effects and Indirect Effects

Environmental Impact Statement (EIS): A detailed written statement prepared for major Federal actions that may cause significant impacts on the environment. It shall provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. Agencies shall focus on significant environmental issues and alternatives and shall reduce paperwork and the accumulation of extraneous background data. Statements shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the necessary environmental analyses. An EIS is more than a disclosure document. It shall be used by Federal officials in conjunction with other relevant material to plan actions and make decisions.

Environmental Justice (EJ): A 1994 Presidential Executive Order that directed every Federal agency to make environmental justice part of its mission by identifying and addressing the effects of all programs, policies, and activities on "minority populations and low-income populations." The DOT's environmental justice initiatives accomplish this goal by involving the potentially affected public in developing transportation projects that fit harmoniously within their communities without sacrificing safety or mobility. There are three fundamental environmental justice principles:

- ▶ To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- ▶ To ensure the full and fair participation by all potentially affected communities in the transportation decision making process.
- ▶ To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low income populations.

Environmental Protection Agency (EPA): The EPA provides leadership in the nation's environmental science, research, education and assessment efforts. EPA is responsible for researching and setting national standards for a variety of environmental programs and delegates to States and tribes responsibility for issuing permits, and monitoring and enforcing compliance. Where national standards are not met, EPA can issue sanctions and take other steps to assist the States and tribes in reaching the desired levels of environmental quality. EPA also works with industries and all levels of government in a wide variety of voluntary pollution prevention programs and energy conservation efforts.





Environmental Stewardship: A general Federal and State initiative which demonstrates the care and commitment for preserving and enhancing the natural and human environment in delivering and maintaining an improved transportation system.

Environmental Streamlining: Enacted into legislation for highway and transit projects with TEA-21, environmental streamlining is the term used for a new way of doing business that brings together the timely delivery of transportation projects with the protection and enhancement of the environment. In its simplest terms, environmental streamlining consists of cooperatively establishing realistic project development time frames among the transportation and environmental agencies, and then working together cooperatively to adhere to those time frames. Because major transportation projects are affected by dozens of Federal, State, and local environmental requirements administered by a multitude of agencies, improved interagency cooperation is critical to the success of environmental streamlining.

Environmentally Preferable Alternative: The environmentally preferable alternative is the alternative within the range of alternatives presented in a Draft EIS that best promotes the goals of NEPA. In general, this is the alternative that causes the least damage to the environment and best protects natural and cultural resources. In practice, one alternative may be more preferable for some environmental resources while another alternative may be preferable for other resources. Note that identifying this alternative is also a requirement for Records of Decision (RODs) [40 CFR 1505.2(b)].

Executive Order (EO): Executive orders are official documents, numbered consecutively, through which the President manages the operations of the Federal government.

- F -

Farmland Conversion Impact Rating: A NRCS method of determining prime and unique farmland impacts from a project based on 12 site assessment criteria. Agricultural lands that score 160 points or more should be identified in the environmental document. The document should analyze alternatives that avoid impacts to such farmlands.

Federal Emergency Management Agency (FEMA): FEMA is an independent agency of the Federal government, reporting to the President. Since its founding in 1979, FEMA's mission has been to reduce loss of life and property and protect our nation's critical infrastructure from all types of hazards through a comprehensive, risk-based, emergency management program of mitigation, preparedness, response, and recovery.

Federal Highway Administration (FHWA): The FHWA is a part of the U.S. Department of Transportation and is headquartered in Washington, D.C. The mission of the FHWA is to enhance mobility through innovation, leadership, and public service. FHWA provides expertise, resources, and information to continually improve the quality of our nation's highway system and its intermodal connections. FHWA undertakes this mission in order to enhance the country's economic vitality, quality of life, and the environment. The services FHWA provides are designed to meet the present-day transportation needs while laying the foundation to address the future transportation needs of our Nation.





Federal Highway Administration Directives: A directive is a written communication that prescribes or establishes policy, organization, methods, procedures, requirements, guidelines, or delegations of authority. It also provides information essential to the administration or operation of the FHWA.

Federal Highway Administration Policy Memorandums: Official FHWA issuances that establish new and/or revised policy and guidance for implementing the requirements related to FHWA's programs.

Federal Lead Agency: The Federal Lead Agency is the agency preparing or having taken primary responsibility for preparing an environmental document. Where Federal-aid funding is anticipated, the U.S. DOT (FHWA) shall be the Federal Lead Agency in the environmental review process for a project.

Federal Nexus: A project has a Federal nexus when there is a connection with the Federal government (i.e., when any of the following occur: Federal land is within the project area, Federal money is used in the project, or Federal permits or approvals are required as part of the undertaking).

Federal Species of Concern: A plant or animal species that may or may not be listed under the Endangered Species Act as threatened or endangered in the future. Typically, federal species of concern can include those plants and animals that are uncommon to rare, there is insufficient information to include them for listing, or have very specific needs or diminishing habitat and may be candidates for future listing under the ESA. These species are not afforded Federal protection under Section 7 of the ESA.

Federal Transit Administration (FTA): The FTA administers a program of financial assistance for the providers of urban and rural public mass transportation. The mission of FTA is to provide leadership, technical assistance, and financial resources for safe, technologically advanced public transportation which enhances all citizens' mobility and accessibility, improves America's communities and natural environment, and strengthens the national economy. The statutory authority for FTA's programs is the Federal Transit Act, as amended.

Final Environmental Impact Statement (EIS): The final environmental document for a project or program action which incorporates and addresses substantial concerns identified by the public or from review agencies following the issuance of the DEIS. FHWA requirements are specified at 23 CFR 771.125.

Finding of Effect: A determination by a federal agency in consultation with SHPO, pursuant to Section 106 that a proposed undertaking will have an effect on historic properties.

Finding of No Significant Impact (FONSI): A FONSI is a document by a Federal agency briefly presenting the reasons why an action, not otherwise excluded, will not have a significant effect on the human environment and for which an EIS therefore will not be prepared. It shall include the EA or a summary of it and shall note any other environmental documents related to it. If the assessment is included, the finding need not repeat any of the discussion in the assessment but may incorporate it by reference. FHWA requirements are specified at 23 CFR 771.121.

Floodplains: The riverside land that is periodically inundated by a river's floodwaters is called the floodplain. Floodplains serve important purposes. They temporarily store floodwaters, improve water quality, provide important habitat for river wildlife, and create opportunities for recreation.





Floodway: The floodway is the channel of a river or stream and the adjacent area that must be reserved in order to discharge the 100-year flood without cumulatively increasing the water surface elevation more than one foot.

Functional Design (Conceptual Design): Very general highway design that includes horizontal and vertical alignments, edge of pavement, construction limits and right of way limits for all alignments, intersections and interchanges within a study corridor. Functional designs are prepared on orthophotography with GIS features after project Purpose and Need is established (Concurrence Point No. 1). Functional Designs are prepared to determine constructability, estimate human and environmental impacts and establish a project cost.

- G -

Geographical Information Systems (GIS): Tools (including computer programs) used to gather, transform, manipulate, analyze and produce information related to the surface of the Earth. This information or data may be represented by maps, three dimensional models, tables and/or lists.

Geology: The study of the structure of the Earth or another planet, in particular its rocks, soil, and minerals, and its history and origins.

Groundwater: Water that occurs below the surface of the earth, contained in pore spaces. It is either passing through or standing in the soil and underlying strata and is free to move under the influence of gravity.

- H -

Habitat Fragmentation: Is a potential effect to wildlife species beyond direct project impacts that may fragment needed habitat for species survival. Many animals require a range of resources that are naturally patchy and therefore need to move around between resource sites. Linear projects, such as new rail lines and highway projects, can cause extensive fragmentation of wildlife habitat and result in isolated and degraded wildlife populations or increased mortality rates through direct conflicts. Wildlife passages constructed for highway projects are one potential method of minimizing direct impacts from fragmentation.

Hazardous Material: A substance or combination of substances that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either:

- ▶ Cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or
- ▶ Pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Hazardous Substance: Hazardous substances designated in 40 CFR 116 pursuant to Section 311 of the Clean Water Act include any materials that pose a threat to public health or the environment. Typical hazardous substances have one or more of the following characteristics: toxicity, corrosivity, ignitability, explosivity, and chemical reactivity. Federal regulation of hazardous substances excludes petroleum, crude oil, natural gas, natural gas liquids or synthetic gas usable for fuel. State regulation of hazardous substances includes petroleum products.



Hazardous Waste: Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, spilled, or contaminated, or that are being stored temporarily prior to proper disposal.

High Occupancy Vehicle (HOV) Lanes: HOV lanes are a network of barrier-separated roadways that allow buses, vanpools, and carpools to move higher volumes of passengers on roadways.

Historic Property: Under the NHPA, any district, site, building, structure or object included in or eligible for the NRHP.

Human Environment: Human environment shall be interpreted comprehensively to include the natural and physical environment and the relationship of people with that environment.

- I -

Improve Existing (Widen Existing): This option involves improvements to the existing roadway, as an alternative to a road on new location.

Indirect Impacts/Effects: Indirect impacts (or effects) are caused by the proposed action or alternative and are later in time or farther removed in distance, but still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems.

Intelligent Transportation System (ITS): An integrated application of a wide range of advanced technologies and ideas, which, in combination, can improve mobility and transportation productivity, enhance safety, maximize the capacity of existing transportation facilities, conserve energy resources and reduce adverse environmental effects and transportation problems.

Interagency Agreement (IAG): A general term used to denote a form of legal contract between two government organizations. As a Federal contract instrument, an IAG is different from MOUs or MOAs in that there are typically monetary considerations for agreed to services in an IAG.

Intergovernmental Agreements (IGA): IGAs are the process of determining and settling project obligations between the State and local agencies (city, county, etc.). They address such issues as funding and cost responsibilities, maintenance responsibilities, transfer of jurisdiction of roadway from one agency to another, criteria for local land use and access management decisions, etc.

Intermodal: Interconnectivity between various types (modes) of transportation.

Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA): On December 18, 1991, the President signed the ISTEA providing authorizations for highways, highway safety, and mass transportation for the next 6 years. The purpose of the ISTEA is clearly enunciated in its statement of policy: "to develop a National Intermodal Transportation System that is economically efficient, environmentally sound, provides the foundation for the Nation to compete in the global economy and will move people and goods in an energy efficient manner".





Intermodal Surface Transportation Efficiency Act Management Systems: The management systems are intended to provide additional information and improved analysis to support development of metropolitan and statewide transportation plans, programs and projects. In particular, management systems are expected to improve the establishment of project funding priorities across modes and the analysis of trade-offs among the full range of potential transportation investments being considered.

Interstate Access Request (IAR): The Federal Highway Administration (FHWA) has retained all approval rights to the control of access to the interstate system. To obtain approval from FHWA to access the interstate a request for access must be submitted to FHWA through the CDOT. FHWA access approval is required when access on the interstate system is added or modified. This applies to all access changes on the interstate system regardless of funding and oversight. Each entrance or exit point, including "locked gate" and temporary construction access, to the mainline interstate is considered to be an access point. This guidance is limited to new interchanges, modifications to existing interchanges involving access control revisions for new ramps, or relocation or elimination of existing ramps.

Invasive (Nuisance) Species: An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Isolated Wetland: A wetland that is not adjacent to, or does not have a surface water connection to, navigable waters, tributaries to navigable waters, or non-isolated wetlands; unless it has a clear nexus (link) to interstate commerce, it is not normally regulated by the USACE under Section 404.

- J -

Jeopardy: A significant adverse effect on listed species or critical habitat to the extent that USFWS determines that the proposed action would jeopardize the continued existence of the listed species under the Endangered Species Act.

Joint Lead Agency: More than one agency can be a Joint Lead Agency. Any project sponsor that is a State or local governmental entity receiving funds under Title 23 US Code or Chapter 53 of Title 49 US Code for the project shall serve as a joint lead agency with the USDOT/FHWA for purposes of preparing any environmental document under the NEPA and may prepare any such environmental document required in support of any action or approval by the Secretary if the Federal lead agency furnishes guidance in such preparation and independently evaluates such document and the document is approved and adopted by the Secretary prior to the Secretary taking any subsequent action or making any approval based on such document, whether or not the Secretary's action or approval results in Federal funding.

Jurisdiction By Law: Agency authority to approve, veto, or finance all or part of the proposal.

Jurisdictional Wetlands: All naturally occurring wetlands, some wetlands unintentionally created as the result of construction activities, and those created specifically for the compensation of wetland losses. However, not all wetlands created for compensation purposes are jurisdictional. They still have to maintain a "significant" nexus to a water of the US. These wetlands are regulated by the USACE and local jurisdictions.





- L -

Land Use Plan: A plan that establishes strategies for the use of land to meet identified community needs.

Lead Agency: Lead agency means the agency or agencies preparing or having taken primary responsibility for preparing the EIS.

Least Environmentally Damaging Practicable Alternative (LEDPA): The practicable alternative that minimizes impacts to aquatic resources, taking into account impacts to listed species and other aspects of the human environment.

Legislation: A bill or legislative proposal to Congress developed by or with the significant cooperation and support of a Federal agency, but does not include requests for appropriations. The test for significant cooperation is whether the proposal is in fact predominantly that of the agency rather than another source. Drafting does not by itself constitute significant cooperation. Proposals for legislation include requests for ratification of treaties. Only the agency which has primary responsibility for the subject matter involved will prepare a legislative EIS.

Level of Service (LOS): LOS refers to the overall quality of traffic flow at an intersection or mainline section. Levels range from very good, represented by LOS A, to very poor, represented by LOS F. LOS C or better operating conditions are typically considered acceptable.

Listed Animal or Plant Species: Refers to a species that is listed as a State or Federal threatened or endangered species. Before a plant or animal species can receive legal protection, it must first be placed on the state or federal list of threatened or endangered species.

Logical Termini: Logical termini for project development are defined as (1) rational end points for a transportation improvement, and (2) rational end points for a review of the environmental impacts.

Long-range Transportation Plan (LRTP): A long range strategy and capital improvement program developed to guide the effective investment of public funds in transportation facilities. The plan is updated every five years and may be amended as a result of changes in projected Federal, State and local funding, major improvement studies, congestion management system plans, interstate interchange justification studies and environmental impact studies.

Low-income: A person whose median household income is at or below the Department of Health and Human Services poverty guidelines for that size of household.

Low-income Population: Any readily identifiable group of low-income persons who live in a geographic area, and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who would be similarly affected by a proposed USDOT program, policy, or activity.



Major Federal Action: Actions with effects that may be major and which are potentially subject to Federal control and responsibility. Major reinforces but does not have a meaning independent of significantly. Actions include the circumstance where the responsible officials fail to act and that failure to act is reviewable by courts or administrative tribunals under the Administrative Procedure Act or other applicable law as agency action.

- (a) Actions include new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by Federal agencies; new or revised agency rules, regulations, plans, policies, or procedures; and legislative proposals. Actions do not include funding assistance solely in the form of general revenue sharing funds, distributed under the State and Local Fiscal Assistance Act of 1972, 31 U.S.C. 1221 et seq., with no Federal agency control over the subsequent use of such funds. Actions do not include bringing judicial or administrative civil or criminal enforcement actions.
- (b) Federal actions tend to fall within one of the following categories:
 - (1) Adoption of official policy, such as rules, regulations, and interpretations adopted pursuant to the Administrative Procedure Act, 5 U.S.C 551 et seq.; treaties and international conventions or agreements; formal documents establishing an agency's policies which will result in or substantially alter agency programs.
 - (2) Adoption of formal plans, such as official documents prepared or approved by Federal agencies which guide or prescribe alternative uses of Federal resources, upon which future agency actions will be based.
 - (3) Adoption of programs, such as a group of concerted actions to implement a specific policy or plan; systematic and connected agency decisions allocating agency resources to implement a specific statutory program or executive directive.
 - (4) Approval of specific projects, such as construction or management activities located in a defined geographic area. Projects include actions approved by permit or other regulatory decision as well as Federal and Federally assisted activities.

Major Structures: Bridges, retaining walls, tunnels, and large reinforced concrete culverts.

May Affect - Not Likely to Adversely Affect: A finding that a project may cause an effect to a listed species, but the effect is wholly beneficial, discountable or negligible.

Moving Ahead for Progress in the 21st Century (MAP-21) - The Federal surface transportation legislation (Public Law 112-141) that authorizes funding for surface transportation programs for fiscal years 2013 and 2013.





Metropolitan Planning Organization (MPO): A regional policy body, required in urbanized areas with populations over 50,000, responsible for carrying out the metropolitan planning requirements of Federal highway and transit legislation in cooperation with State and other transportation providers; develops transportation plans and programs for the metropolitan area.

Minimization: Minimization involves measures developed during the planning phase of a project to reduce proposed impacts to a resource. Minimization measures could include alignment shifts.

Minority: A person who is:

- ▶ Black (a person having origins in any of the black racial groups of Africa);
- ▶ Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or the Spanish culture or origin, regardless of race);
- ▶ Asian (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
- ▶ American Indian or Alaskan Native (a person having origins in any of the original peoples of North America, and who maintains cultural identification through tribal affiliation or community recognition).

Minority Population: Any readily identifiable groups of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity.

Mitigation: "Mitigation" includes:

- ▶ Avoiding the impact altogether by not taking a certain action or parts of an action.
- ▶ Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- ▶ Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- ▶ Preservation.
- ▶ Compensating for the impact by replacing or providing substitute resources or environments (40 CFR Sec. 1508.20).



Mitigation Bank:

- ▶ A site where wetlands and/or other aquatic resources are restored, established, enhanced, or in exceptional circumstances, preserved expressly for the purpose of providing compensatory mitigation in advance of authorized impacts to similar resources. For the purposes of Section 10/404, use of a mitigation bank may only be authorized when impacts are unavoidable.
- ▶ Wetland restoration, establishment, enhancement, and in exceptional circumstances, preservation, and contributions to such activities, undertaken expressly for the purpose of compensating for unavoidable wetland impacts or losses due to construction of one or more (highway) projects. Mitigation banks are usually developed in advance of project construction for situations when compensatory mitigation cannot be achieved on-site or where on-site mitigation would not be as environmentally beneficial.

- N -

National Ambient Air Quality Standards (NAAQS): Levels of air pollutants prescribed by regulations that may not be exceeded. EPA establishes National Ambient Air Quality Standards for major pollutants, including (ground-level) ozone, particulate matter, carbon monoxide, sulfur dioxide and nitrogen dioxide.

National Environmental Policy Act of 1969 (NEPA): The Federal law that establishes the U.S. government policy towards the environment. NEPA's fundamental policy is to "encourage productive and enjoyable harmony between man and his environment." Federal agencies are required to assess the environmental impacts of their proposed actions.

National Highway System (NHS): The Interstate System as well as other roads important to the nation's economy, defense, and mobility; developed by the USDOT in cooperation with the States, local officials, and metropolitan planning organizations.

National Historic Preservation Act of 1966 (NHPA): An act to establish a program for the preservation of additional historic properties throughout the nation. Authorizes the Secretary of the Interior to maintain a National Register of Historic Places; directs the Secretary to approve state historic preservation programs that provide for a State Historic Preservation Officer with adequate qualified professional staff, a state historic preservation review board, and public participation in the state program; authorizes a matching grants-in-aid program to the states; directs federal agencies to take into account the effects of their activities and programs on historic properties; establishes the Advisory Council on Historic Preservation to advise the President, Congress, and federal agencies on historic preservation matters; gives the Advisory Council the authority to issue regulations instructing federal agencies on how to implement Section 106 of the act; establishes the Certified Local Government program; establishes a National Historic Preservation Fund program; and codifies the National Historic Landmarks program.

National Pollutant Discharge Elimination System (NPDES) Permit: A Federal permit issued for point source (end of pipe) discharges under the NPDES [per Section 402 of the Clean Water Act]; also used to regulate stormwater discharges from certain urban areas and developing counties.





National Register of Historic Places (NRHP): The nation's official list of cultural resources worthy of preservation. Properties listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The NRHP is administered by the National Park Service, which is part of the US Department of the Interior. Section 106 of the NHPA applies to resources listed in or eligible for listing in the NRHP.

Natural Resource Conservation Service (NRCS): The NRCS is a Federal agency that provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

National Wetlands Inventory (NWI): The NWI of the USFWS produces information on the characteristics, extent, and status of the Nation's wetlands and deepwater habitats. Congressional mandates in the Emergency Wetlands Resources Act require USFWS to map wetlands, and to digitize, archive and distribute the maps. With funding from other Federal, State, Tribal, local and private organizations, the USFWS has produced final maps for much of the nation. Approximately half are digitized and available to the public on the internet. Hard-copy maps are available through Cooperator-run Distribution Centers. A Congressional mandate also requires USFWS to produce status and trends reports to Congress at ten-year intervals. NWI maps and digital data are distributed widely throughout the country and the world. NWI wetlands status and trends and other reports are used widely and referenced in policy decisions.

Nationwide Permit/Nationwide General Permit: General permits are USACE authorizations that are issued on a nationwide or regional basis for a category or categories of activities. This refers to both those regional permits issued by District or Division Engineers on a regional basis and to nationwide permits that are issued by the Chief of Engineers through publication in the Federal Register. Nationwide Permits are general permits issued on a nationwide basis to authorize minor activities with minimal evaluation time. The thresholds for the impacts and the types of activities allowed under the Nationwide Program are established as national policy.

Native Plant: Any plant species that is indigenous to the state of Colorado.

New Location: A proposed alternative that does not utilize the alignment or right of way of an existing roadway or corridor.

No Action Alternative: The alternative in a plan that proposes to continue current management direction. "No action" means the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.

No-Build Alternative: The proposed action would not take place and the resulting environmental effects from taking no action would be compared with the effects of the build alternatives. It also serves as a baseline for comparison to the proposed build alternatives.

Noise Abatement Criteria (NAC): The noise level above which projects will require consideration of noise abatement measures when studies identify a noise impact.





Non-Attainment: Designated areas of the country where air pollution levels persistently exceed the National Ambient Air Quality Standards for ozone (1-hour and 8-hour), carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter (PM₁₀ and PM_{2.5}) or lead.

Non-jurisdictional Wetlands: Non-jurisdictional wetlands include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, canals excavated in uplands, stormwater detention ponds, wastewater treatment facilities created in uplands, and certain agricultural activities and landscape amenities created in uplands. Grass-lined swales and wastewater treatment facilities can be constructed in wetlands but must be so designated and specifically designed for water treatment purposes. Mitigation is required to compensate for the wetland lost to such a facility. Non-jurisdictional wetlands don't have to be artificial; for example, prairie potholes or other depressional wetlands not connected to a water of the U.S. can be non-jurisdictional wetlands.

Non-Point Source: Any source of pollution that enters the environment through some means other than a discrete conveyance, such as a pipe from a sewage treatment plant. Non-point source pollution is diffuse in character. The main form of non-point source pollution is the polluted runoff that drains into our streams, rivers, lakes and estuaries.

Notice of Intent (NOI): A NOI is an announcement published in the Federal Register that informs the public that an EIS is required to be prepared to address a project's potential environmental impacts. The FWHA Division prepares the NOI in accordance with 23 CFR Part 771.123 and 40 CFR Part 1508.22 as soon as a decision has been reached to prepare an EIS. The NOI briefly describes the project and study area, its purpose and need, preliminary alternatives (if there are any identified), the agency contact person (name and address), and what the chief environmental issues should be. A NOI is only issued for projects requiring the preparation of an EIS once the Lead Federal Agency (i.e., FHWA) has made its determination.

Noxious Weed: Any plant or part of a plant that is not native to Colorado and has been designated by rule as being noxious or has been declared a noxious weed by the Colorado Department of Agriculture or a local advisory board, and meets one or more of the following criteria:

- (a) Aggressively invades or is detrimental to economic crops or native plant communities;
- (b) Is poisonous to livestock;
- (c) Is a carrier of detrimental insects, diseases, or parasites;
- (d) The direct or indirect effect of the presence of this plant is detrimental to the environmentally sound management of natural or agricultural ecosystems.

Noxious Weed Management Plan: A document which identifies species and locations of noxious weeds in a project area and details the planning and implementation of an integrated program to control noxious weed species.

- 0 -

Obliterate: To remove all or part of the roadway and/or pavement.





Off-site Mitigation: Off-site mitigation may be used when there is no practicable opportunity for on-site mitigation, or when off-site mitigation is environmentally preferable. According to pending Federal guidance, one of the best tools for determining when off-site or out-of-kind mitigation is environmentally preferable is a holistic watershed plan. However, the TEA-21 preference is for wetland banking unless locally important wetland functions will be lost if banking is chosen. After banking, the preference would be on-site mitigation and off-site as a last resort.

On-site Mitigation: On-site, in-kind mitigation means compensatory mitigation which replaces wetlands or natural habitat area or functions lost as a result of a highway project with the same or like wetland or habitat type and functions adjacent or contiguous to the site of the impact.

Origin/Destination (O/D) Study: Study of travel patterns for a town/city/region in which households or vehicles (depending on study type) are asked questions related to their daily travel. Examples of data may include: type of trip, length of trip, time of day and starting and ending points of trips. Data collected allows for calibration of a travel demand model to the traveler characteristics of an area.

Orthophotography: A digital image that has been differentially rectified to within a specific 2-dimensional geospatial accuracy and resolution that accounts for image distortion due to camera orientation, image orientation parameters, lens distortion, and earth surface topography. Digital orthophotography has an x, y coordinate system and typical resolutions of 0.5 inch, 1 foot, and 2 feet.

- P -

Participating Agencies: Participating agencies, as defined by SAFETEA-LU, are those Federal or non-Federal agencies that may have an interest in the project. The standard for participating agency status is more encompassing than the standard for cooperating agency status described above. Therefore, cooperating agencies are, by definition, participating agencies. But not all participating agencies are cooperating agencies. The lead agencies should consider the distinctions in deciding whether to invite an agency to serve as a cooperating/participating agency or only as a participating agency.

Peak Hour: The 1-hour period during which the roadway carries the greatest number of vehicles. Traffic impacts are typically evaluated during the morning and afternoon peak hours when the greatest number of motorists are traveling to and from work.

Phased Projects: Larger projects, which are divided into segments and are funded at different timeframes for right of way acquisition and construction.

Point Source: Readily identifiable inputs where waste is discharged to the receiving waters from a pipe or drain.

Preferred Alternative: A term for the alternative, which the lead agency believes would fulfill its statutory mission and responsibilities, giving consideration to social, economic, environmental, technical and other factors. While the preferred alternative is a different concept from the environmentally preferable alternative, they may also be one and the same for some projects.



Preliminary Design: Specific design that includes horizontal and vertical alignment, edge of pavement, construction limits, roadway superelevation and right-of-way limits. Preliminary designs are prepared on preliminary mapping in order to evaluate constructability, impacts to the human and natural environment and to re-establish project cost.

Prime (or Unique) Farmlands: Land classified under the FPPA that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides and labor and without intolerable soil erosion. Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, fruits, and vegetables.

Project Study Area: The area between logical termini in which alternatives can be developed that meet the Purpose and Need for the proposed improvement.

Proposed Action: The proposed project, for example: bridge, interchange, bypass, new highway lane, etc.

Public Comment Process: The public comment process is a formalized process required by the NEPA in which a Notice of Availability must be published in the Federal Register which provides public notice that a Draft EIS and associated information, including scoping comments and supporting documentation, is available for public review and input pursuant to the Freedom of Information Act. In addition, formal public hearings must be conducted on the Draft EIS when required by statute or the CEQ NEPA Regulations.

Public Hearing: A public proceeding conducted for the purpose of acquiring information or evidence which will be considered in evaluating a proposed transportation project and/or a Department of the Army permit action and which affords the public an opportunity to present their views, opinions, and information on such projects and permit actions.

Public Scoping Process: Scoping is a formalized process used to gather the public's and other agencies' ideas and concerns on a proposed action or project. A NOI is published in the Federal Register announcing the agency's intent to prepare an EIS and a request for written public/other agency scoping comments to further define the goals and data needs for the project. In addition, although not required by the NEPA nor the CEQ NEPA Regulations, public scoping meetings may be held and integrated with any other early planning meetings relating to the proposed project.

Purpose and Need: In a broad context, the general intent and justification for an intended action to address a specified transportation-related problem. The statement should clearly demonstrate that a 'need' exists and should define the 'need' in terms understandable to the general public. The statement should clearly describe identified and documented problems that the proposed action is to correct. Basis may include: capacity and transportation demand, safety, legislative directive, economic development/planned growth, modal interrelationships, system linkage and roadway deficiencies. The statement provides the basis for developing a range of reasonable alternatives and, ultimately, the identification of the preferred alternative.



Receptors [Noise]: Entities such as residential homes, apartments, parks, places of worship and churches, schools, commercial businesses and other facilities which can be affected by noise pollution from a proposed project. Noise receptors may potentially receive an increased, decreased or 'no-change' level of noise from ambient to future conditions based upon noise modeling. For widening projects, noise receptors are generally those existing entities and facilities along the right-of-way, which may or may not receive a potential noise increase. For new location projects, noise receptors are those entities generally located within several hundred feet from the proposed centerline of the new road.

Record of Decision (ROD): The ROD is the final step in the EIS process and is the lead agency's (normally FHWA) decision that identifies the alternative selected for implementation. The ROD should:

- ▶ State the basis for the decision;
- ▶ Identify all the alternatives considered and specify the "environmentally preferable alternative"; and
- ▶ State whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted and, if not, why they were not.

The ROD may not be issued sooner than 30 days after the approved final EIS is distributed, nor 90 days after the Draft EIS is circulated.

Reevaluation: A written evaluation of the draft EIS shall be prepared by the applicant in cooperation with the Federal agency if an acceptable final EIS is not submitted to the Federal agency within 3 years from the date of the draft EIS circulation. The purpose of this evaluation is to determine whether a supplement to the draft EIS or a new draft EIS is needed.

A written evaluation of the final EIS will be required before further approvals may be granted if major steps to advance the action (e.g., authority to undertake final design, authority to acquire a significant portion of the right-of-way, or approval of the plans, specifications and estimates) have not occurred within three years after the approval of the final EIS, final EIS supplement, or the last major Federal agency approval or grant.

After approval of the EIS, FONSI, or CE designation, the applicant shall consult with the Federal agency prior to requesting any major approvals or grants to establish whether or not the approved environmental document or CE designation remains valid for the requested Federal agency action. These consultations will be documented when determined necessary by the Federal agency (23 CFR 771.129).

Regionally Significant Project: A transportation project that serves regional transportation needs, such as access to and from the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, or transportation terminals as well as most terminals themselves. Such projects would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

Regulatory Agency: An agency which has jurisdiction by law.





Relocation: The adjustment of utility facilities required by a highway project. Relocation includes removing and installing facilities, acquiring necessary property rights in the new location, moving or rearranging existing facilities, or changing the type of facility, including any necessary safety and protective measures. Also means constructing a replacement facility, functionally equal to the existing facility, where necessary for continuous operation of the utility service, project economy, or for staging highway construction.

Right-of-Way (ROW): A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

Right-to-Know: A general term referring to governmental requirements concerning a citizen's or a community's 'right-to-know' about environmental and public health concerns, such as spills and releases of toxic chemicals.

Riparian Areas: Lands adjacent to waterbodies. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects waterbodies with their adjacent uplands. Riparian areas are adjacent to streams, lakes and estuarine-marine shorelines and provide a variety of ecological functions and services and help improve or maintain local water quality.

Riparian Buffers: Vegetation along the banks of rivers and streams which filter nutrients and pollutants from runoff.

- S -

SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users): The Federal surface transportation legislation (Public Law 109-59) that authorizes programs for highways, highway safety, and transit for the 5-year period 2005-2009.

Scope: The range of actions, alternatives, and impacts to be considered in an EIS. The scope of an individual statement may depend on its relationships to other statements. To determine the scope of EISs, agencies shall consider three types of actions, three types of alternatives, and three types of impacts. They include:

- a. Actions (other than unconnected single actions) which may be:
 1. Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they:
 - (a) Automatically trigger other actions which may require EISs.
 - (b) Cannot or will not proceed unless other actions are taken previously or simultaneously.
 - (c) Are interdependent parts of a larger action and depend on the larger action for their justification.
 2. Cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.
 3. Similar actions, which when viewed with other reasonable foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together,





such as common timing or geography. An agency may wish to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.

- b. Alternatives, which include:
 - 1. No-action alternative.
 - 2. Other reasonable courses of actions.
 - 3. Mitigation measures (not in the proposed action).

- c. Impacts, which may be:
 - 1. Direct.
 - 2. Indirect.
 - 3. Cumulative.

Scoping Process: A process that allows for early identification of potentially significant environmental issues. This process begins with an introduction to the environmental review agencies and the public, the purpose of which is to initiate coordination and involvement activities that will span the life of the project. Agencies with specialized knowledge of these areas may be asked to participate as cooperating agencies, while other agencies are required by law to participate in project development.

Secondary Effect: An effect or environmental impact from a proposed action that is caused by the action and is later in time or farther removed in distance but are still reasonably foreseeable. A secondary effect may include land use pattern changes resulting from the construction of a new highway, air quality changes within a locality, etc.

Section 106: The section of the NHPA that requires Federal agencies to take into account the effects of their undertakings on historic properties, and to afford the ACHP a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in 36 CFR 800 "Protection of Historic Properties," the regulations issued by the ACHP.

Section 309 of the Clean Air Act, as amended: Section 309 of the Clean Air Act authorizes the EPA to review certain proposed actions of other Federal agencies in accordance with NEPA and to make those reviews public.

Section 4(f): National legislation that stipulates that the FHWA will not approve any program or project which requires the use of any publicly owned park, recreation area, or wildlife or waterfowl refuge, or any land from an historic site of national, State, or local significance unless:

- ▶ There is no feasible and prudent alternative to the use, and
- ▶ All possible planning to minimize harm resulting from such use is included.

Section 404 Permit: A USACE permit to authorize the discharge of dredged or fill material into waters of the U.S. pursuant to section 404 of the Clean Water Act (33 U.S.C. 1344).





Section 6(f): Section 6(f) of the Land and Water Conservation Act (LWCA) that mandates that no property acquired or developed with assistance under the LWCA shall, without the approval of the Secretary, be converted to other than public outdoor recreation uses. The Secretary shall approve such conversion only if he/she finds it to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such conditions as he/she deems necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

Significant Impacts: Any number of social, environmental or economic effects or influences which may be brought about as a result of the implementation of a transportation improvement that are of such a magnitude or degree of intensity or duration as to require the preparation of an EIS under NEPA. Significant impacts may include effects that are direct, indirect or cumulative and include both the short-term and long-term duration of the effect. FHWA project development and environmental planning requirements under transportation decision-making refers to the context of an action and intensity or the severity of impact.

Significantly: As used in NEPA requires considerations of both context and intensity:

- a. Context. This means that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend upon the effects in the locale rather in the world as a whole. Both short- and long-term effects are relevant.
- b. Intensity. This refers to the severity of impact. Responsible officials must bear in mind that more than one agency may make decisions about partial aspects of a major action. The following should be considered in evaluating intensity:
 1. Impacts that may be both beneficial and adverse. A significant affect may exist even if the Federal agency believes that on balance the effect will be beneficial.
 2. The degree to which the proposed action affects public health or safety.
 3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
 4. The degree to which the effects on the quality of the human environment are likely to be highly controversial.
 5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
 6. The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.





7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
8. The degree to which the action may adversely affect districts, sites highways, structures, or objects listed in or eligible for listing in the NRHP or may cause loss or destruction of significant scientific, cultural, or historical resources.
9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act
10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Solid Waste: Federal regulations define solid waste as any garbage, refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility, and other discarded material, including solid, liquid, semisolid, or contained gaseous material, resulting from industrial, commercial, mining, and agricultural operations and from community activities. Solid waste also includes hazardous wastes.

Special Expertise: Statutory responsibility, agency mission, or related program experience.

State Historic Preservation Officer (SHPO): The official appointed or designated by the Governor of each State pursuant to Section 101(b)(1) of the NHPA to administer the State historic preservation program or a representative designated to act for the SHPO. The SHPO consults with Federal and State agencies during Section 106 review, reviews NRHP nominations, and maintains file data on cultural resources.

State Implementation Plan (SIP): A term referred to under the Clean Air Act requirements that comprise the regulations and other materials for meeting clean air standards. A SIP may include State regulations that EPA has approved, orders requiring pollution control at individual companies, and planning documents such as area-specific compilations of emissions estimates and computer modeling analyses that demonstrate that regulatory limits can be met.

Stormwater: Rainwater (or other water that results from precipitation such as snowmelt) that flows over land and into natural and artificial drainage systems. Stormwater runoff is a major transporter of non-point source pollutants.

Stormwater Management Plan (SWMP): A Stormwater Management Plan protects sensitive waters by maintaining a low density of impervious surfaces, maintains vegetative buffers, and transports runoff through vegetative conveyances.

Substantive Comments: A phrase that may be used to describe the type or degree of review comments. Typically involve regulatory concerns or issues identified by a review agency. Substantive comments may differ from other review comments in being less advisory in nature and more prescribed.





Supplemental Draft Environmental Impact Statement (EIS): A Draft EIS that has been updated or supplemented with new or revised information. Under NEPA, numerous documents may be supplemental, including EAs, Final EISs, etc. Decisions to supplement EISs rest with the Lead Federal Agency.

Surface Waters: Water present above the substrate or soil surface.

System Level Study (SLS): Required by CDOT Policy Directive 1601 for new interchanges or major improvements to existing interchanges. Identifies the short and long-term environmental, community, safety and operational impacts of a proposed interchange, or interchange modification, on the State Highway system and surrounding transportation system to the degree necessary for the Transportation Commission, Chief Engineer, or Regional Transportation Director as appropriate, to make an informed decision whether a proposed new interchange or interchange modification is in the public interest. A Systems Level Study must include a preliminary financial plan that identifies which parties are responsible for applicable costs.

System Linkage: With regards to the purpose and need of a project, this term refers to the need to provide roadway improvements due to discontinuity of the existing roadway network. For example, this may refer to the need to provide a more direct connection between activity centers or to create continuity in terms of facility type and function. Information about system linkage explains how the project fits in with the transportation system, including the relationship to other plans and other modes. Possible data to support this need includes roadway network discontinuity, travel time comparison, travel demand studies, Intra-State and Strategic Corridor systems, Military/Homeland security needs, and access needs.

Socioeconomics: Study of the effects of both social and economic factors on individuals and communities.

Statewide Transportation Improvement Program (STIP): A staged, multiyear, statewide, intermodal program of transportation projects which is consistent with the statewide transportation plan and planning processes and metropolitan plans, TIPs, and processes.

- T -

Technical Reports: Determine the impacts to social and environmental elements (i.e., air quality, noise, traffic, aesthetics, wetlands, wildlife, socioeconomics, historic resources, land use, etc.). The Technical Reports are summarized in the environmental document (i.e., EA, EIS, Supplemental EIS).

Threatened and Endangered (T&E) Species: Plants or animals that can receive protection under the ESA which are placed on a Federal list. Listing of a species as either threatened or endangered is a strict legal process. An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future.

Tiering: Tiering refers to the coverage of general matters in broader EISs (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basinwide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared. Tiering is appropriate when the sequence of statements or analyses is:





- ▶ From a program, plan, or policy EIS to a program, plan, or policy statement or analysis of lesser scope or to a site-specific statement or analysis.
- ▶ From an EIS on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe.

Transportation Demand Management (TDM): The TDM program assists communities with the development of services and facilities for alternative transportation methods. Methods of accomplishing this goal include rideshare programs, park and ride lots, telecommuting programs, and incentive programs to encourage the use of alternatives to driving alone.

Transportation Demand Measures: The use of incentives, and market devices to shift travel into non-motorized or higher-occupancy modes, and/or shift travel onto less congested routes.

Travel Demand Model: A tool that has specific analytical capabilities, such as the prediction of travel demand and the consideration of destination choice, mode choice, time-of-day travel choice, and route choice, and the representation of traffic flow in the highway network. These are mathematical models that forecast future travel demand based on current conditions, and future projections of household and employment characteristics. Travel demand models were originally developed to determine the benefits and impact of major highway improvements in metropolitan areas.

Transportation Enhancement (TE): TE activities benefit the traveling public and help communities to increase transportation choices and access, enhance the built and natural environment, and provide a sense of place. To be eligible for funding, a TE project must fit into one or more of the 12 eligible categories and relate to surface transportation.

Transportation Equity Act for the 21st Century (TEA-21): The TEA-21 was enacted June 9, 1998 as Public Law 105-178. TEA-21 authorizes the Federal surface transportation programs for highways, highway safety, and transit for the 6-year period 1998-2003.

Transportation Improvement Program (TIP): Short-term (three to five years) plan of approved policies developed by an MPO for a jurisdiction that is fiscally constrained.

Transportation Systems Management (TSM): A part of the transportation planning process which identifies short-range, low-cost improvements for the urban transportation system (including both roads and public transportation). Its goal is to insure the most efficient use of the present transportation system, and it may identify improvements such as better fare structures for buses, traffic engineering changes, and new management systems for public transportation.



- U -

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970: Provides for uniform and equitable treatment of persons displaced from their homes, businesses, or farms by Federal and Federally assisted programs and to establish uniform and equitable land acquisition policies for Federal and Federally listed programs. Whenever acquiring real property for a program or project by a Federal agency results in displacing anyone, the agency shall reimburse and provide relocation planning, assistance coordination, and advisory services.

US Army Corps of Engineers (USACE): Federal agency that is the world's largest public engineering, design, and construction management agency. Much of the USACE infrastructure mission is related to its water resources mission. The USACE builds and maintains a variety of water resource related infrastructure including locks and dams, flood reduction structures and reservoirs, hydroelectric facilities and other projects.

US Department of Interior Fish and Wildlife Service (USFWS): A Federal agency whose mission is to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people.

US Department of Interior Forest Service (USFS): A Federal agency that manages public lands in national forests and grasslands. The mission of the USFS is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.

US Department of Interior Geological Survey (USGS): The soil science agency for the Department of Interior. It is a multi-disciplinary science organization that focuses on biology, geography, geology, geospatial information, and water. It is an independent fact-finding agency that collects, monitors, analyzes, and provides scientific understanding about natural resource conditions, issues, and problems. The USGS focuses its efforts on four major areas: natural hazards, resources, the environment, and information and data management.

Utility Relocations: When moving a utility for a road project, the utility's service should be restored so that it may continue to provide its product to its users in a fashion similar to that which existed prior to its relocation as a result of the highway project.

- V -

Vehicles Per Day (VPD): The number of vehicles that travel on a road each day.

Visual Resources: Visual resources are those physical features that make up the visible landscape, including land, water, vegetative and man-made elements. These elements are the stimuli upon which actual visual experience is based. Visual resources are not, however, limited to elements or features that are of outstanding visual quality. A location or element in the visual environment can have visual values attributed to it by its viewers regardless of its quality. Viewer sensitivity can confer visual significance on landscape features and areas that would otherwise appear unexceptional.





- W -

Wetland: A wetland is defined by the USACE as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wetland Delineation: A survey conducted by a qualified person to determine the extent of wetland and the types of wetland that would be impacted by a project. To be a jurisdictional wetland, a wetland must exhibit hydrophytic vegetation, hydric soils, and wetland hydrology. Wetland delineations are conducted in accordance with the USACE Wetland Delineation Manual and associated Regional Supplements.

Widen Existing: Increasing the width of the current roadway and/or adding additional lanes in each direction of travel to increase the capacity of safety of an existing roadway.

- Z -

Zoning: A general term referring to local land use controls and classifications of types of land uses, such as commercial, industrial, residential, recreational, agricultural, etc. Frequently, a mis-used term referring to the local or regional legal process of re-classifying land uses for different or changed purposes.



APPENDIX C
STYLE GUIDE FOR NEPA DOCUMENTS

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STYLE GUIDE FOR NEPA DOCUMENTS CONTENTS

	<u>Page</u>
1.0 Introduction.....	C-1
2.0 Standard Document Content and Format.....	C-2
2.1 Front Cover	C-3
2.2 Cover Sheet/Signature Page.....	C-3
2.3 Executive Summary.....	C-6
2.4 Table of Contents	C-7
2.5 Purpose and Need for the Project	C-14
2.6 Alternatives Analysis	C-15
2.7 Affected Environment	C-15
2.8 Environmental Consequences and Mitigation	C-16
2.9 List of Preparers	C-16
2.10 Distribution List.....	C-18
2.11 References and Citations	C-18
2.11.1 In Text Example	C-19
2.11.2 Reference List Examples	C-19
2.11.3 Appendices	C-21
2.12 General Format and Style Guidelines	C-23
2.12.1 Length	C-24
2.12.2 Page Layout.....	C-24
2.12.3 Font and Styles	C-25
2.12.4 Graphics.....	C-25
2.12.5 Document Production.....	C-27
2.13 Responses to Public and Agency Comments.....	C-27
3.0 USAGE	C-30
3.1 Numbers.....	C-30
3.1.1 Dates	C-32
3.1.2 Money	C-32
3.1.3 Measurements	C-32
3.2 Abbreviated Terms and Acronyms	C-32
3.3 Capitalization.....	C-33
3.4 Compound Words.....	C-34
3.5 Bulleted Lists	C-35
3.6 Emphasis.....	C-36
4.0 Elements of Composition.....	C-36
4.1 Word Use	C-36





4.2	Active Voice and Passive Voice	C-38
4.3	Sentence Structure.....	C-38
4.3.1	Parallel Construction.....	C-38
4.3.2	Subject-Verb Agreement.....	C-39
4.4	Punctuation	C-41
4.4.1	Apostrophe.....	C-41
4.4.2	Brackets.....	C-41
4.4.3	Comma	C-41
4.4.4	Period	C-42
4.4.5	M-Dash	C-42
4.4.6	Parentheses.....	C-43
4.4.7	Colon	C-43
4.4.8	Semicolon	C-43
4.4.9	Quotation Marks.....	C-44
5.0	Commonly Misused Words and Expressions.....	C-45
6.0	List of Helpful Resources.....	C-52
7.0	References	C-53





LIST OF FIGURES

	<u>Page</u>
Figure 2-1	Sample Cover Sheet/Signature Page Layout -----C-5
Figure 2-2	Sample Table of Contents for an EIS-----C-8
Figure 2-3	Sample Table of Contents for a Decision Document-----C-11
Figure 2-4	Sample List of Preparers -----C-17
Figure 2-5	Sample Distribution List-----C-18
Figure 2-6	Sample List of References -----C-21
Figure 2-7	Sample Appendix Cover Sheets-----C-22
Figure 2-8	Example List of Common Terminology-----C-23
Figure 2-9	Sample Headings-----C-25
Figure 2-10	Sample Comment Response Formats -----C-28
Figure 2-11	Sample Comment Response Format #2-----C-29

LIST OF TABLES

Table 2-1	Existing Land Use within Project Study Area-----C-26
Table 5-1	Overwritten Expressions and Preferred Words or Phrases-----C-36





1.0 INTRODUCTION

This appendix discusses the recommended content, format, style, and presentation for preparation of National Environmental Policy Act (NEPA) documentation. Although this appendix focuses on Environmental Impact Statements (EISs) and Environmental Assessments (EAs), the information also applies to the supporting technical documents (including memoranda, meeting minutes, correspondence, technical reports, etc.), which are prepared in support of NEPA documents. This style guide does not address technical or regulatory issues.

This guidance is expected to help promote clarity, accuracy, and consistency and provide for uniformity in document development. The guidance is not intended to be prescriptive, but includes some useful tools to help project team members with document organization, content, and formatting at the onset of projects. The recommendations in this style guide come from a variety of different standard reference style guides. For information not contained in this style guide, one of these standard style guides should be referenced. **Section 7.0** provides a list of the standard reference style guides.

It is extremely important to maintain the following when preparing NEPA documents:

- ▶ Document quality
- ▶ Efficiency in technical and policy review
- ▶ Consistency in information development
- ▶ Expediency in CDOT and FHWA review and approval
- ▶ Clarity to all readers/reviewers

Council on Environmental Quality (CEQ) regulations specify a recommended format for NEPA EIS documents (CEQ, 40 Code of Federal Regulations [CFR] § 1502.10), which is consistent with the CDOT recommended format. The Colorado Department of Transportation (CDOT) recommends using a format for EISs that clearly presents alternatives to encourage good analysis and support efficient and effective decision-making. EAs also have a similar structure and format; however, the level of detail will vary commensurate with the scale of the proposed project and the related impact and following project scoping.

For additional discussion of the major components of NEPA documents, refer to **Chapters 4** and **6** of this NEPA Manual, CEQ's regulations for implementing NEPA (CEQ, 40 CFR § 1502.10 through 1502.18), and Federal Highway Administration (FHWA) Technical Advisory T 6640.8A



Quality NEPA documents effectively tell the project story through clear, concise writing; effective organization and formatting; and effective use of visual elements.

-AASHTO/ACEC/FHWA
Improving the Quality of
Environmental Documents





Guidance for Preparing and Processing Environmental and Section 4(f) Documents (FHWA, 1987). Suggested guidance to improve the readability and functionality of NEPA documents for transportation projects also is included in the American Association of State Highway and Transportation Officials report, *Improving the Quality of Environmental Documents* (AASHTO and others, 2006).

2.0 STANDARD DOCUMENT CONTENT AND FORMAT

CDOT has a recommended standard document outline to ensure consistency in NEPA documents across CDOT Regions. The recommended CDOT outline for an EIS or EA document includes the following content, which is discussed in more detail in this appendix:

- ▶ Cover
- ▶ Cover Sheet/Signature Page
- ▶ Executive Summary (not required for an EA, but recommended)
- ▶ Table of Contents, List of Figures, List of Tables, and List of Abbreviated Terms
- ▶ Purpose of and Need for the Project
- ▶ Alternatives Analysis
- ▶ Affected Environment
- ▶ Environmental Consequences and Mitigation
- ▶ Section 4(f) Evaluation (if required)
- ▶ Agency Coordination and Public Involvement
- ▶ List of Preparers (not required for an EA)
- ▶ Distribution List of Agencies, Organizations, and Persons to Whom Copies of the NEPA document are sent (not required for an EA, but recommended)
- ▶ References and Citations
- ▶ Index (not required for an EA)
- ▶ Appendices





2.1 Front Cover

The front cover should include the following components:

- ▶ Project name and designation of administrative action (i.e., Draft or Final, Programmatic or Supplemental, EA or EIS, Finding of No Significant Impact [FONSI] or Record of Decision [ROD]).
- ▶ Responsible agencies, including the lead agency, co-lead agency, and any cooperating agencies.
- ▶ Document date

At the Region's discretion, a document cover may be superimposed over an illustration of a project; however, consultant logos and information are not to be used on the front cover of any environmental documents. Consultant logos may be shown on the title page of a NEPA document and any supporting documentation for a NEPA document (e.g., Noise Impact Assessment, Air Quality Report, Preliminary Engineering Report). All consultant contributions to an EIS should be documented in the list of preparers.

2.2 Cover Sheet/Signature Page

The cover sheet/signature page is a mandatory component of a NEPA document (CEQ, 40 CFR § 1502.11). It should not exceed one double-sided page and must include the following components:

- ▶ Designation of administrative action (i.e., Draft or Final, Programmatic or Supplemental, EA or EIS, Finding of No Significant Impact [FONSI] or Record of Decision [ROD]).
- ▶ Title and location of the project; identify route number, local name, project limits, and county in which the project is located.
- ▶ Responsible agencies, including the lead agency, co-lead agency, and any cooperating agencies.
- ▶ Cite the federal authority for which the document is being prepared (i.e., Submitted Pursuant to 42 USC 4332 (2)(c)).
- ▶ Provide date and signature block for the FHWA Division Administrator, CDOT Region Transportation Director, and CDOT Chief Engineer.
- ▶ Brief project abstract limited to one paragraph. The abstract should include a short project description and the purpose and need for the project. For FONSI or ROD, the brief abstract should include reasons why the action would not have a significant effect on the





human environment (FONSI) or the significant effects from the project (ROD).

- ▶ The date by which comments must be received.
- ▶ A disclaimer stating the 180-day statute of limitations on legal actions following publication of a Federal Register notice that the final environmental approval or permit has been issued for a project.

The CDOT and FHWA Colorado Division signature process for NEPA documents is a formal, established process to assure that appropriate parties have reviewed the documents in the appropriate order. For additional information, a NEPA Document Signature Page Format Checklist is included in Chapter 8, NEPA Document Review Procedures. **Figure 2-1** includes an example Cover Sheet/Signature Page Layout. Information within the brackets within **Figure 2-1** is intended to be customized for each project.





Figure 2-1 Sample Cover Sheet/Signature Page Layout

[INSERT Federal Identification Number]

[INSERT CDOT Project #]
[INSERT Project Name]
[INSERT Type of Document –DEIS, FEIS, EA]
Draft Section 4(f) Evaluation (if required)

Submitted Pursuant to
42 USC 4332 (2)(c), 49 USC 303, & 16 USC 460 (if Section 6(f) Evaluation required)

By the
US DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL TRANSIT ADMINISTRATION (if applicable)

and
COLORADO DEPARTMENT OF TRANSPORTATION
[INSERT Cooperating Agencies, if applicable]

Submitted by:

[INSERT Name]
Region [INSERT Region Number] Transportation Director
Colorado Department of Transportation

Date

Concurred by:

[INSERT Name]
Chief Engineer
Colorado Department of Transportation

Date

Approved by:

[INSERT Name]
Division Administrator, Colorado Division
Federal Highway Administration

Date





[INSERT Statute of Limitations Disclaimer in ROD or FONSI]

A Federal agency may publish a notice in the Federal Register, pursuant to 23 United States Code (USC) § 139(1), indicating that one or more Federal agencies have taken final actions on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those Federal agency actions will be barred unless such claims are filed within 180 days after the date of the notice, or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.

2.3 *Executive Summary*

The executive summary is a mandatory component of an EIS (CEQ, 40 CFR § 1502.12), and is recommended for an EA. The summary is the reader's introduction to the NEPA document and should include sufficient information to allow the reader to gain a complete understanding of the issues addressed in the body of the NEPA document. It should list all reasonable alternatives considered, major environmental resource impacts, and proposed mitigation measures in a comparative form. The summary should use a matrix or table(s) to present information concisely. Detail in an executive summary should be succinct, but of sufficient detail to serve as a stand-alone document that can be used for decision-making regarding the recommended Preferred Alternative. It is useful to include a project map in the summary.

Additional information concerning the elements of the Executive Summary is included in **Chapter 4** (Environmental Impact Statement [Class I]) and **Chapter 6** (Environmental Assessment [Class III]).





2.4 Table of Contents

The table of contents for NEPA documents must include the major document components, as discussed in this section, as well as a list of tables and figures and appendices. It should be of sufficient detail to provide a “road map” to reading the document and allow the reader to easily navigate the document. The executive summary should be included in the Table of Contents. It is recommended that Table of Contents includes first, second, and third-level headings only. A list of supporting technical documents is also recommended for inclusion in the Table of Contents. **Figure 2-2** provides a sample Table of Contents for an EIS and **Figure 2-3** provides a sample Table of Contents for a NEPA decision document.



Figure 2-2 Sample Table of Contents for an EIS

TABLE OF CONTENTS	
EXECUTIVE SUMMARY.....	ES-1
CHAPTER 1 PURPOSE AND NEED.....	1-1
1.1 Introduction.....	1-1
1.2 Project Location.....	1-1
1.3 Background and Project History.....	1-3
1.4 Project Purpose and Need for the Action.....	1-4
CHAPTER 2 ALTERNATIVES ANALYSIS.....	2-1
2.1 Description of Process.....	2-2
2.2 Alternatives Advanced for Detailed Evaluation.....	2-7
CHAPTER 3 AFFECTED ENVIRONMENT//ENVIRONMENTAL CONSEQUENCES.....	3-1
3.1 Land Use.....	3-1
3.1.1 Affected Environment.....	3-1
3.1.2 Environmental Consequences.....	3-3
3.1.3 Mitigation Measures.....	3-5
3.2 Social Conditions.....	3-7
3.3 Economic Conditions.....	3-8
3.4 Property Acquisition for Right-of-Way.....	3-11
3.5 Air Quality.....	3-14
3.6 Noise and Vibration.....	3-16
3.7 Water Resources.....	3-18
3.8 Wetlands.....	3-20
3.9 Floodplains.....	3-21
3.10 Vegetation.....	3-22
3.11 Noxious Weeds.....	3-23
3.12 Wildlife.....	3-25





TABLE OF CONTENTS (Cont.)

	3.13	Threatened, Endangered, and State Sensitive Species	3-26
	3.14	Visual Quality.....	3-27
	3.15	Historic Preservation.....	3-29
	3.16	Paleontological Resources	3-31
	3.17	Hazardous Materials.....	3-33
	3.18	Parks and Recreation	3-35
	3.19	Section 6(f)	3-37
	3.20	Farmlands.....	3-39
	3.21	Energy	3-41
	3.22	Pedestrian and Bicycle Systems	3-43
	3.23	Construction	3-45
	3.24	Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity	3-47
	3.25	Irreversible and Irrecoverable Commitment of Resources.....	3-49
	3.26	Cumulative Impacts	3-51
	3.27	Permits Required.....	3-53
	3.28	Summary of Direct and Indirect Impacts.....	3-55
	3.29	Mitigation Summary.....	3-57
CHAPTER 4		TRANSPORTATION	
	4.1	Travel Demand	4-1
	4.2	Travel Time.....	4-5
	4.3	Level of Service	4-8
	4.4	Safety Impacts.....	4-10
	4.5	Construction Impacts.....	4-13
CHAPTER 5		SECTION 4(F) EVALUATION	5-1
	5.1	Application of Section 4(f).....	5-1
	5.2	Section 4(f) Resources	5-4





TABLE OF CONTENTS (Cont.)

	5.3	<i>De minimis</i> Impacts	5-8
	5.4	Least Harm Analysis.....	5-12
	5.5	Avoidance Alternatives	5-15
	5.6	Impacts	5-20
CHAPTER 6		COMMENTS AND COORDINATION	6-1
	6.1	Coordination	6-1
	6.1.1	Agency Coordination.....	6-1
	6.1.2	Public Coordination.....	6-3
	6.1.3	Project Team.....	6-7
CHAPTER 7		LIST OF PREPARERS	7-1
CHAPTER 8		LIST OF REFERENCES.....	8-1
APPENDIX A		PUBLIC INVOLVEMENT	
APPENDIX B		AGENCY COORDINATION	

SUPPORTING TECHNICAL REPORTS

CONTAINED ON THE CD AT THE BACK OF THIS DOCUMENT

- Traffic Noise and Vibration Impact Analysis
- Water Quality Technical Report
- Air Quality Technical Report
- Wetlands Technical Report
- Historic Resources Survey Report





LIST OF FIGURES

Figure ES-1	Project Study Area	ES-2
Figure ES-2	Project Alternatives	ES-4
Figure 1-1	Project Study Area	1-2
Figure 2-1	Regional Planning Context.....	2-4
Figure 3.1-1	Project Study Area Generalized Existing Land Use	3-2
Figure 3.1-2	Project Study Area Future Land Use	3-6
Figure 3.1-3	Existing Land Use Categories and Acreage	3-7

Note: Organizing the List of Figures or List of Tables by chapter may be useful for larger NEPA documents.





Figure 2-3 Sample Table of Contents for a Decision Document

TABLE OF CONTENTS		
SIGNATURE PAGE		
CHAPTER 1	INTRODUCTION	1-1
	1.1 Project Overview	1-1
	1.2 Project Status.....	1-2
	1.3 Purpose for the Proposed Action	1-4
	1.4 Need for the Proposed Action	1-4
CHAPTER 2	DESCRIPTION OF THE PREFERRED ALTERNATIVE.....	2-1
	2.1 Elements of the Preferred Alternative	2-1
	2.2 Funding Plan and Project Completion Schedule	2-6
CHAPTER 3	SUMMARY OF IMPACTS, MITIGATION MEASURES, AND PERMIT REQUIREMENTS	3-1
	3.1 Summary of Impacts	3-1
	3.2 Construction Impacts and Mitigation	3-3
	3.3 Summary of Mitigation Measures	3-8
	3.4 Permit Requirements	3-12
CHAPTER 4	ENVIRONMENTAL ASSESSMENT COORDINATION	4-1
	4.1 Public Coordination.....	4-1
	4.2 Availability of Environmental Assessment.....	4-3
	4.3 Public Hearing Summary	4-3
	4.4 Comments and Responses	4-4
	4.5 Agency Coordination.....	4-19
	4.6 Clarifications to the Environmental Assessment	4-21
CHAPTER 5	FINAL 4(f) (if applicable)	5-1
CHAPTER 6	SELECTION OF THE PREFERRED ALTERNATIVE.....	6-1
CHAPTER 7	DECISION	7-1
CHAPTER 8	REFERENCES	8-1





TABLE OF CONTENTS (Cont.)

APPENDIX A — [INSERT DATE] PUBLIC HEARING DOCUMENTATION

APPENDIX B — PUBLIC HEARING TRANSCRIPT

APPENDIX C — PUBLIC COMMENTS RECEIVED DURING REVIEW PERIOD

APPENDIX D — AGENCY COORDINATION AND COMMENTS

APPENDIX E — [INSERT PROJECT NAME] ENVIRONMENTAL ASSESSMENT AND APPENDICES

(See Attached CD)





2.5 Purpose and Need for the Project

A statement of the underlying purpose and need for action is a mandatory component of a NEPA document (CEQ, 40 CFR § 1502.13). It is essentially the foundation of the NEPA document and decision-making process. The purpose and need statement establishes why the agency is proposing a specific transportation project. A concise, well-justified purpose and need section explains to the public and decision-makers why the proposed expenditure of funds is necessary and worthwhile, and why the priority of the project is warranted relative to other needed transportation projects. The purpose and need statement establishes the basis for selecting reasonable alternatives and the ultimate selection of a Preferred Alternative.

Additional information concerning the elements of the purpose and need statement is included in Chapter 4 (Environmental Impact Statement [Class I]) and Chapter 6 (Environmental Assessment [Class III]).



CDOT's Purpose and Need Guidance

FHWA Technical Advisory T 6640.8A. and FHWA Memorandum, *The Importance of Purpose and Need.* (September 18, 1990)





2.6 Alternatives Analysis

A NEPA document helps to make informed decisions from among reasonable alternatives. In order to define the scope of the NEPA document, it is important to accurately present the range of reasonable alternatives. Additional information concerning the elements of the alternatives analysis is included in Chapter 4 (Environmental Impact Statement [Class I]) and Chapter 6, (Environmental Assessment [Class III]).

2.7 Affected Environment

Present your discussion of the affected environment on a resource-by-resource basis, in the same order that resources are evaluated in the environmental consequences section, if a separate chapter. The Affected Environment section is required to indicate the presence or absence of resources that must be covered by law and regulation. If resources are absent from the project area, it is helpful to identify these resources in the beginning of the chapter. Also, similar resources should be grouped together (e.g., water resources, wetlands, and floodplains). However, these resource areas are not all-inclusive. Additional topics or issues may be needed to establish a thorough understanding of the affected area. NEPA documents must concentrate on the issues that are "truly significant to the action in question, rather than amassing needless detail" (40CFR 1500.1[b]). Additional information concerning the elements of the Affected Environment section is included in Chapter 4 (Environmental Impact Statement [Class I]) and Chapter 6 (Environmental Assessment [Class III]).





2.8 *Environmental Consequences and Mitigation*

Information concerning the elements of the Environmental Consequences section, including mitigation and monitoring commitments is included in Chapter 4 (Environmental Impact Statement [Class I]) and Chapter 6 (Environmental Assessment [Class III]).

2.9 *List of Preparers*

The list of preparers includes the credentials of personnel who contributed to the project. Gather the following information so that the list of preparers can be compiled: full name, job title(s) and license(s), discipline area, educational degree(s), years of experience, and contribution (role on the project). Two examples are provided below in **Figure 2-4**.



Figure 2-4 Sample List of Preparers

Example 1

Federal Highway Administration	
Jane Doe, PE Program Delivery Engineer BS, Civil Engineering 25 years of experience	
Colorado Department of Transportation	
Jeff Doe, PE CDOT Region 1 Resident Engineer MS, Civil Engineering BS, Civil Engineering 13 years of experience	Jane Doe, PE CDOT Region 1 Project Engineer MS, Civil Engineering BS, Civil Engineering 15 years of experience
Consultant Name	
Sarah Doe Water Resources MS, Environmental Policy BA, Environmental Science 5 years of experience	

Example 2

Project Team Member	Background (Education, License)	Experience
Federal Highway Administration		
Jane Doe Program Delivery Engineer	BS, Civil Engineering PE (Colorado)	25 years of experience in transportation engineering
Colorado Department of Transportation		
Jeff Doe CDOT Region 1 Resident Engineer	MS, Civil Engineering BS, Civil Engineering PE (Colorado)	15 years of experience in transportation engineering
Consultant Company Name		
Sarah Doe Environmental Specialist Water Resources	MS, Environmental Policy BA, Environmental Science	5 years of experience NEPA analysis





2.10 Distribution List

The distribution list includes all agencies and persons to whom copies of the EIS (not required for an EA, but recommended) are sent. Additional information concerning the elements of the distribution list is included in Chapter 4 (Environmental Impact Statement [Class I]). Avoid using acronyms abbreviations and acronyms in the distribution list. Figure 2-5 provides a sample distribution list.

Figure 2-5 Sample Distribution List

Distribution List	
<p>Federal Agencies Jane Doe, Title Federal Highway Administration 12300 W. Dakota Ave., #180 Lakewood, CO 80228</p>	<p>Regional Agencies Jane Doe, Title North Front Range Metropolitan Planning Organization 235 Matthews Street Ft. Collins, CO 80524</p>
<p>State Agencies Jane Doe, Title Colorado Division of Wildlife 4207 W Country Road 16E Loveland, CO. 80537</p>	<p>Local Agencies Jane Doe, Title City of Loveland Parks and Recreation Department 500 East Third Loveland, CO 80537</p>
<p>Libraries and other Document Viewing Locations Greeley Lincoln Park Library 919 7th St., #100 Greeley, CO 80631</p>	

2.11 References and Citations

Be sure to acknowledge all referenced material (e.g., ideas, data, photographs, illustrations, publications of other works in the subject area) using in-text citations and a list of references. It is important to cite documents (e.g., book, technical research reports, and maps), personal communications (e.g., phone conversations, emails, meetings), and unpublished data appropriately. See below for selected examples. Reference your standard style guide of choice for more specific information. Section 7.0 provides a list of the standard reference style guides.





2.11.1 In Text Example

Citations in the text for documents should be written (Last Name of First Author/Organization, Date of Source Material/Year of Publication) as shown below:

- ▶ The Colorado Department of Public Health and Environment has classified the South Platte River as a Recreation II water body (CDPHE, 2001).
- ▶ Large game species are not present in the project area (J. Smith, personal communication, Colorado Division of Wildlife, June 1, 2008). Note: Personal communications are not typically included in reference lists because they are not recoverable.

2.11.2 Reference List Examples

The reference list should be compiled generally using the following reference guidelines.

Report

Federal Highway Administration (FHWA). 1990. Pollutant Loadings and Impacts from Highway Stormwater Runoff. Volumes I, II, and III. FHWA-RD-88-006; FHWA-RD-88-007; and FHWA-RD-88-008. April.

Regulation

Colorado Department of Public Health and Environment (CDPHE). 2006. Regulation 42: Site Specific Water Quality Classification and Standards for Groundwater. Water Quality Control Commission.

Book

Forman, R. T. 1995. Landscape mosaics: The ecology of landscapes and regions. Cambridge, UK: Cambridge University Press.

Book Chapter

Dennis, S. 2001. Theoretical and legal foundations of public involvement. In S. Dennis (Ed.), *Natural resources and the informed citizen* (pp. 147-153). Champagne, Illinois: Sagamore Publishing.

Technical Journal Article

Rhodes, Rocky. 2009. "Evaluation of Asphalt Types Used for Noise Suppression in the Desert Southwest U.S." in *Journal of Asphalt*, April 15.





Electronic Sources

Electronic sources refers to any material transmitted through a computer (databases, the world wide web and internet sites, online journals and magazines, newsgroups, discussion grouped, online forums, e-mail messages, etc.).The following should be recorded for all referenced electronic material: the complete URL (web address) for that page, author and title of the material, date of the material itself, and date you accessed this material. It is recommended that the material referenced is printed out for the administrative record. If the document is lengthy, print out the first few pages and any other pertinent information only. Also save an electronic copy of the document to the project file.

Electronic source references should be written as such:

United States Environmental Protection Agency (EPA). 2008. Urban BMP Performance Tool. Retrieved January 27, 2008, from <http://cfpub.epa.gov/npdes/stormwater/urbanbmp/bmpeffectiveness.cfm>.

Figure 2-6 provides a sample List of References.



Figure 2-6 Sample List of References

List of References

American Association of State Highway Transportation Officials (AASHTO). 2004. A Policy on Geometric Design of Highways and Streets.

Consultant Company Name. 2008. Package Concept Plans. Prepared for the Highway XX Project EIS.

Consultant Company Name. 2008. Technical Memorandum: Land Use Conditions and Impacts. Prepared for the Highway XX Project EIS.

2.11.3 Appendices

Appendices contain detailed information that is not essential to a basic understanding of the document and the results obtained but may be helpful to certain readers (e.g., technical agency reviewers). Appendices help to streamline the content of the main document. However, like the main document, appendices should not contain unnecessary information; be very discriminating about what information you include. The NEPA document is expected to contain the following appendices:

- ▶ Agency Coordination (e.g., agency correspondence, meeting minutes)
- ▶ Public Involvement and Coordination (e.g., copies of public hearing notifications)

Other appendices may be added, as appropriate. All appendices must be called out in the body of the main document. They are lettered sequentially (i.e., Appendix A, Appendix B, etc.) at the end of the document in the order in which they are called out. **Figure 2-7** includes an example Appendices Cover Page.





Figure 2-7 Sample Appendix Cover Sheets

Appendix A Public Involvement

This appendix contains the following project documents listed in the order they are presented.

- ▶ CDOT Press Releases
- ▶ Project Newsletters
- ▶ Invitations to Public Hearings
- ▶ Public Meeting Summaries

Appendix B Agency Coordination

This appendix includes correspondence to and from agencies and minutes from meetings with agencies.

Date	Letter Recipient/ Meeting Attendees	Letter Submitter/ Meeting Initiator	Subject
January 1, 2009	Multiple Resource Agencies (CPW, USFWS)	[INSERT Name], CDOT	Invitation letters to resource agency scoping meeting
January 24, 2009	US Army Corps of Engineers (USACE), FHWA, EPA, CDOT	INSERT Name], CDOT	Scoping meeting
January 24, 2009	CDOT	US Fish and Wildlife Service (USFWS)	Review comments on the Notice of Intent
March 2, 2009	USDA Natural Resources Conservation Service (NRCS)	[INSERT Name], CDOT	Letter to NCRS Platte Valley District requesting soil lists for Prime or Unique Farmland, and/or Farmlands of Statewide or Local Importance
May 1, 2009	State Historic Preservation Officer (SHPO)	[INSERT Name], CDOT	Review of Area of Potential Effect (APE





2.12 General Format and Style Guidelines

The following guidelines provide direction on the scale of the NEPA document, formatting, and how to present any supporting documentation. Use these guidelines at the start of every project to customize a project-specific writing style guide. It is also helpful to create a project-specific template for your technical authors to use that contains information on your selected style for fonts, tables, headings, graphic formatting, references, bulleted lists, etc. Additionally, provide your technical authors with a list of project terminology for document consistency. **Figure 2-8** includes an example of some terms that might be useful to include in a list of project terminology.

Figure 2-8 Example List of Common Terminology

Avenue, not Ave.
bridge (don't uppercase with name of bridge, i.e., Broadway bridge)
Boulevard, not Blvd.
CDOT, not the CDOT
CDPHE, not the CDPHE
CO 99 not CO99 or CO-99 (county route numbers)
Drive, not Dr.
EPA, not the EPA
1 st , not 1st
park-n-Ride (within RTD district), not park n Ride or Park-n-Ride
park-and-ride (outside RTD district)
railroad (capitalize proper name of railroad, but not word "railroad," e.g., "Burlington Northern Santa Fe railroad, not Burlington Northern Santa Fe Railroad, since the correct proper name is Burlington Northern Santa Fe Railway)
SH 99, not SH-99 or SH99
Street, not St.
U.S., not US
USACE, not the USACE not COE





2.12.1 Length

The adequacy of a NEPA document is measured by its functional usefulness in decision-making, not by its size or level of detail. Level of detail should be commensurate with the scale of the proposed project and the related impact. In an effort to help eliminate lengthy NEPA documents, it is useful to incorporate supporting information in appendices and technical reports and reference them throughout the NEPA document.

When supporting technical documents are referenced, ensure that specific section numbers and section titles are provided to assist the reader in locating the reference accurately within the document. Cross-referencing also helps keep NEPA documents short and concise.

2.12.2 Page Layout

- ▶ **ORIENTATION** — Present text in the portrait page setup printing format. Landscape format may be used to present large graphics or tables, as necessary, but should be used sparingly.
- ▶ **COLUMN FORMAT** — Use the one-column format for documents instead of the two-column format. Two-column documents can be difficult to navigate and read in electronic format.
- ▶ **SPACING** — Single space documents. CDOT requires that the document be printed using both sides of the paper, when possible. Place a single space after punctuation marks at the end of a sentence.
- ▶ **PAGE NUMBERING** — Number all pages in the document. The number should appear in a document footer at the bottom of each page. Page numbers should correspond to the appropriate chapter/appendix number of the document (e.g., 1-1, 2-1, A-1). To help reduce document size, avoid adding unnecessary blank pages to the document that read “This page is intentionally left blank.”
- ▶ **MARGINS** — Set margins at 1.00 inch top and bottom, and 1.25 inch left and right.
- ▶ **JUSTIFICATION** — Left justify body text.
- ▶ **HEADERS** — Include the document type (Draft or Final EA or EIS, ROD, FONSI) and project name in the document header.
- ▶ **FOOTERS** — Include the chapter name and page number in the document footer.



Keep the document short and straightforward. Try to limit the average sentence length to 20 words or less.



Engage your reader with easy-to-read layouts.



2.12.3 Font and Styles

Body Text

Body text is used in the body of the document. The print type should be of adequate size and style to be easily read, such as 11-point or 12-point font in the Arial family or the Times family type fonts.

- ▶ This is an example 11-point Arial font.
- ▶ This is an example 12-point Times New Roman font.

Heading Text

Headings are a helpful cross-referencing tool for the document reader. The level-one heading is generally the largest font size, with subheadings decreasing in font size. Using different colors may help make headings easier to find in the document. **Figure 2-9** includes example headings.

Figure 2-9 Sample Headings

1.0 MAJOR HEADING

An example major heading style is shown above. This is a 16-point Arial Font, bold, title case, and left justified.

1.1 Heading 2

An example heading 2 style is shown above. This is a 14-point Arial Font, bold, and left justified.

1.1.1 Heading 3


An example heading 3 style is shown above. This is a 13-point Arial Font, bold, and left justified.

1.1.1.1 Heading 4

An example heading 4 style is shown above. This is a 12-point Arial Font, bold, and left justified.

2.12.4 Graphics

Integrate visual graphics into NEPA documents, including figures, tables, cross-sections, side-bars (also referred to as call-outs), and other graphics, to reduce the amount of narrative required and make documents more reader-friendly. Graphics help to convey to the reader, in understandable terms, the composition of the project and the extent of its impact on the human environment.



Use call-outs to highlight key concepts, but do not repeat wording already present in the text.





Graphics should be technically accurate and of high quality. Avoid complex, busy figures, overly complex charts, and matrices when possible. When tables are overly complex, consider using a bar chart as an alternate way of demonstrating the information. Produce graphics that clearly depict information regardless of whether the document is printed in black and white or color. **Table 2-1** provides an example table format. In general, include data in a table when presenting more than three pieces of data.

Other helpful suggestions related to graphics include:

- ▶ Graphics should have succinct but definitive titles.
- ▶ Number graphics sequentially within each chapter. List the chapter number first, followed by a hyphen, and then the graphic number (e.g., Table 1-2, Figure 2-3).
- ▶ Reference all graphics within the text of the NEPA document. Place the graphic on the page immediately after it has first been referenced, or integrate the graphic within the text on the same page as the reference.
- ▶ If the graphic requires a full-page, try to keep it on one 8.5 x 11-inch portrait page.
- ▶ Graphics should include a source citation.
- ▶ Certain graphics, such as maps, should include a scale and legend, if appropriate.
- ▶ When maps are used, the orientation should be north/south, with the north end at the top of the page.
- ▶ Ensure that streets, neighborhoods, streams, etc. that are mentioned in the text are clearly labeled on the map.



Table 2-1 Existing Land Use within Project Study Area

Major Land Use	Acres	Percent
Developed Land	2,748	51%
Agricultural Land	825	15%
Upland Habitat	1,630	30%
Water Features	55	1%
Wetland Habitat	32	<1%
Mines/Quarries	88	2%
Total	5,378	100%

Sources: City of Lakewood, 2008; Project Field Data, 2008





2.12.5 Document Production

Print documents on recycled paper and, when possible, make electronic copies should be made available on re-writable CDs. CDOT requires double-sided copies in order to save paper and reduce both document distribution and reproduction costs and use of materials. Single-sided documents must be the exception and not the rule. To help reduce document size, avoid adding unnecessary blank pages to the document that read "This page is intentionally left blank."

2.13 Responses to Public and Agency Comments

Figure 2-10 and Figure 2-11 are examples of how to incorporate responses to public and agency comments into NEPA documents. Information within the brackets within Figures 2-10 and 2-11 is intended to be customized for each project

Specifically, Figure 2-10 provides an example of how to incorporate responses into a NEPA document when numerous, long public and agency comments are received. Figure 2-11 provides an example of how to incorporate responses into a NEPA document where only a few, short public and agency comments are received. In this case, it is acceptable to incorporate the response within the text.

This format (side-by-side comment and response with the comment and its response on the same page) is suggested as the easiest for a person to read and can be used for all responses to comments regardless of number or length. This may entail breaking the comment into sections. Also, numbering the comment and the response helps the reader identify those that go together. If a comment response is repeated, it is acceptable to refer back to the first instance of the comment response (see Figure 2-10). This table can also be used for individual public comments. If the original comment is handwritten and it is typed into the table and broken up, be sure to include all of the original comments in an appendix.





Figure 2-10 Sample Comment Response Formats

Sample 1

Comment	Response to Comment
STATE AND FEDERAL AGENCIES	
[INSERT AGENCY NAME, INSERT CONTACT NAME] Comment #1 Comment # 1-1: [INSERT Comment] Comment # 1-2: [INSERT Comment]	Response to Comment #1-1: [INSERT Response] Response to Comment #1-2: [INSERT Response]
[INSERT AGENCY NAME, INSERT CONTACT NAME] Comment #2 Comment # 2-1: [INSERT Comment] Comment # 2-2: [INSERT Comment]	Response to Comment #2-1: [INSERT Response] Response to Comment #2-2: See response to Comment #1-1.
PUBLIC	
[INSERT CONTACT NAME, INSERT AFFILIATION (if any or private citizen)] Comment #1 Comment #1-1: [INSERT Comment] Comment #1-2: [INSERT Comment]	Response to Comment #1-1: [INSERT Response] Response to Comment #1-2: [INSERT Response]

Sample 2

Comment #	Subject	Comment	Response to Comment	Comment From
1	Water Quality	[INSERT Comment]	[INSERT Response]	[INSERT Commenter Name(s)]
2	Wetlands	[INSERT Comment]	[INSERT Response]	[INSERT Commenter Name(s)]





Figure 2-11 Sample Comment Response Format #2

4.1 Public Comments and Responses

4.1.1 Written Comments

Copies of the written comments are included in Appendix (INSERT Appendix Letter). Each written comment and a corresponding response are listed below.

1. COMMENT FROM [INSERT NAME]

[INSERT Method of Delivery – i.e., email to project manager], [INSERT Date]:

[INSERT Comment]

RESPONSE:

[INSERT Response]

4.1.2 Public Hearing Comments

[INSERT number] people commented at the Public Hearing and those comments are included in Appendix [INSERT Appendix Letter] Public Hearing Transcript. Each comment and corresponding response are listed below.

1. COMMENT FROM [INSERT NAME]:

[INSERT Comment]

RESPONSE:

[INSERT Response]

4.2 Agency Comment and Responses

Written comments were received from [INSERT Agency Names] during the comment period and have been included in Appendix [INSERT Appendix Letter], Agency Coordination and Comments. Letters from the [INSERT Agency Names] have been summarized and responses to comments are provided below. Changes to the EA text have been recorded in Section [INSERT Section Number], Clarifications to the Environmental Assessment.

4.2.1 [INSERT AGENCY NAME]

SUMMARIZE LETTER IF LENGTHY

Response:

[INSERT Response]





3.0 USAGE

This section provides guidelines on how to use numbers, abbreviated terms and acronyms, capitalization, compound words, and bulleted lists.

3.1 Numbers

The following are the basic rules for using numbers in technical material.

Written in words:

- ▶ Spell out numbers 1 through 9 and numbers less than 100 preceding a unit modifier containing a figure.

Example: One, two, three, and four; twelve 4-foot boulders

- ▶ Spell out numbers at the beginning of a sentence. If the number requires more than two words, reword the sentence.

Example: Five streams are located in the project area.

- ▶ Use ordinals

Example: Use first, second, and third, rather than 1st, 2nd, and 3rd
Note: Superscripts should not be used in formal names (e.g., 20th century).

- ▶ Percent

Example: Approximately 12 percent of the project area is within the South Platte River watershed.





Written as numbers:

- ▶ Numbers 10 and above

Example: The project area encompasses 11 communities.

- ▶ Where numbers both above and below 10 are used in a sentence, use numerals.

Example: The wetlands along the project from east to west are 4, 7, 18, and 23 acres in size, respectively.

- ▶ Numbers less than one should be written as numbers.

Example: The project is 0.4 mile long.

- ▶ Avoid making numbers less than one plural in a sentence. (**Incorrect:** The project is 0.4 miles long. **Correct:** The project is 0.4 mile long.)

- ▶ Fractions

Example: Write the number $2\frac{1}{2}$ or convert it to a decimal (i.e., 2.5), but be consistent with the method you select. Exception: Spell out fractions without a whole number (e.g., one third of the project area)

- ▶ Quantities and Measurements (Time, decimals, ratios, percentages, measurements, page numbers, money, proportion, ages)

Example 1: Approximately 12 percent of the project area is within the South Platte River watershed.

Example 2: The development is 3 years old.

- ▶ Decimals expressed in figures. Remember to use a zero before the decimal in numbers less than zero. Zero should be omitted after a decimal point unless they indicate exact measurements. Keep significant figures consistent in tables of data. Generally, rounded numbers should not exceed the hundredth place.

Example: 0.46

- ▶ Approximate numbers in the millions or higher should be expressed as follows: 2.4 million, 3 billion, etc.

- ▶ Use numerals when a number scale is used.

Example: On a scale of 1 to 10.





3.1.1 Dates

- ▶ Express complete dates in month-day-year sequence. Separate the date by the appropriate punctuation from the remainder of the sentence.

Example: The hazardous materials site visit was completed on July 1, 2008, by the staff.

- ▶ Do not include an apostrophe when referring to a decade or century.

Example: 1970s, rather than 1970's.

- ▶ Use four digits when referring to a year.

Example: 1995, rather than '95.

3.1.2 Money

- ▶ Use figures to express exact or approximate amounts of money, and generally round up to the whole dollar amount.

Example: The cost to construct the underpass is approximately \$500,000.

- ▶ Do not include decimal points or zeros for whole dollar amounts.

Example: \$125 rather than \$125.00.

- ▶ Express related numbers in the same way.

Example: \$350,000 to \$500,000, rather than \$350,000 to \$0.5 million.

3.1.3 Measurements

CDOT has decided that all NEPA documents will use the English System of measurement (U.S. customary, e.g., inch/pound).

3.2 Abbreviated Terms and Acronyms

Appendix A of this NEPA Manual contains a list of abbreviations and acronyms typically used in NEPA documentation. On first reference, terms that are used more than twice should be spelled out, followed by the abbreviation or acronym in parentheses. Spelling out the term on first reference must be done on first reference, in each chapter, and in each appendix in which the term appears. Not everyone will read the entire document. In figures and tables, define abbreviated terms and acronyms in a general footnote to the table. Spell out measurements (e.g., feet, pounds) unless included in a table. When possible, avoid an over reliance on abbreviations and acronyms; remember that your reader is the public. Terms used only once or twice should not be abbreviated.



Be sure to list the abbreviated term or acronym with its spelled-out version in a List of Abbreviated Terms and Acronyms.





3.3 Capitalization

Capitals are used for two basic purposes: to mark a beginning (as of a sentence) and to indicate a proper noun, pronoun, or adjective.

Capitalize the initial letter of:

- ▶ The first word of every sentence
- ▶ The first word of a direct quotation, if it was capitalized in the original source

Example: According to the report, "Displacement of businesses, agricultural operations, and houses would be mitigated through relocation."

- ▶ The first word after each bullet in bullet text

Example:

- Erosion
- Sedimentation
- Reduced habitat quality
- ▶ Each word in a title or heading, with the exception of conjunctions, prepositions, and articles

Example: Archaeological Resources Survey, Biological Assessment, and Abbreviated Terms and Acronyms

- ▶ Professional titles preceding a name and not separated by a comma

Example: Vice President Carol Jones, *but* Carol Jones, vice president

- ▶ Proper nouns, pronouns, and adjectives

Example: Names, geographical references, government agencies, organizations, historical periods, historical events, months, days of the week, holidays

- ▶ Derivatives of proper names

Example: Swainson's hawk, Aleutian Canada geese

- ▶ Descriptive terms, if they refer to a definite geographical region or designate the inhabitants of some geographical region

Example: a Southern accent, West Grant Avenue, *but* west of the Rockies, West Coast (of the United States), Lower 48 (States)

- ▶ Names of religions, denominations, and religious orders



On first reference, the proper name and scientific name identifying genus should be used (e.g., Ute Ladies' -Tresses orchid [*Spiranthes diluvialis*]). For bird species every word in the common name of the bird should be capitalized for example: Yellow-headed Blackbird. Following the first use, the proper name should be used. This should be done in the Executive Summary, each chapter, and each appendix the term appears.



Example: Judaism, Chapel Hill Adventist Church, *but* the local Baptist church

- ▶ Scientific names identifying genus, *but* not species

Example: *Pieris rapae*, *Ranunculus acris*

Do **not** capitalize:

- ▶ The words government, city, county, state, or federal when used generically

Example: county population; City and County of Denver; near the city of Denver or, more appropriately, near Denver [see "City of..." in Section 4])

- ▶ Seasons of the year

Example: spring, summer, fall, winter 2008

- ▶ Abbreviations for units of measurement (e.g., length) used in tables.

Example: Use the abbreviation ft, rather than Ft

- ▶ Spelled-out chemical names

Example: polychlorinated biphenyls

- ▶ Professional titles separated from a name by a comma

Example: John Doe, senior environmental planner; data from the biologist, Jane Doe

3.4 Compound Words

A compound word is one that is formed by the union of two or more words; for example, soundwall or right-of-way. "Soundwall" is an example of a closed compound, where there is no space or hyphen between words. Hyphenated compounds like "right-of-way" are joined by a hyphen. Use a hyphen to prevent mispronunciation or avoid ambiguity. When you are uncertain whether or not a word is an accepted compound, refer to your dictionary.

Examples of Closed Compounds:

- ▶ Runoff
- ▶ Setup
- ▶ Groundwater
- ▶ Overcrossing
- ▶ Undercrossing
- ▶ Onsite





- ▶ Offsite
- ▶ Stormwater
- ▶ Northeast

Examples of Hyphenated Compounds when followed by a noun:

- ▶ On-ramp (drivers take the on ramp to I-25, *but* the on-ramp speed is 25)
- ▶ Off-ramp (the truckers were directed to the off ramp, *but* the off-ramp toll gate did not function)
- ▶ Off-road (the land use in the neighborhood is considered off road, *but* the off-road impacts are plentiful)
- ▶ North-northeast

Place a hyphen between words that form a compound adjective, directly preceding the word being modified:

- ▶ Single-family home, *but* the home houses a single family
- ▶ Coal-fired power plant, *but* the power plant is coal fired
- ▶ Well-drained soil, *but* the soil is well drained

Place a hyphen in adjective compounds beginning with a number as shown:


- ▶ 8-hour day
- ▶ 30-foot pole
- ▶ 3-to-1 ratio
- ▶ 10- to 20-foot drop
- ▶ 42- to 60-inch-diameter outfall

Do not hyphenate numbers when they are used to indicate a measurement versus an adjective. Below are some examples:

- ▶ The road is 80 miles long
- ▶ The project will replace 18 feet of pipe line

3.5 *Bulleted Lists*

Bulleted lists are generally used to highlight important information within the text of NEPA documents. As a general rule, if you have more than 3 items that you would like to emphasize in your list, consider adding the items to a bulleted list. Following are some general guidelines about bulleted lists:



Do not hyphenate numbers when they are used to indicate a measurement versus as an adjective.



- ▶ Use a lead-in sentence to introduce bulleted lists, followed by a colon.
- ▶ Capitalize the first word for each item in the list.
- ▶ Punctuate the end of the sentence only if it is a complete sentence.
- ▶ Avoid having more than 6 items in a bulleted list.
- ▶ Avoid using articles (e.g., a, an, the) at the beginning of bulleted lists.

3.6 *Emphasis*

- ▶ To emphasize words within text, use *italics* rather than **bold**.
- ▶ **Bold** should be used in text when a reference has been made to a Table, Figure, and Section/Chapter within the document.

Example: Land uses within the project area are listed in **Table 2-1**.

4.0 ELEMENTS OF COMPOSITION

This chapter provides some hints on word use that can help make your technical writing more concise.

4.1 *Word Use*

The guiding principle in technical writing is to keep it simple, short, and concise. One simple exercise is to scan your writing for words ending in “ion” – these words usually indicate prepositional phrases where a simple verb will do, and over writing, in general. **Table 5-1** includes a list of some overwritten expressions that can be replaced by the preferred word or phrase to the right:

Table 5-1 Overwritten Expressions and Preferred Words or Phrases

Overwritten Expression	Preferred Word or Phrase
a majority of	most
a number of	many
anticipate	expect
as per your request	as requested
as to whether	whether
as yet	yet
at the present time	now
based on the fact that	because
due to	because
end result	result
fewer in number	fewer





Overwritten Expression	Preferred Word or Phrase
finalize	end, complete
for the purpose of	for
in close proximity	close, near
in connection with	with, along with
in need of	needs
in order to	to
in the event that	if
it is suggested that	initiate
it should be noted that	note that
on a daily basis	daily
perform	do
prior to	before
take into consideration	consider
terminate	end
traverse	cross, go through, go over
utilize	use
with reference to	about

Although the goal is to keep NEPA documents simple, short, and concise, it is better to use an extra sentence to explain an idea or a technical term to ensure that readers understand the concept, when needed.

- ▶ **Example:** Suspended sediment increases *turbidity* and reduces aquatic plant life productivity. Turbidity refers to water clarity. Therefore, water will appear murkier when more suspended sediment is present.
- ▶ **Example:** There are four sites with recognized environmental conditions. Recognized environmental conditions are sites with the presence of potential or known soil and groundwater contamination from hazardous materials.

Overall, try to avoid over-using technical jargon. Select terms that a public reader will understand. For example, use the term clean-up instead of remediate.

- ▶ **Example:** Within the project area there are several gas stations that have undergone clean-up due to leaking underground storage tanks.



Use simple terms understandable to a lay person.





4.2 Active Voice and Passive Voice

CDOT recommends using an active voice to make your writing stronger and more direct. When you write in active —rather than passive—voice, you usually use fewer words, resulting in a shorter document. Always use active voice when describing mitigation on local agency projects in an effort to be clear about the mitigation responsibility (i.e., CDOT versus local agency).

Here's an example of active and passive voice.

Passive: The bridge would be constructed by CDOT.

Active: CDOT would construct the bridge.

Another example of passive voice commonly used is:

Passive: There are several factors to be considered in deciding which alternative to select.

To make this active, restructure so that someone is doing the action:

Active: CDOT and FHWA will consider several factors to determine which alternative to select.

NEPA documents lend themselves to passive voice sentence construction; you have to make a real effort to rewrite them in active voice. You can turn around the passive sentences by adding an appropriate subject but be aware that you could be faced with another concern: using the same subject repeatedly. Consequently, you must think about the flow of your text. Use active voice as much as possible, but don't be afraid to include a passive voice sentence for variety.

4.3 Sentence Structure

4.3.1 Parallel Construction

Sentence elements (i.e., verbs, nouns, adjectives, infinitive phrases) of equal rank must be “balanced” or “matched.”

Incorrect: The purpose of the roadway project is safety, to reduce congestion, and so that commuters would bypass the historic downtown business district.

Correct: The purpose of the roadway project is to improve safety, reduce congestion, and allow commuters to bypass the historic downtown business district.





Notice that in the correct example a verb is matched by a verb and a noun by a noun - "improve safety," "reduce congestion," and "allow commuters." The same is true in the following example:

Incorrect: The mitigation would involve replacing and replanting shrubs, an analysis for the presence of beetles, and the Colorado Parks and Wildlife (CPW) would have to be informed before any plants are removed or destroyed.

Correct: The mitigation would involve replacing and replanting shrubs, analyzing whether beetles are present, and informing the CPW before removing or destroying any plants.

Notice that the verbs in the correct example match in form ("replacing and replanting," "analyzing," "informing," and "removing or destroying").

Parallel structure also applies to bulleted lists.

Incorrect:

The duties of the environmental planner are:

- ▶ To coordinate the environmental document preparation
- ▶ Writing the environmental document
- ▶ Analysis of the data gathered by the specialists

Correct:

The duties of the environmental planner are to:

- ▶ Coordinate the environmental document preparation
- ▶ Write the environmental document
- ▶ Analyze the data gathered by the specialists

Remember, you can write your sentences any number of ways to achieve parallel construction. The way you do it is up to you but make sure your elements agree.

4.3.2 Subject-Verb Agreement

The number of the subject always determines the number of the verb. Do not be confused by words or phrases that come between the subject and the verb.





Incorrect: The historical importance of the site—its high architectural integrity and its link with Denver’s earliest pioneer family—have been established.

Correct: The historical importance of the site—its high architectural integrity and its link with Denver’s earliest pioneer family—has been established.

Use a singular verb following each, either, everyone, everybody, neither, nobody, and someone.

Incorrect: Neither of the alternatives **have** a substantial impact on visual quality.

Each of the households being displaced **are** assigned a relocation advisor.

The easiest way to remember this is to avoid the phrase “of the” as shown in the improved versions below.

Correct: Neither alternative **has** a substantial impact on visual quality.

Each household being displaced **is** assigned a relocation advisor.

In this way, subject/verb agreement is more evident.

The word none is usually followed by the singular verb form, since none usually means “no one” or “not one.”

Incorrect: None of the alternatives are without substantial biological impacts.

Correct: None of the alternatives is without substantial biological impacts.

Whenever two or more nouns are joined by “and”, the verb form will almost always be plural.

Example: The Chatfield Dam and the Cherry Creek Dam are located upstream of the project area.





When nouns are joined by with, as well as, in addition to, except, together with, and no less than, the subject is still considered singular, meaning that the verb also remains singular.

Example: The Chatfield Dam as well as the Cherry Creek Dam is located upstream of the project area.

4.4 Punctuation

This section outlines the preferred punctuation for NEPA documents.

4.4.1 Apostrophe

- ▶ Use chiefly to indicate the possessive case (except for the word its), indicate contractions, and create certain plurals (e.g., BTU's)

Example: For more information, please refer to CDOT's revised NEPA Manual.

- ▶ Do not use an apostrophe with acronyms

Example: 2 EISs, rather than 2 EIS's. (Note: You do use an apostrophe in the unlikely event that you're talking possessive EIS. "The EIS's appendices were bulky." In cases like this, try to re-write the sentence to avoid possessive EIS: "The appendices in the EIS were bulky.")

4.4.2 Brackets

- ▶ Use to set off editorial matter within quoted material (i.e., information added to the work of another author)

Example: "Construction of the Chatfield Dam [located in the project area] began in 1967"

- ▶ Use as parentheses within parentheses

Example: It can be assumed that an alternative with a higher predicted load (i.e., a greater quantity of constituent [such as dissolved copper] leaving the road) would have more water quality impacts than another alternative.

4.4.3 Comma

- ▶ Mark brief pauses in the flow of ideas and avoid misunderstandings.

- ▶ In a series of three or more terms, use a comma after each term

Example: frogs, snails, and turtles

- ▶ Enclose parenthetical expressions (unrestricted clauses) between commas.





Example: Alternative 2, which crosses over the river, would affect spawning gravels.

- ▶ Put a comma before a conjunction introducing an independent clause.

Example: Alternative 3 crosses over the river, but it does not affect any spawning gravel sites.

- ▶ Comma use in bulleted lists is optional, but not recommended. If commas are used, place an “and” after the second to the last item in the list.

Example:

- Frogs,
- Snakes, and
- Turtles

4.4.4 Period

- ▶ Periods indicate an idea is complete.
- ▶ Do not use periods in acronyms

Example: CPW, not C.P.W.

- ▶ Use a period after most abbreviations

Example: e.g., i.e., etc.

- ▶ Do not use a period after abbreviated units of measure

Example: ft, rather than ft.

- ▶ Use in bulleted lists only for items that are complete sentences

Example: The actions identified below will help avoid construction impacts:

- If lead paint is present, this material must not be allowed to flake off and enter receiving waters.
- Caissons used to create bridge piers could require dewatering. A discharge permit and a treatment strategy will be needed before dewatering activities can occur.

4.4.5 M-Dash

You use the m-dash (slightly longer than a regular dash) in tables and figures to indicate range (e.g., 1990–2000). Words should be used in body text in place of the dash (e.g., from 1990 to 2000).

To insert an m-dash, from the Word pull-down menu, select Insert, Symbol, and select the Special Character tab. You can also use the keyboard





shortcut (Ctrl + Num- [This is the dash on the number keypad, not the dash to the right of and above the letter "p".])

Section 4.4 includes general guidance on the use of the hyphen (i.e., En-dash).

4.4.6 Parentheses

If a parenthetical expression is an independent sentence, its first word should be capitalized and the period (or other punctuation) should be included inside the parenthesis. (This sentence is an example of how an independent parenthetical statement should look.)

If a parenthetical expression occurs within a sentence (even if it could stand alone as an independent sentence) it is not capitalized and no period is placed inside the parenthesis; however, a question mark or an exclamation point may be used (just like the parenthetical statements in this sentence!).

4.4.7 Colon

- ▶ Use to indicate an enumeration, a quotation, an example, or an explanation will follow.
- ▶ Use phrases such as: *such as*, *as follows*, *the following*, *these things* prior to the colon.

Example: Several resources need re-analysis, as follows: water quality, wetlands, and wildlife.

- ▶ Do not use a colon if the list follows a verb.

Example: The road improvements *include* a widened shoulder, new sidewalk, and new pedestrian crossing.

- ▶ Use to separate numbers.

Example: The vote passed 2:1.

4.4.8 Semicolon

- ▶ Use to link independent clauses not joined by a conjunction (and, but, for, yet).

Example: Alternative 1 affects 0.005 acre of wetlands and waters of the US; Alternative 2 affects 0.003 acre of wetlands and waters of the US.

- ▶ Use to link clauses joined by a conjunctive adverb (consequently, furthermore, however)

Example: Existing I-70 mainline and ramp operations are marginally acceptable; however, the eastbound off-ramp



intersection with Youngfield Street operates at LOS F [or failing] during the afternoon peak hour.

- ▶ Use to separate phrases that contain commas

Example: Portland, Oregon; Springfield, Illinois; and Savannah, Georgia.

- ▶ Place semicolon outside of quotations and parentheses

Example: The speed limit is currently 65 miles per hour (mph); an increase to this limit may be considered in the future.

4.4.9 Quotation Marks

- ▶ Use to set off word-for-word quoted material from another source
- ▶ Punctuation associated with the quoted material should be included inside the quotation marks.
- ▶ Cite the source directly after the quote, but do not include within the quotation marks.

Example 1: "Construction of the Chatfield Dam began in 1967" (Source, Date, page number).

Example 2: Mid-sentence quote: According to the report, "Water quality in the South Platte River has improved" (Source, Date, page number), although no specific water quality data was provided.

Example 3: End of the sentence quote: The Colorado Department of Public Health and Environment (2001) reported "improved water quality in Sand Creek" (page number).

- ▶ Use an ellipsis (i.e., ...) when omitting material from a quotation.

Example : As summarized by Baker and Knight (2000), "...road density exhibits an apparent threshold of 0.37 miles per square mile, above which natural populations of certain large vertebrates decline" (p.98).

Reference your standard style guide of choice for more specific information on quotation marks. Section 7.0 provides a list of the standard reference style guides.





5.0 COMMONLY MISUSED WORDS AND EXPRESSIONS

This chapter addresses more than just the misuse of English grammar and words. It also addresses style. To communicate effectively, you want to make clear, definite statements. This means that you must have a clear and definite understanding of the words that you use and how you use them.

- ▶ **About. Approximately.** About is an estimate and less exact than approximately, which implies an attempt at calculation.

- ▶ **Accept. Except.** Accept is a verb meaning "to receive."

Example: They accepted the offer of assistance.

Except means "other than" or "excluding."

Example: All roads, except Gunther Avenue, will be repaved.

- ▶ **Aesthetic. Esthetic.** Aesthetic is preferred.

- ▶ **Affect. Effect. Impact.** Affect is a verb meaning "to influence" or "to change." It is rarely used as a noun. Effects and impacts are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

- ▶ *Example:* The weather may affect construction.

Effect is used as a noun meaning "result" or "outcome."

Example: The effects of heavy rain would be runoff.

Effect can also be used as a verb meaning "to bring about," "to accomplish."

Example: The heavy rain effected substantial flooding and runoff.

As a noun, impact means "the force of impression of one thing on another: a significant or major effect." It is a much stronger word than effect; use it accordingly. In most of your document writing, you will not use impact as a verb, which refers to pressing things together, such as impacted teeth. (**Incorrect:** The project impacted the subdivision. **Correct:** The project affected the subdivision.)





- ▶ **Aggravate. Irritate.** To aggravate is “to make worse, more serious, or more severe.” To irritate is “to provoke” or “to annoy.”
- ▶ **Among. Between.** Among implies more than two. Between implies only two.
- ▶ **And/or.** This is a shortcut that is discouraged. The meaning can almost always be better put, with less ambiguity.
- ▶ **Apparent. Evident. Obvious.** All refer to something easily perceived. Apparent applies to that which can readily be seen or perceived: an apparent effort. Evident applies to that which facts or circumstances make plain: His innocence was evident. Obvious applies to that which is unquestionable, because of being completely manifest or noticeable: an obvious change of method.
- ▶ **Archaeology. Archeology.** Archaeology is preferred.
- ▶ **Assure. Ensure. Insure.** Ensure, insure, and assure are synonyms and interchangeable in many contexts where they indicate the making certain or inevitability of an outcome.

Example: Changing the alignment will ensure that all impacts to wetlands are avoided.

Insure sometimes stresses the taking of necessary measures beforehand (such as an insurance policy).

Example: The project contractor is properly insured.

Assure distinctively implies the removal of doubt and suspense from a person’s mind (a guarantee of an outcome.)

Example: The contractor assured the project manager that the project schedule will be met.

- ▶ **Being.** Do not use after “regard as”. (**Incorrect:** This location is regarded as being the best. **Correct:** This location is regarded as the best.)
- ▶ **build alternatives.** Notice the capitalization of this term. Build Alternative is the name of a specific alternative and a proper noun (capitalize); build alternatives is not specific and refers to a group of alternatives (do not capitalize). Capitalize when referring to a specific alternative, such as Alternative 2.
- ▶ **But.** Do not use after doubt or help. (**Incorrect:** no doubt but that; could not help but see. **Correct:** no doubt that; could not help seeing.)





- ▶ **Can. May.** Means “am (is, are) able.” Do not use in place of may, which expresses permission or possibility.
- ▶ **Capitol. Capital.** Capitol refers to the building or group of buildings in which state government functions are conducted, while capital refers to accumulated goods, net worth, a letter, or the city serving as a seat of government.
- ▶ **City of...** When referring to a city, do not use the construction City of...unless you are referring to the city government. Simply write the name of the city. (**Incorrect:** The City of Lakewood is located west of the City and County of Denver. **Correct:** Lakewood is located west of Denver. **Incorrect:** Denver is improving pedestrian and bike lanes throughout the city. **Correct:** The City and County of Denver is improving pedestrian and bike lanes throughout the city.)
- ▶ **Clearance. Clearances.** These words should generally be avoided as they imply that all review and analysis is complete and never has to be revisited.. Examples of preferred wording would be “...compliance with the Historic Preservation Act...and...consultation with appropriate agencies.”
- ▶ **Commonly. Generally. Usually.** All words can be used to describe something that occurs more often than not.
Example: Generally, a site visit will be required for a new project.
- ▶ **Typically.** Use to describe something that occurs in a typical manner or circumstance.
Example: Typically, the public comment period lasts 30 days.
- ▶ **Criterion. Criteria.** Criterion is singular and criteria is plural.
- ▶ **Data. Datum.** Data is plural and is best used with a plural verb. (These data are...). Data is the plural of datum.
- ▶ **Different than.** Than is not the correct preposition. It should be different from.
- ▶ **Disinterested.** Do not confuse this word with uninterested, which means “not interested in.” Disinterested means “impartial” or “unbiased.”
- ▶ **E.g., I.e., Etc.** E.g. is an abbreviation for “for example”. I.e. is an abbreviation for “that is”. Etc. is an abbreviation for “and so forth”. Always use commas after these abbreviations. If your sentence includes, “e.g.”, do not follow this with “etc.”, because this would be repetitive.





- ▶ **Fact. Information.** Use this word only when referring to something “actual” or “verifiable.” This word should not be used in matters of judgment (e.g., the fact that the location is beautiful). Information is the knowledge obtained from investigation, study, or instruction and can include **facts** and **data**.

- ▶ **Facility.** Avoid this word. Use the specific word, such as hospital, office, church, gymnasium, and school instead of facility, unless there are multiple facilities to which you are referring.

Example: There are several important community facilities in the project area.

- ▶ **Farther. Further.** Farther is best used when referring to distance. Further is best used when referring to time or quantity.

Example: “Hard” ground is more reflective and will produce louder sound levels farther from the source. The proposed development, combined with projected regional growth, will place additional traffic demands on the interchange that will further degrade operations.

- ▶ **Foreseeable future.** This phrase is intended primarily to be used in conjunction with cumulative impacts (40 CFR 1508.7). Avoid using this phrase in other contexts. Be specific.

- ▶ **However.** Do not use the word “however” at the beginning of a sentence when you actually mean “nevertheless.” “However” generally works best when not placed in the first position.

- ▶ **Imply. Infer.** These words are not interchangeable. To imply is “to suggest” or “to indicate” something without expressing it. To infer is “to deduce” or “to arrive at a conclusion by reasoning from evidence.”

- ▶ **Irregardless. Regardless.** Do not use irregardless. It is an American dialectal term for regardless. Although it is becoming more accepted in speech, it is not appropriate for print. Use regardless.

- ▶ **Its. It’s.** Its is a possessive pronoun.

Example: CDOT is a state government agency. Its mission is to improve mobility across Colorado.

It’s is the contraction of it is. The use of “it’s” should be avoided in technical writing.

Example: It’s too early to develop specific relinquishment details for each build alternative.





- ▶ **-ize.** Avoid “izing.” Unfortunately, this suffix is added to many words: finalize, educationalize, containerize, prioritize, utilize. Do not apply -ize to a noun to create a verb. You will often find that a useful verb already exists. Consult your dictionary or thesaurus for better options.
- ▶ **Less. Fewer.** Less refers to value, degree, or amount. Fewer refers to countable items.
- ▶ **Lie. Lay.** Lie means “to occupy a certain relative place or position or to have a place in relation to something else.” Avoid using the word lay.

Example: The project area lies north of Denver.

- ▶ **Like.** Do not use for the conjunction as. (**Incorrect:** Biologists will complete protocol surveys, like CPW requires. **Correct:** Biologists will complete protocol surveys, as required by the CPW.)
- ▶ **Mitigate.** Mitigate is a verb meaning “to cause to become less harsh or hostile,” and should normally not be attached to a preposition (i.e., mitigate for, mitigate against). Also make sure you refer mitigation to the correct noun. Do not mitigate for the kit fox; instead, mitigate effects on the kit fox.
- ▶ **Neither...nor.** Use this construction only when connecting a subject of two or more singular words.

Example: Neither air quality nor water quality would be impacted.

- ▶ **Nor.** After a negative expression, the correct word is or. (**Incorrect:** CDOT would not relocate any farm nor business without providing proper relocation services. **Correct:** CDOT would not relocate any farm or business without providing proper relocation services.)
- ▶ **Numerous. Many. Several. Various.** Use numerous or many to describe something that consists of great numbers of units or individuals (e.g., numerous accidents have occurred on this stretch of road) Use several to describe something that has an indefinite number more than two and fewer than many. Use various to describe something that has an indefinite number greater than one (e.g., various methods of public outreach will be implemented).
- ▶ **One of the most.** There is nothing wrong with the grammar here. This is just an empty phrase. Try omitting it and see if it takes away from the meaning of your sentence—in most cases it will not.
- ▶ **Over. More than.** Over implies position. Do not use over when you mean more than.





Example: There are more than 250 businesses in the project area.

- ▶ **Percent. Percentage.** %. Percent means “per hundred.” Percentage means “proportion or share in relation to a whole.” The symbol, %, is only acceptable in tables or figures. Do not use the symbol in the document text.
- ▶ **Possess.** This word sounds more impressive than have or own, which is exactly why it should be avoided.
- ▶ **Principal. Principle.** When used as a noun, principal means “a person in authority.” As an adjective, it means “chief,” “main,” or “most important.” Principle is a noun only, and means “rule,” “code,” or “doctrine.”
- ▶ **Proposed Action. Preferred Alternative.** The proposed action is the action that CDOT proposes to take. The Preferred Alternative is how you accomplish the proposed action – construct a four-lane arterial roadway.
- ▶ **Respective. Respectively.** These words can usually be left out and the sentence restructured. In most cases, this will enhance clarity and readability.
- ▶ **Right-of-way (ROW).** The term right-of-way should always be hyphenated and lowercase (unless at the beginning of a sentence or part of a title). The acronym, however, is not hyphenated. The plural is rights-of-way.
- ▶ **Signalize.** This bit of jargon, which means “to install traffic signals,” can be done away with. Why not simply install traffic signals? This wording does not take away from the technical meaning of the term, and improves clarity and general understanding.
- ▶ **Significant.** Avoid using significant in environmental documents, as this has a specific meaning under NEPA (42 United States Code [USC] 4321 et seq). Substantial is usually an appropriate substitute. Use subjective words carefully in your documents.
- ▶ **Than. Then.** These two words are often confused. Then generally means “at that time” or “next in order of time or position.” Than is a term used for comparison. Be careful not to leave out any necessary words when using than in a sentence; it can cause ambiguity. (**Incorrect:** Alternative 1 would affect air quality more than Alternative 2 [grammatically, this means that Alternative 1 would affect air quality more than Alternative 1 would affect Alternative 2]. **Correct:** Alternative 1 would affect air quality more than Alternative 2 would.)



- ▶ **That. Which.** Use that for restrictive clauses (those that cannot be removed without distorting the meaning of a sentence). Use which for nonrestrictive clauses (those that can be put in parentheses or removed). Which is normally set off by commas.
- ▶ **Transpire.** This word is often incorrectly used to mean “happen” or “come to pass.” The correct meaning is “to be revealed” or “to become known.”
- ▶ **Who. That/Which.** Use “who” to refer to human beings and animals with a given name. That and which are used to refer to inanimate objects or animals without a given name.
- ▶ **Windshield Surveys.** This term should either be avoided or defined when it is used. To the average reader this would imply a survey of windshields, when it actually means a survey conducted by driving by a site and visually inspecting it from the automobile.
- ▶ **Would. Will. Shall.** Use “would” in all cases where no definite course of action has been decided. Use “will” only when a definite course is known, or with the qualifier if. (**Incorrect:** CDOT would build a soundwall adjacent to the residential area. **Correct:** CDOT will build a soundwall adjacent to the residential area.) Avoid the use of shall. Please note that mitigation requirements are commitments, while impacts are not considered definite until a Preferred Alternative is selected.
- ▶ **Verbal. Oral.** Verbal applies to spoken rather than written words. Oral applies only to spoken words.



6.0 LIST OF HELPFUL RESOURCES

Improving the Quality of NEPA Documents

American Association of State Highway and Transportation Officials (AASHTO), American Council of Engineering Companies (ACEC), and Federal Highway Administration (FHWA). 2006. Improving the Quality of Environmental Documents. May. Retrieved December 2012 from http://www.environment.fhwa.dot.gov/projdev/pd_doc_quality.asp

Ready-Friendly Document Tool Kit

Washington Department of Transportation. 2008. Ready-Friendly Document Tool Kit. June. Retrieved December 2012, from: <http://www.wsdot.wa.gov/Environment/ReaderFriendly.htm>

Standard Reference Style Guides

American Psychological Association. 2009. Publication Manual of the American Psychological Association, 6th Edition. July.

Modern Language Association of America (MLA). 2008. MLA Style Manual and Guide to Scholarly Publishing, 3rd Edition. June.

MLA. 2009. MLA Handbook for Writers of Research Papers, 7th Edition. March.

University of Chicago Press. 2010. The Chicago Manual of Style, 16th Edition. August.





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- Council on Environmental Quality (CEQ). 1978. National Environmental Policy Act (NEPA) Regulations. 40 Code of Federal Regulations (CFR) § 1500 – 1508. Retrieved December 2012 from http://ceq.hss.doe.gov/nepa/regs/ceq/toc_ceq.htm.
- Federal Highway Administration (FHWA). Technical Advisory T 6640.8A. 1987. Guidance for Preparing and Processing Environmental and Section 4(f) Documents. October 30. Retrieved December 2012 from <http://www.environment.fhwa.dot.gov/guidebook/vol2/doc7i.pdf>.
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APPENDIX D
QUALITY ASSURANCE (QA)/QUALITY CONTROL (QC)
GUIDANCE FOR NEPA DOCUMENTS

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APPENDIX D QUALITY ASSURANCE (QA)/QUALITY CONTROL (QC) GUIDANCE FOR NEPA DOCUMENTS CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	D-1
1.1 PURPOSE	D-1
1.2 SCOPE	D-2
1.3 ENGINEERING DESIGN AND ENVIRONMENTAL ANALYSIS	D-3
2.0 PROJECT MANAGEMENT	D-4
2.1 PROJECT TEAM	D-4
2.2 PROJECT TEAM RESPONSIBILITIES	D-5
2.2.1 PROJECT MANAGER	D-6
2.2.2 QUALITY ASSURANCE MANAGER	D-6
2.2.3 HIGHWAY DESIGN TASK LEAD	D-6
2.2.4 TRANSPORTATION ANALYSIS TASK LEAD	D-7
2.2.5 ENVIRONMENTAL/PUBLIC INVOLVEMENT TASK LEAD	D-7
2.2.6 TECHNICAL EDITOR	D-8
3.0 RECORDS AND DOCUMENTS	D-9
3.1 GUIDELINES FOR DOCUMENT RETENTION	D-9
3.2 FORMAT FOR TITLES OF ELECTRONIC FILES	D-11
3.3 AUDIT	D-12
3.4 OPEN RECORDS REQUEST	D-12
4.0 QUALITY ASSURANCE PROCESS	D-13
4.1 NEPA DOCUMENT REVIEW QUALITY ASSURANCE PROCESS	D-13
5.0 SUMMARY	D-15
6.0 REFERENCES	D-16



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1.0 INTRODUCTION

The Colorado Department of Transportation (CDOT) is strongly committed to sound engineering design, application of sound scientific principles in its analyses, and the production of quality documents. This Quality Assurance (QA)/Quality Control (QC) guidance for National Environmental Policy Act (NEPA) documents is designed to provide a functional and easily understood set of guidelines to maintain and ensure quality during the preparation of NEPA documents including: Categorical Exclusion (CatEx) documentation, Environmental Assessments (EA), and Environmental Impact Statements (EIS). These documents are public documents that are referenced by private individuals, companies, government agencies, and non-governmental organizations. The public nature of these documents requires them to be based upon accurate technical information and environmental analysis, to be well-written, easy to read, and to provide full and honest disclosure.

Quality Assurance is the process that is followed to ensure the preparation of quality NEPA documents, while Quality Control refers to the systems in place to evaluate quality.

1.1 Purpose

The purpose of QA is to ensure that the project team's processes are sound and that QC is properly provided on every project. In other words, QA is an oversight (or audit) function to make sure that QC is being properly conducted. The purpose of this QA/QC guidance is to provide a framework to ensure that:

- ▶ Quality work is consistently performed and that quality deliverables are consistently produced
- ▶ Multi-disciplinary data acquisition and design efforts are coordinated
- ▶ Design is sufficiently complete to produce a planning-level cost estimate for the purposes of project funding and supporting the impact and mitigation analysis in a NEPA document
- ▶ Project continuity occurs in record-keeping and document review
- ▶ Orderly procedures are established to provide QC for engineering design and scientific calculations, drawings, and specifications
- ▶ Environmental and design attributes meet established industry or agency standards and comply with applicable agency requirements



“To provide the best multi-modal transportation system for Colorado that most effectively moves people, goods and information”

-CDOT’s Mission Statement



“The ultimate goal is to produce better NEPA documents for public use, improve the legal defensibility of the document and process, comply with the intent of NEPA, and make better project decisions.”

-AASHTO/ACEC/FHWA
Improving the Quality of
Environmental Documents





- ▶ Project documents have undergone the necessary technical editing (including grammar, punctuation, and spelling), proofreading, and editorial process

1.2 Scope

A QA/QC plan shall be prepared for each project. The intent of the QA/QC plan is to specify all QA/QC activities that will be implemented for work on the project. Just as CatEx, EA, and EIS documents vary in scope and complexity, the QA/QC plan prepared will be project-specific and tailored to meet the needs of the project and project team. Since professional staff at CDOT, consultants working on CDOT projects, and local agency staff are the primary audiences for this Manual, the objective of this guidance is not to be overly prescriptive. The author of the QA/QC plan should be defined in the project-specific scope of work. Example QA/QC Table of Contents from projects QA/QC plans are included in **Attachments 1 and 2**.

At a minimum, CDOT recommends the QA/QC plan contain the following sections:

- ▶ Name of the Quality Assurance Manager (defined in **Section 2.2**)
- ▶ Name of a designated staff member to conduct the technical editing of the NEPA document, including technical memoranda, reports, and supporting documentation, prior to CDOT, the Federal Highway Administration (FHWA), and other agency review. This may be the same person as the Quality Assurance Manager.
- ▶ Brief description of the project scope of work and key deliverables
- ▶ Project leadership organization chart
- ▶ Names of the Project Manager and each major discipline task manager, including sub-consultants and/or vendors
- ▶ One major point of contact from the project team who will be responsible for coordination between the project team, CDOT, FHWA, and other agencies
- ▶ Concise discussion of the responsibilities of the Project Manager and each major discipline task manager
- ▶ Project team contact list
- ▶ Outline of the filing system to be used for the project, including procedures for geographic information system (GIS) data management, computer aided design and drafting (CADD) data management, and computer file maintenance, as appropriate



Planning is the beginning.
Quality in work is not an accident.



CDOT has committed to complying with the intent and requirements of NEPA for all transportation activities, regardless of whether or not they are federally funded.

-CDOT Environmental Stewardship Guide



- ▶ Verify that all environmental and design attributes meet established industry or agency standards and comply with all applicable jurisdictional codes and requirements
- ▶ Ensure engineering design is sufficiently complete to produce a preliminary, planning-level cost estimate for the purposes of project funding (for complete design, construction, and implementation of required mitigation) and to support environmental analysis
- ▶ Summary of the procedures to be used for document proofreading, quality, and completeness and accuracy. **Chapter 8** of this Manual establishes a procedure for FHWA and CDOT review of documents prepared for CDOT NEPA projects.

1.3 Engineering Design and Environmental Analysis

CDOT is committed to maintaining the quality and integrity of the engineering design and environmental analyses performed in support of the NEPA process. The purpose of this section is to acknowledge that engineering design and environmental analysis have resource specific QA/QC protocols that need to be applied but are not defined in this guidance. Engineering design will conform to the applicable standards of CDOT unless directed otherwise by the CDOT Project Manager. Additional information on the QC processes for engineering design is included in the CDOT Project Development Manual (CDOT, 2013).

Due to the volume and variety of environmental data collected and analyses performed for a NEPA project (wetlands, historic properties, water quality, noise, air quality, hazardous materials, farmlands, etc.), CDOT does not mandate a specific QC process for these activities. However, CDOT expects the environmental analyses performed to be in accordance with industry standards and for these analyses to be conducted by a person(s) who possesses sufficient specific education, training, and experience necessary to exercise professional judgment and develop opinions and conclusions that are sufficient to meet industry standard objectives and performance factors in accordance with the appropriate guidance for each resource. Additional information on specific data requirements and methodologies for these environmental resources is included in **Chapter 9** of this Manual.





2.0 PROJECT MANAGEMENT

CDOT expects the project team for all NEPA projects to accomplish the work in an effective and timely manner. Proactive project management is essential to plan, monitor, and control all aspects of a project, including the project team, to produce a quality document on time and within budget. Key components of the project management philosophy are:

- ▶ Comprehensive project scoping
- ▶ Collaborative public process
- ▶ Project team identification
- ▶ Dedication to product quality and defensibility
- ▶ Estimating and budgeting
- ▶ Scheduling
- ▶ Monitoring progress and performance
- ▶ Taking corrective action as required

For additional information on project management expectations, the *Generic Scope of Work Basic Contract* (CDOT, 2011) references project management and coordination requirements on a project-specific basis.

2.1 Project Team

The QA/QC plan should be prepared at the beginning of a project. Following review and approval by the CDOT Project Manager, the QA/QC plan should be distributed to all project team members to serve as a virtual blueprint for the project and a reference source for all project team members, CDOT, FHWA, and other agencies. To ensure an understanding of work flow and coordination responsibilities, a project leadership organization chart is recommended for inclusion in the QA/QC plan. An example project leadership organization chart is shown in **Figure 2-1**.



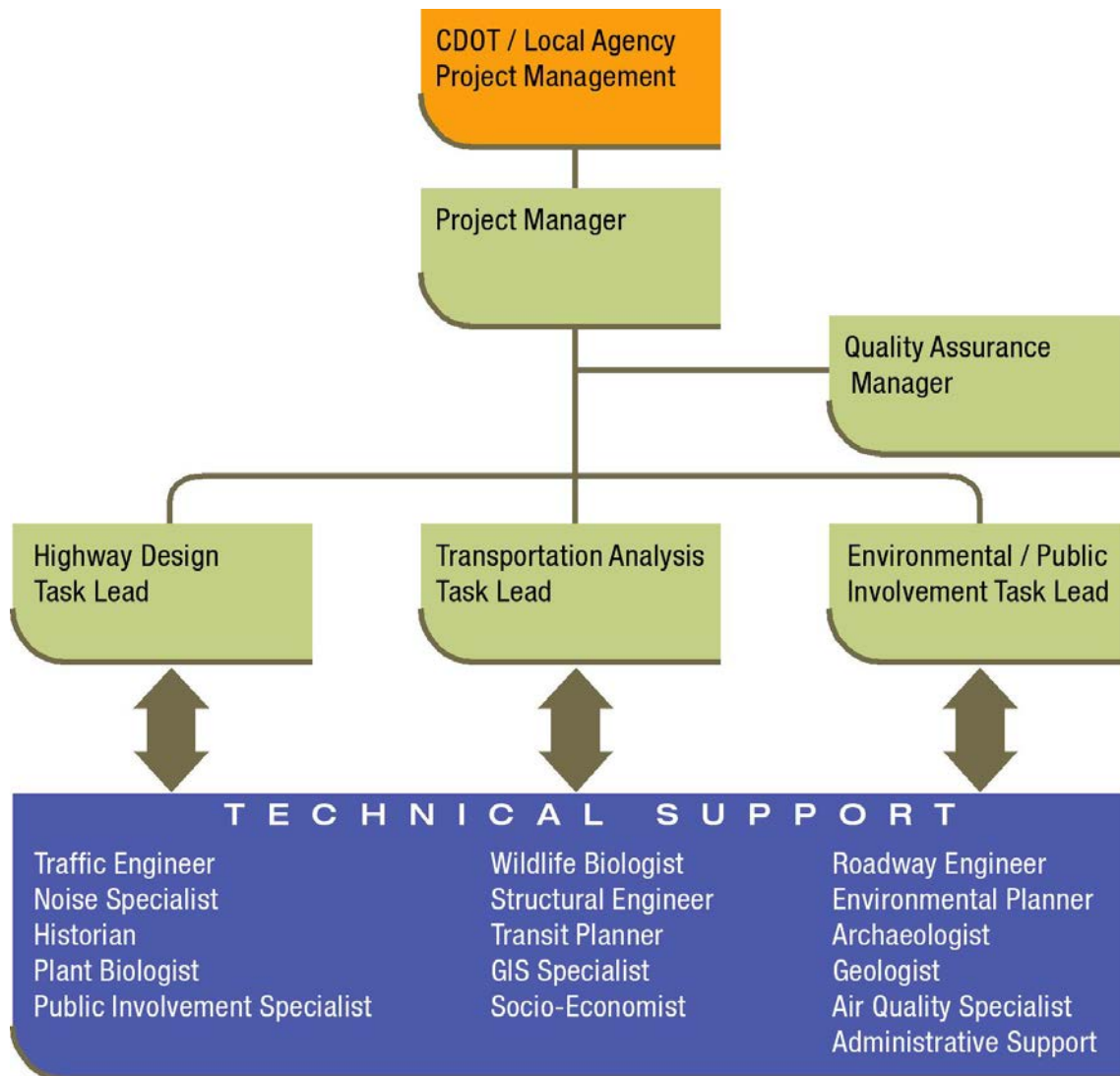
“The best way to eliminate quality problems is to minimize the chance of making mistakes with good planning, adequate preparation, and the necessary support.”

-PSMJ Resources, Inc. The Ultimate Project Management Manual





Figure 2-1 Project Leadership Organization Chart



2.2 Project Team Responsibilities

It is important that each party in a NEPA project understand their role and role definition to meet the quality expectations of the project. It is the responsibility of project team members to follow the procedures outlined in their project-specific QA/QC plan and work efficiently with one another during the preparation of the NEPA documents. As an example, specific positions and associated responsibilities are summarized below.





2.2.1 Project Manager

The Project Manager shall:

- ▶ Prepare periodic project schedule updates
- ▶ Hold internal staff meetings, as necessary, to keep the project on schedule
- ▶ Communicate with the CDOT or Local Agency Project Manager, QA Manager, and Highway Design, Transportation Analysis, and Environmental/ Public Involvement Task Leads
- ▶ Organize monthly project management meetings, prepare agendas, and prepare meeting notes
- ▶ Prepare "to do" action item lists
- ▶ Develop and maintain project files to document the NEPA process and important decisions
- ▶ Coordinate with the CDOT or Local Agency Project Manager on preparation of the Administrative Record, if necessary
- ▶ Prepare monthly invoicing
- ▶ Notify the CDOT or Local Agency Project Manager immediately when tasks beyond the scope may be necessary
- ▶ Ensure that QC procedures are followed for engineering design, environmental analyses, and NEPA document preparation



"Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in Environmental Impact Statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusion in the statement."

-Council on Environmental Quality (CEQ) Regulations 40 Code of Federal Regulations (CFR) 1502.24

2.2.2 Quality Assurance Manager

The QA Manager shall:

- ▶ Coordinate the QA/QC processes with the Project Manager
- ▶ Maintain and ensure product quality during preparation of the NEPA documents
- ▶ Track when and how technical reviews have occurred
- ▶ Ensure that QA/QC processes have been followed

2.2.3 Highway Design Task Lead

The Highway Design Task Lead shall:

- ▶ Communicate with the Project Manager on meeting the project schedule in relation to highway design tasks
- ▶ Hold internal staff meetings as necessary in relation to highway design tasks





- ▶ Develop and maintain project files in relation to highway design tasks
- ▶ Oversee refinement and screening of the alternatives that will generally satisfy current and projected transportation needs
- ▶ Coordinate between roadway, structures, and hydraulic design team members for the alternatives
- ▶ Ensure QC procedures are followed during engineering design in accordance with applicable CDOT standards

2.2.4 Transportation Analysis Task Lead

The Transportation Analysis Task Lead shall:

- ▶ Communicate with the Project Manager on meeting the project schedule in relation to transportation analysis tasks
- ▶ Hold internal staff meetings as necessary in relation to transportation analysis tasks
- ▶ Develop and maintain project files in relation to transportation analysis tasks
- ▶ Oversee transportation analysis for refinement and screening of the alternatives that will generally satisfy current and projected transportation needs
- ▶ Ensure QC procedures are followed during transportation analysis in accordance with applicable CDOT standards

2.2.5 Environmental/Public Involvement Task Lead

The Environmental/Public Involvement Task Lead shall:

- ▶ Communicate with the Project Manager on meeting the project schedule in relation to environmental/public involvement tasks
- ▶ Hold internal staff meetings as necessary in relation to environmental/public involvement tasks
- ▶ Develop and maintain project files in relation to environmental/public involvement tasks
- ▶ Oversee the evaluation and documentation of the social, economic, and environmental impacts of the alternatives
- ▶ Facilitate preparation of the NEPA document and associated technical reports/technical memoranda



Environmental Impact Statements shall be written in plain language and may use appropriate graphics so that decision-makers and the public can readily understand them. Agencies should employ writers of clear prose or editors to write, review, or edit statements, which will be based upon the analysis and supporting data from the natural and social sciences and the environmental design arts.

-CEQ Regulations 40 CFR 1502.8





- ▶ Oversee the environmental resource specialists and subconsultants for identification of existing conditions, environmental impacts, and mitigation
- ▶ Coordinate public involvements tasks, such as maintaining the project mailing list, with the project team
- ▶ Ensure QC procedures are followed for environmental analysis in accordance with established industry or agency standards

2.2.6 Technical Editor

The Technical Editor shall:

- ▶ Develop a consistent “look and feel” for the NEPA documents
- ▶ Review and edit each of the NEPA documents for ease of understanding, spelling, grammar, punctuation, and overall flow, consistency, and use of one voice
- ▶ Provide QC for NEPA documents



3.0 RECORDS AND DOCUMENTS

In accordance with the American Association of State Highway and Transportation Officials (AASHTO) Practitioner's Handbook 01 *Maintaining A Project File And Preparing An Administrative Record For A NEPA Study* (AASHTO, 2006), the term "project file" refers to the files maintained by the project team during the NEPA process. The term "administrative record" refers to the documents that are actually submitted by an agency upon request of another party. The goal in managing the project file will be to facilitate development of the Administrative Record if necessary.

The project team must manage document storage, search existing documents, and extract information as necessary to streamline workflow and acquire important information. Document management requires the implementation of document control procedures to track documents generated, file documents, and provide access to previously generated documents. The project file consists of both hard copy and electronic files. CDOT does not currently have a policy for the retention of draft documents. The QA/QC plan should be prepared to be project-specific and tailored to meet the needs of the project and project team. The following sections provide an example of document retention guidelines, as well as potential electronic file naming protocols.

3.1 Guidelines for Document Retention

- ▶ A copy of all documents related to the project and the NEPA process are to be forwarded to the Project Manager or their designee who is responsible for document control. This includes all correspondence, data, reports, substantive e-mails relating to the process or the project, telephone records, meeting minutes and notes. It also includes digital files, such as GIS and CADD data, which will be maintained in accordance with the procedures outlined in the CDOT CADD Manual (CDOT, 2011). The CDOT Corridor GIS Standards (CDOT, 2001) defines standards for GIS data to coordinate efforts for GIS data creation and compilation to eliminate duplicative efforts, increase data accuracy, streamline project reviews, and document the history of design/construction data. The CDOT CADD Manual (CDOT, 2011) provides standardized procedures for CADD and associated electronic files to facilitate the exchange of information between CDOT regions, specialty groups, and consultants. These documents will be logged in and become a part of the project's document control files.
 - Public Involvement documents. Documents related to public involvement including notices of meetings, committee meeting



Maintaining an accurate and up-to-date project file is an important task in any NEPA study, regardless of whether litigation is anticipated.

-AASHTO Practitioner's Handbook 01 *Maintaining a Project File and Preparing an Administrative Record for a NEPA Study*



Draft reports should be labeled draft and include "Working Draft – Do Not Cite or Distribute" in the header or footer.





- minutes, and correspondence. Public comments will be included in document control, and may be included in the Administrative Record depending on their content. Appropriate correspondence to include will be determined by project management or technical support personnel.
- Correspondence between FHWA and CDOT. Important issues related to final FHWA decisions will be resolved by letter. E-mails between FHWA and CDOT will be included in document control, and may be included in the Administrative Record depending on their content. Appropriate correspondence to include will be determined by project management or technical support personnel.
 - Correspondence between CDOT, FHWA, and other agencies.
 - All reports, data, and memorandums that were prepared to provide detail to supplement information presented in the NEPA document.
 - All documents related to internal processes that lead to a decision or a change in direction for the project.
 - NEPA documents and any amendments or supplements.
- ▶ When documents are sent to the Project Manager or their designee, project team members must give these documents designations in keeping with the Document Filing Codes (**Table 3-1**). For example, members must consider which documents were used as a resource to conduct analyses, create mapping, etc. The Project Manager or their designee will decide whether the document will be allocated to the Administrative Record.
 - ▶ All e-mails relating to the process or the project that are determined to be non-substantive by individual contributors are to be saved in separate folders labeled "e-mails". Then on a weekly or monthly basis the individual contributors import all of these stored e-mails. This process is necessary because some e-mails will be subject to requests made under the Colorado Open Records Act, even if they are not part of Document Control or the Administrative Record.
 - ▶ All documents that project staff consider as confidential, or that a third party has asked to keep confidential, such as locations of certain cultural resources, should be marked "CONFIDENTIAL" and kept in a separate file. The team is required by law to produce a "Vaughn" list regarding those documents. A Vaughn list includes: the type of document, the date of the document, who prepared the document, a brief description of the subject matter or the



The project file allows the project team to locate important documents quickly, which reduces inefficiency and duplication of effort, while also reducing the risk of overlooking information. The project file also enables an agency to respond to document requests under the Freedom of Information Act (FOIA) and similar State public records laws.

-AASHTO Practitioner's Handbook 01 Maintaining a Project File and Preparing an Administrative Record for a NEPA Study



Poor organization and format are frequent criticisms of NEPA documents. Organization and format should help the reader easily understand document content.

-NCHRP 25-25(01)



document's contents, who has received copies of the document, and the grounds for claiming that the document is confidential.

3.2 Format for Titles of Electronic Files

Documentation related to NEPA projects include letters, memorandums, facsimiles, phone logs, electronic mail, transmittal letters, meeting agendas, meeting minutes, technical reports, and NEPA process documents. The following table provides suggested protocols for the naming of electronic files.

Table 3-1 Format for Titles of Electronic Files

Document Type	Formatting	Example
Letters	LTR – Subject-Author-Date	LTR – Water quality SJS 040404.doc
Reports	RPT – Subject Author Rev Date	RPT – Draft EIS TA 040404.doc
Memo	MEM – Subject Author Date	MEM – Open House 2 HM 050104
Facsimile	FAX – From-Subject Date	FAX – VH Open house 050104
E-mail	EMA – From Subject Date	EMA – Sub-Consultant Agreement 050104
Drawing	DWG – name-date	DWG-Alternative 1-060907
Presentation	PPT – Subject date rev	PPT – Small Grps 050104 Rev 2
Agenda	AG– Title Date	AG– TAC 070604.
Meeting Minutes	MM– Title date	MM– PM 061004
Agreements	AGM – Company Date	AGM – FHU 061004
Directories	DIR – Title Date	TAC – Member Directory 061004
Small Groups	SMG – Group Date	SMG – Ft. Collins Chamber 040104
News Releases	NEW – Title Date	NEW – New Highway 010404
Public Open Houses	OPN – Description Date	OPN – Comments Sheet 061004
Purpose & Need	PAN – Description Date Rev	PAN – Draft 060404 Rev 4





3.3 Audit

To verify that the QA/QC plan has been followed, it is recommended that a third-party not involved in the project conduct an audit of the project. The objective of the audit is to identify strengths and weaknesses in the QA/QC plan and to develop protocols to improve the QA process. The project audit should verify that the QA/QC plan was followed, review documentation maintained by the designated QA Manager, and provide recommendations to improve QA.

3.4 Open Records Request

All of the documents discussed in **Section 3.2**, including personal notes and e-mails are subject to the Colorado Open Records Act and/ or Freedom of Information Act (FOIA). If a request is made under that statute, CDOT and the entire project team is required by law to respond to the request within 72 hours. Therefore, it is important for all team members to stay current on sending a copy of all documents related to the project and the NEPA process to the Project Manager or their designee. Implementation of a QA/QC plan should facilitate requests under the Colorado Open Records Act and/or FOIA. For additional questions related to FOIA, please contact: Carolyn Motzkus: Carolyn.motzkus@state.co.us.

All requests for information under the Colorado Open Records Request Act and/or FOIA are to be processed in the following manner:

- ▶ The request is sent to the CDOT Project Manager and to the CDOT Legal Assistant, with no action taken by the project team unless directed by them or their designee.
- ▶ Once directed, the project team develops an estimate of the cost to provide the requested information.
- ▶ Once CDOT receives the funds from the requesting party to cover the cost of providing the information, the project team prepares the information and a copy of it for CDOT records.
- ▶ The project team also develops a complete listing of the information provided and gives that list to CDOT.
- ▶ The project team keeps track of all costs associated with the production of the information and provides a full accounting of the costs along with the information.



CDOT will support and enhance efforts to protect the environment and quality of life for all of Colorado's citizens in the pursuit of providing the best transportation systems and services possible.

-CDOT's Environmental Ethics Statement



Colorado Open Records Act. 24 Colorado Revised Statutes (CRS) § 72

Freedom of Information Act. 5 United States Code (USC) § 552





4.0 QUALITY ASSURANCE PROCESS

A QA/QC plan provides a means to identify and correct errors and omissions before the NEPA documentation is provided to the public and other agencies for review. The project's size and complexity will determine the detail required of the plan. For simple projects, the plan may be only a few sentences outlining the required reviews, individuals to conduct the reviews, and the review milestones. The following section provides an example of a QA process for NEPA documents.

4.1 NEPA Document Review Quality Assurance Process

Sound QA procedures dictate that reports and other important documents are reviewed by someone other than the author. An example process to be followed for the NEPA documents is as follows (Figure 4-1):

Step 1# - Draft Review

- ▶ The Resource Specialist (author) prepares the Technical Reports/Memoranda.
- ▶ The Technical Editor, the Environmental/Public Involvement Task Lead, and/or peer reviews the report and return comments to the Resource Specialist (author).
- ▶ The Resource Specialist responds to comments received.

Step #2 – Final Review

- ▶ The Environmental/Public Involvement Task Lead verifies that comments have been responded to and conducts a final review of the document.

Step #3 – Report Submittal

- ▶ The Environmental/Public Involvement Task Lead or the Project Manager submits the document to FHWA and CDOT staff for review and approval

QA Manager Process Oversight

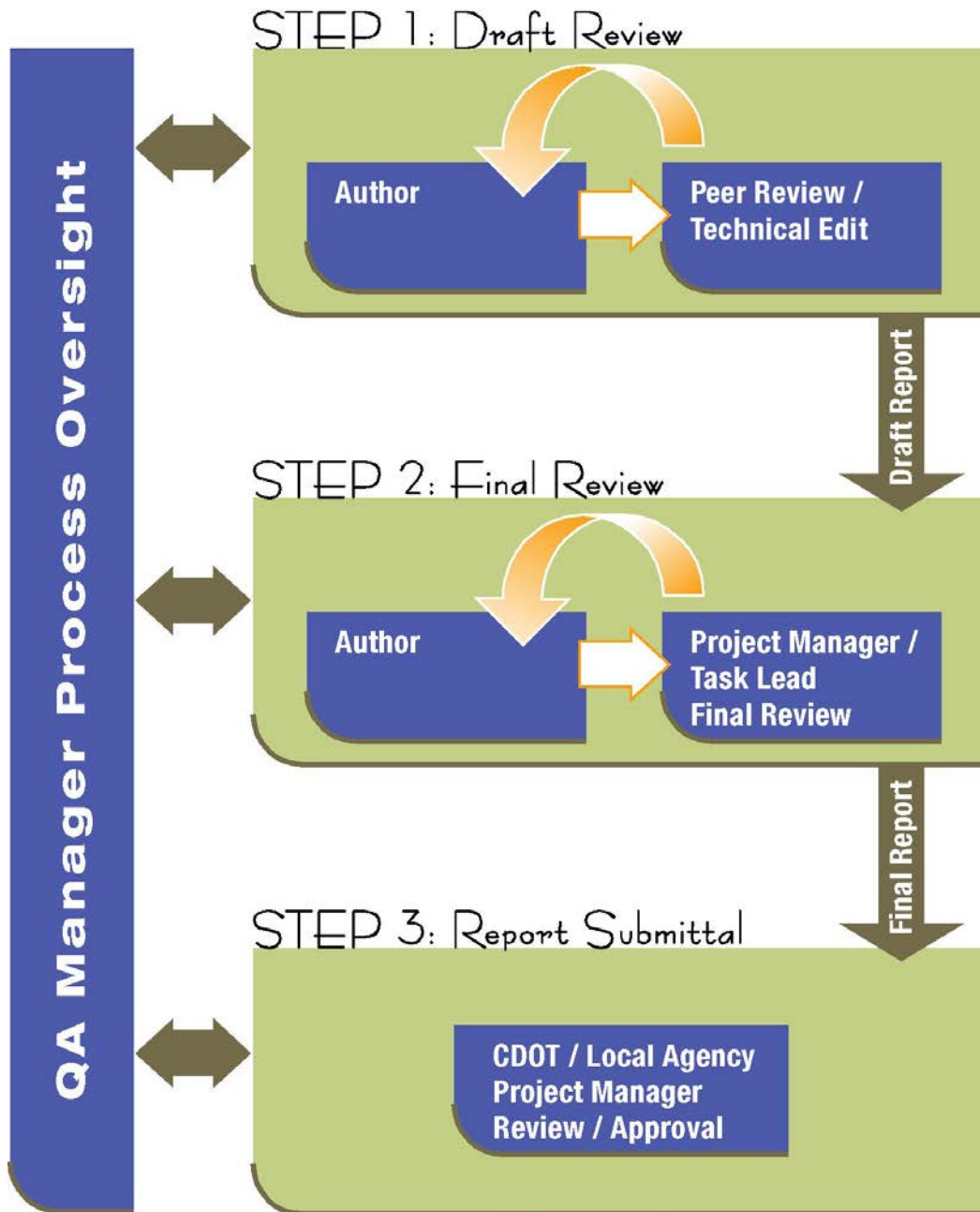
- ▶ Maintain and ensure product quality during preparation of the NEPA documents
- ▶ Track when and how technical reviews have occurred
- ▶ Ensure that QC processes have been followed
- ▶ Provide verification to Project Manager that QC processes have been followed, such as a hard copy with suggested changes



No matter how well a NEPA project is managed, some mistakes and omissions will occur.



Figure 4-1 Quality Assurance Process





5.0 SUMMARY

A QA/QC plan shall be prepared for each NEPA project and will cover all QA/QC activities that will be implemented for work on the project. The project's size and complexity will determine the detail required of the plan. This QA/QC guidance for NEPA documents is designed to provide a functional and easily understood set of guidelines to maintain and ensure quality during the preparation of NEPA documents and outline potential components of a project-specific QA/QC plan.





6.0 REFERENCES

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National Cooperative Highway Research Program, Transportation Research Board. 2005. NCHRP Project 25-25, Task 1, Synthesis of Data Needs for EA and EIS Documentation – A Blueprint for NEPA Document Content. January. Retrieved December 2012 from [http://www.trb.org/NotesDocs/25-25\(1\)_FR.pdf](http://www.trb.org/NotesDocs/25-25(1)_FR.pdf).

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**ATTACHMENT 1
NORTH I-25 EIS
QUALITY ASSURANCE PROGRAM
TABLE OF CONTENTS**



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NORTH I-25 EIS



information. cooperation. transportation.

QUALITY ASSURANCE PROGRAM

Prepared for:
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Region 4
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October 23, 2007
FHU Reference No. 07-190

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
1.1 PURPOSE OF THE PROGRAM.....	1-1
2.0 NEPA PROCESS.....	2-2
2.1 PURPOSE AND NEED.....	2-2
3.0 PROJECT MANAGEMENT.....	3-1
3.1 PROJECT SCOPING	3-1
3.2 PROJECT TEAM IDENTIFICATION.....	3-1
4.0 DOCUMENTATION CONTROL	4-1
5.0 ELECTRONIC FILE STORAGE AND FILE LABELING	5-5
5.1 ELECTRONIC DOCUMENT CONTROL	5-5
5.2 FORMAT FOR TITLES OF CORRESPONDENCE FILES	5-9
6.0 QUALITY ASSURANCE PROCESSES.....	6-1
6.1 QA PROCESS - HIGHWAY GROUP.....	6-1
6.2 QA PROCESS – TRAFFIC GROUP.....	6-3
6.3 QA PROCESS – TRANSIT GROUP.....	6-5
6.4 QA PROCESS – PUBLIC INVOLVEMENT	6-7
6.5 LIST OF REPORTS AND AUTHORS	6-10
6.6 ENVIRONMENTAL ANALYSIS AND NEPA DOCUMENTATION	6-12
6.6.1 NEPA RESOURCE RESPONSIBILITES OF CONSULTANTS	6-12
6.6.2 QA ROLES AND RESPONSIBILITIES.....	6-13
6.6.3 DESCRIPTION OF THE QA PROCESS.....	6-14

LIST OF FIGURES

		<u>Page</u>
Figure 2-1	North I-25 EIS Study Area-----	2-2
Figure 3-1	Project Leadership Organization-----	3-2
Figure 3-2	Project Team-----	3-3
Figure 6-1	QA Process Chart-----	6-15

LIST OF TABLES

		<u>Page</u>
Table 6-1	Highway Design Group-----	6-2
Table 6-2	Traffic Group-----	6-4

LIST OF APPENDICES

	<u>Page</u>
Appendix A – Current Checklist for Environmental Documents	A-1
Appendix B – Form 1	B-1



ATTACHMENT 2
QUALITY ASSURANCE/QUALITY CONTROL PLAN FOR THE
NORTH MEADOWS EXTENSION TO US 85 AND I-25 EA



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Quality Assurance/Quality Control Plan for the North Meadows Extension to US 85 and I-25

February 2008

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TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1
1.1 LIST OF REPORTS AND TECHNICAL MEMORANDA	1
2.0 PROJECT TEAM	3
2.1 PROJECT TEAM CONTACT	4
2.2 PROJECT TEAM CONTACT LIST	4
2.3 PROJECT TEAM RESPONSIBILITIES	4
3.0 PROJECT FILE	7
3.1 FILING	7
3.2 ELECTRONIC FILES	8
3.3 AUDIT	9
4.0 QUALITY ASSURANCE PROCESSES	11
5.0 GEOGRAPHIC INFORMATION SYSTEM (GIS) DATA MANAGEMENT	13
6.0 ENGINEERING DESIGN AND TRANSPORTATION ANALYSIS	15
7.0 REFERENCES	17



APPENDIX E AGENCY COORDINATION PLAN TEMPLATE

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Agency Coordination Plan

[__(TITLE HERE)___ Environmental Impact Statement]

[Project Logo(s)]

Prepared for:

Colorado Department of Transportation

[Federal Highway Administration (Colorado Division)]

In cooperation with

[List cooperating agencies]

PROJECT # **[Here]**

DATE **[Here]**

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APPENDIX E AGENCY COORDINATION PLAN TEMPLATE CONTENTS

	<u>Page</u>
1.0 PURPOSE OF AGENCY COORDINATION PLAN-----	E-1
2.0 PROJECT BACKGROUND -----	E-2
3.0 AGENCY RESPONSIBILITIES-----	E-3
4.0 INITIAL COORDINATION-----	E-5
4.1 Notice of Intent -----	E-5
4.2 Lead Agency and Joint Lead Agency-----	E-5
4.3 Cooperating and Participating Agencies-----	E-6
4.3.1 Cooperating Agencies -----	E-6
4.3.2 Participating Agencies -----	E-6
4.4 Other Interested Agencies and Organizations -----	E-7
4.4.1 Local Agencies and Organizations -----	E-7
4.4.2 Non-Participating Agencies and Organizations -----	E-7
4.5 Environmental Streamlining Collaboration Points-----	E-7
4.5.1 Collaboration Point 1 - Purpose and Need -----	E-8
4.5.2 Collaboration Point 2 – Project Alternatives to be Evaluated -----	E-8
4.5.3 Collaboration Point 3 – [Draft] NEPA Document -----	E-9
4.5.4 Collaboration Point 4 – Preferred Alternative and Preliminary Mitigation-----	E-10
4.5.5 Collaboration Point 5 – Final NEPA document -----	E-11
4.6 Other Opportunities for Agency Involvement -----	E-11
4.6.1 Newsletters -----	E-11
4.6.2 Agency and Public Scoping Meetings -----	E-11
4.6.3 Project Website-----	E-11
4.6.4 Project Information Meetings-----	E-12
4.6.5 Project Management Team Workshops-----	E-12



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1.0 PURPOSE OF AGENCY COORDINATION PLAN

[NOTE TO THE CDOT PROJECT MANAGER: This document is established to serve as a template for you to develop a project-specific Coordination Plan for your project. Please read it carefully. Sections in red and using brackets are instructions to the CDOT project manager or are to be filled in for each specific project. However, the entire document should be reviewed thoroughly to ensure it accurately reflects the details of the project. All instructions and red, bold text in brackets [] should be removed prior to sending to the Project Management Team (PMT). The PMT may elect to use this process for Environmental Assessments (EA) as well; therefore, Environmental Impact Statements (EIS) and EA documents will be referred to herein as NEPA documents. If utilizing this template for an EA, please delete references to a 'Draft' NEPA Document. The advantage to using the coordination plan for an EA is to have it completed in the event that an EA may need to be elevated to an EIS at any point.] [The following BEGINS TEMPLATE:]

This Coordination Plan meets one of several requirements under Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU) of 2005. All Environmental Impact Statements (EIS) for which the Notice of Intent (NOI) was published in the *Federal Register* after August 10, 2005, must follow SAFETEA-LU's requirements. Section 6002 of SAFETEA-LU requires preparation of a Coordination Plan for projects requiring an EIS as defined by the National Environmental Policy Act (NEPA). This Coordination Plan establishes an approach for coordinating agency (Federal Lead, Joint Lead, Cooperating, and Participating) and public participation including comment during the environmental review process. This Coordination Plan defines the process by which the Project Management Team (PMT) will communicate information about the [insert project name here] NEPA project to the Federal Lead, Cooperating, Participating and other interested agencies and to the public. The PMT consists of an assigned Project Manager from the CDOT Region, a CDOT Region Planning and Environmental Manager (RPEM) or their designee, a CDOT Headquarters Environmental Programs Branch (EPB) NEPA partner, the consultant (as needed), the Operations Engineer from the Federal Highway Administration (FHWA) Colorado Division assigned to the project, and local agency representatives [agency]. The plan also identifies how input from agencies and the public will be solicited and considered.

The [insert agency name here] is expected to provide funding for this project; therefore, [insert agency name here] serves as the Lead Agency for the project. CDOT, as the direct recipient of federal funds for the project, is a Joint Lead Agency. The City of _____ and _____ County [name partners here], who are subrecipients of Federal funds may be invited to serve as Joint Lead agencies. The parties listed above are part of a project-designated PMT for this project.

This Coordination Plan:

- ▶ Provides a brief project background description.
- ▶ Identifies Lead, Joint Lead, Cooperating, and Participating agencies to be involved in agency coordination.
- ▶ Identifies the responsibilities of Lead, Joint Lead, Cooperating, and Participating agencies.
- ▶ Establishes collaboration at key points throughout the NEPA process. Examples of collaboration points (at the PMT's discretion) include but are not limited to defining the project's purpose and need, determining the project alternatives to be evaluated, determining input on the selection of the Preferred Alternative, soliciting input on mitigation strategies, and providing input to the [Draft and] Final NEPA documents as appropriate.
- ▶ Identifies the public involvement activities that will also provide opportunities for agency involvement.





2.0 PROJECT BACKGROUND

The _____ [insert project name here] NEPA document is being prepared to address transportation needs in the City(ies) of _____ an _____ County(ies). The Study Area for this project is bound by [name Highway _____ on the west, _____ on the east , _____ on the north and _____ on the south]. The location of the Study Area is shown in Figure 1. Other key roads in the Study Area include _____, _____, _____, _____, and _____.

As a part of this study, a draft purpose and need statement has been prepared and is being refined based on input from agencies and the public. The Purpose of the project, as currently defined, is to [insert project purpose here: e.g., satisfy an increase in forecasted traffic demand while improving safety consistent with best design practices, etc.]

Proposed improvements will take into account the requirements and needs of CDOT and the FHWA, the City(ies) of _____, _____ County(ies) and residents, along with the consideration of the social, environmental and cultural resource impacts of these improvements. The needs of the project, as currently defined, are to [insert project needs here: e.g., satisfy an increase in forecasted traffic demand while improving safety consistent with best design practices, etc.]

Reasonable alternatives to be evaluated could include [insert applicable alternatives below]:

- ▶ No-Build (always required in NEPA as a baseline “alternative”)
- ▶ Transportation System Management (TSM) activities
- ▶ Upgrades to the existing roadways
- ▶ One or more alternatives that would construct a new roadway on new location

The alternatives to be investigated in the NEPA document will be developed and refined based on input from agencies and the public during the initial coordination and scoping period along with subsequent agency and public involvement opportunities. Chapter 4, Section 4.7 of the NEPA Manual provides guidance for alternatives analysis.





3.0 AGENCY RESPONSIBILITIES

Under SAFTEA-LU, the Lead Agency (or Joint Lead Agency), listed in **Tables 1 and 2** has the responsibility to:

- ▶ Identify and involve Cooperating and Participating Agencies, and Tribal governments
- ▶ Develop a Coordination Plan
- ▶ Provide opportunities for public and Participating Agency involvement in defining the purpose and need
- ▶ Provide opportunities for public and Participating Agency involvement in determining the range of alternatives
- ▶ Collaborate with Participating Agencies in determining methodologies and the level of detail for the analysis of alternatives
- ▶ Provide increased oversight in managing the process and resolving issues

The responsibilities listed above are in addition to those responsibilities that the Lead Agency has traditionally performed for transportation projects listed in 23 Code of Federal Regulations (CFR) part 771 and 40 CFR parts 1500 – 1508.

The Cooperating and Participating Agencies, listed in **Table 3 and 4**, for this project have roles and responsibilities that include, but are not limited to:

- ▶ Participating in the NEPA process starting at the earliest possible time, especially with regard to development of the purpose and need statement, range of alternatives, methodologies and the level of detail for the alternatives analysis
- ▶ Identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts and to participate in the issue resolution process
- ▶ Responding in writing to the letter of invitation within **[30 days]** from receipt to decline or accept the role and involvement
- ▶ Providing meaningful and timely input on unresolved issues
- ▶ Participating in the scoping process
- ▶ Reviewing and providing comment on the Preferred Alternative and the NEPA document
- ▶ Other additional responsibilities identified by the PMT

In addition to the roles and responsibilities listed above, Cooperating Agencies may have additional responsibilities that are not required of Participating Agencies. Cooperating Agencies have a higher degree of authority, responsibility, and involvement in the environmental review process. **[For example, projects being dictated by the NEPA/404 merger may have the US Army Corps of Engineers acting as a Cooperating Agency.]** Distinctions for Cooperating Agencies include:

- ▶ Assuming, by request of the Lead Agency, responsibility for developing information and preparing environmental analyses including portions of the NEPA document for which the Cooperating Agency has special expertise
- ▶ Adoption of the NEPA document without recirculation after an independent review and the Cooperating Agency concludes that its comments and suggestions have been satisfied





The Participating Agencies will have defined opportunities for meaningful participation in the decision-making process for the project. Specific opportunities are provided via the agency collaboration points that have been defined for this project.

[Use the following paragraph if this Coordination Plan is being prepared retroactively for a project]:

Because this project was already underway prior to August 10, 2005, the initial agency coordination and the agency and public scoping process for this project has already occurred during **[indicate months or years here]**. This initial coordination provided input from agencies and the public to help determine the purpose and need for the project, input on potential concept alternatives to be considered and identification of issues that need to be examined as part of the NEPA document process.

A meeting was conducted in **[insert appropriate month and year here]** for those agencies that agreed to be Cooperating and Participating Agencies, listed in **Table 3** and **4**. Those agencies were provided with a copy of the draft purpose and need for their review and provided comments by **[insert appropriate date here]**.





4.0 INITIAL COORDINATION

This section details the process to include various agencies in this Coordination Plan.

4.1 Notice of Intent

Following project initiation, the Lead Agency, with assistance from the Joint Lead Agency, [prepared a Notice of Intent (NOI) for the Federal Register indicating the plan to prepare an EIS, as required by the Council on Environmental Quality (CEQ) Regulations (40 CFR 1501.7)] or [notified the public of their intent to begin the NEPA process]. The NOI was published in the Federal Register on [insert appropriate date here]. Media releases were sent to project area newspapers, providing notification of the preparation of the NEPA document. The newspapers included: the Denver Post and [insert local newspapers here].

[Use the following paragraph if this Coordination Plan is being prepared retroactively (after August 10, 2005) for a project]:

Because this project was already underway prior to August 10, 2005, this project falls within the retroactive timeframe since the NOI to prepare an EIS was published by FHWA in [insert date here]. There are steps in the SAFETEA-LU process associated with this Coordination Plan that will occur out of sequence from what would normally occur. On [insert date here], in conformance with the provisions specified in Section 6002 of SAFETEA-LU, CDOT formally notified FHWA in writing of its intent to initiate the EIS process for this project. Additional guidance on developing Coordination Plans for Agency and Public Involvement has been received and this document has been prepared to fulfill Section 6002 requirements.

4.2 Lead Agency and Joint Lead Agency

The [insert agency name here] is expected to provide funding for this project; therefore, [insert agency name here] serves as the Lead Agency for the project. The City(ies) of _____ and _____ County(ies) [name partners here], who have contributed to funding for this project, are also Joint Lead agencies that are providing overall guidance and management of this project. CDOT [and others as appropriate], is the project sponsor receiving SAFETEA-LU funds and is therefore a Joint Lead Agency. The information for Joint Lead Agency(ies) that have agreed to participate is listed below in Table 2.

The contact information for Lead Agency(ies) that have agreed to participate is listed below in Table 1. [Note to CDOT project managers: federal funding as noted in this example paragraph is only one of many potential “federal nexus” reasons for FHWA to be the lead agency for this project. Please be sure to use the appropriate federal nexus (for example, new federal interstate interchange, federal permits, etc.)]

Table 1 Lead Agency

Lead Agency	Contact Person / Title	Phone	E-Mail





Table 2 Joint Lead Agency

Joint Lead Agency	Contact Person / Title	Phone	E-Mail

4.3 Cooperating and Participating Agencies

The Joint Lead Agency sent letters at the beginning of the project to [insert number of agencies here] agencies to invite them to become a Cooperating Agency or Participating Agency for this project. Responses to the letters resulted in [insert number here] Cooperating Agencies and [insert number here] Participating Agencies.

4.3.1 Cooperating Agencies

Cooperating Agencies are those government agencies specifically requested by the Lead or Joint Lead Agency to participate during the environmental evaluation process for the project. FHWA's regulations (23 CFR 771.111[d]) require that those federal agencies with jurisdiction by law (with permitting or land transfer authority) be invited to be Cooperating Agencies for a NEPA document. In addition, the Lead and Joint Lead Agency may request other agencies to become Cooperating Agencies. Cooperating Agencies are also invited to be Participating Agencies. Cooperating Agency invitations for this project were accepted by those listed in Table 3. If determined appropriate by the PMT, the Cooperating Agencies may be offered the opportunity for review and comment on project documents.

Table 3 Cooperating Agencies

Cooperating Agency	Agency Role	Contact Person / Title	Phone	E-Mail

If, during the project, new information indicates that an agency not previously invited to be a Cooperating Agency does indeed have authority, jurisdiction, acknowledged expertise or information relevant to the project, then the Joint Lead Agency, in consultation with the Lead Agency, will promptly extend an invitation. The Joint Lead Agency, in consultation with the Lead Agency, will consider whether this new information affects any previous decisions on the project.

4.3.2 Participating Agencies

SAFETEA-LU (Section 6002) created a new category of involvement in the environmental review process for NEPA documents, known as Participating Agencies. These are federal and non-federal governmental agencies that may have an interest in the project because of their jurisdictional authority, special expertise and/or statewide interest in the project. There are [insert number here] federal and state agencies that have agreed to be Participating Agencies for this project. Participating Agency invitations for this project were accepted by those listed in Table 4. If determined appropriate by the PMT, the Participating Agencies may be offered the opportunity for review and comment on project documents.





Table 4 Participating Agencies

Participating Agency	Agency Role	Contact Person / Title	Phone	E-Mail

If, during the project, new information indicates that an agency not previously invited to be a Participating Agency does indeed have authority, jurisdiction, acknowledged expertise or information relevant to the project, the Joint Lead Agency, in consultation with the Lead Agency, will promptly extend an invitation to that agency to be a Participating Agency. The Joint Lead Agency, in consultation with the Lead Agency will consider whether this new information affects any previous decisions on the project.

4.4 Other Interested Agencies and Organizations

4.4.1 Local Agencies and Organizations

Other agencies and organizations may be identified as having an interest in the project through the public involvement process or for permit, approval, certification, or concurrence purposes. For example, an agency may have information on a particular resource within the project area that would be useful to the PMT. Meetings with these agencies and organizations may occur to discuss topical information, but their overall role is expected to be minimal. The PMT will inform these agencies of major decisions and solicit them for information as necessary.

4.4.2 Non-Participating Agencies and Organizations

Several agencies were invited to be Participating Agencies, but for various reasons declined. These agencies will still be involved with the NEPA process by being on the project mailing list, will be points of contact for data required for the NEPA document, and will be furnished copies, or portions of, the **[Draft and]** Final NEPA document for review and comment as determined appropriate by the PMT.

4.5 Environmental Streamlining Collaboration Points

To reduce delay in the environmental review process, the following collaboration points are recommended to occur after the Lead, Joint Lead, Cooperating, and Participating Agencies have been identified. However, once the agencies are identified and the collaboration process has begun, it is not too late for other agencies to participate that were not initially identified, assuming the existing agencies already committed to the process agree to including these additional agencies. It is recommended, although not required, that a Draft Coordination Plan be in place prior to beginning the collaboration process. The agencies listed in **Table 1** through **4** are expected to be involved in the following five collaboration points in the environmental review process for the **[insert project name here]** NEPA document:

- ▶ Collaboration Point 1 - Purpose and Need
- ▶ Collaboration Point 2 – Project Alternatives to be Evaluated
- ▶ Collaboration Point 3 – **[Draft]** NEPA Document
- ▶ Collaboration Point 4 – Preferred Alternative and Preliminary Mitigation
- ▶ Collaboration Point 5 - Final NEPA Document





The process for coordination associated with each collaboration point for this project is summarized below; however, specific directions are listed in the referenced NEPA Manual chapters. The collaboration points discussed below are provided as milestones and are not meant to take the place of other NEPA and permitting requirements necessary.

4.5.1 Collaboration Point 1 - Purpose and Need

Chapter 4 of the CDOT NEPA Manual provides detailed guidance on how to develop a purpose and need statement. It is recommended that the purpose and need statement be defined after participating and cooperating agencies are identified.

The purpose of this collaboration point is to ensure that Cooperating and Participating Agencies have a meaningful opportunity to provide input on the purpose and need statement. Once provided the purpose and need statement, the PMT and the Cooperating and Participating Agencies are provided [30 days] from receipt to review and provide a response on the project purpose and need statement. **[adjust language here as appropriate to this project] At the end of the 30 day review period, CDOT will receive comments from the Lead Agency with a statement of support or statement of non-support. If determined appropriate by the PMT, comments may also be provided from the Cooperating and Participating Agencies.** CDOT assumes that those agencies from which it has not received a response at the end of the [30 day] period have no comments that need further consideration.

Based on the output of Collaboration Point 1, the project consultant will revise, as appropriate, the purpose and need statement.

4.5.2 Collaboration Point 2 – Project Alternatives to be Evaluated

Chapter 4 of the CDOT NEPA Manual provides specific guidance for how CDOT prefers to conduct alternatives analysis.

The purpose of this collaboration point is to ensure that Cooperating and Participating Agencies have a meaningful opportunity to provide input during alternatives development and screening. Based on the output of Collaboration Point 1, the project consultant will prepare a “Project Alternatives to be Evaluated” information package. It is important for appropriate agencies to have been involved with the development of the alternatives that are presented in the package. The information package will be forwarded to the PMT, and the Cooperating and Participating Agencies.

The information package may include the following:

- ▶ Revised purpose and need statement
- ▶ Description of the evaluation criteria that will be used to evaluate the effectiveness of an alternative in meeting the purpose and need of the project and explanation of how those evaluation criteria will be used
- ▶ Description of any other factors, besides purpose and need, that will be considered in the screening of alternatives, such as cost and environmental factors
- ▶ Methodologies to be used and level of detail required in the analysis of each alternative
- ▶ A summary table of project alternatives to be evaluated and their effectiveness in addressing the purpose and need of the project
- ▶ A map showing the location of the project alternatives





- ▶ Qualitative results of the preliminary alternatives analysis and environmental screening (based on existing data sources and GIS inventories)
- ▶ Discussion and agreement of the elements of the No-Build Alternative

The PMT and appropriate Participating and Cooperating Agencies, will be given a **[30 day]** period from receipt of the package to review and provide a response. **[adjust language here as appropriate to this project] At the end of the 30 day review period, CDOT will receive comments from the Lead Agency with a statement of support or statement of non-support. If determined appropriate by the PMT, comments may also be provided from the Cooperating and Participating Agencies.** CDOT assumes that those agencies from whom it has not heard at the end of the **[30 day]** period have no comments that need further consideration.

The output of Collaboration Point 2 will be a decision from the PMT, the Cooperating and Participating Agencies on:

- ▶ Appropriate methodologies to be used and the level of detail required in the analysis of each alternative
- ▶ The alternatives to be carried forward into the **[Draft]** NEPA document
- ▶ Any revisions to the purpose and need statement
- ▶ The scopes and study methodologies to be used and the level of detail anticipated in the analysis of each alternative

4.5.3 Collaboration Point 3 – **[Draft]** NEPA Document

Chapter 8 of the CDOT NEPA Manual should be referenced for the distribution and review procedures of NEPA documents prepared for CDOT projects. Review options for the **[Draft]** NEPA document should be established during the scoping process. **[A 30 day review period is recommended by SAFETEA-LU; however, the project team may adjust as necessary.]**

Based on the output of Collaboration Point 2 the project consultant will prepare a **[Draft]** NEPA document. Upon completion of the **[Draft]** NEPA document, the PMT will determine which agencies, if any, will be given the opportunity to review and comment. Those agencies not provided with an official comment and review period of the document may be provided a status meeting. The status meeting can serve as a check-in with the agencies to explain the status of the document and to address issues specific to their areas of interest and responsibility. Alternately, agencies may be provided with sections of documents, technical reports, or modeling results to review and provide comments. It is the discretion of the PMT to decide what and how information is disseminated for review and comment.

The PMT, and the appropriate Cooperating and Participating Agencies, if any, will be given a **30 day period** from receipt of the **[Draft]** NEPA document to review and provide a response. **[adjust language here as appropriate to this project] At the end of the 30 day review period, CDOT will receive comments from the Lead Agency with a statement of support or statement of non-support. If determined appropriate by the PMT, comments may also be provided from the Cooperating and Participating Agencies.** CDOT assumes that those agencies from whom it has not heard from at the end of the **[30 day]** period have no comments that need further consideration.

The output of Collaboration Point 3 will be concurrence from the PMT, the Cooperating and Participating Agencies on:

- ▶ The adequacy of the **[Draft]** NEPA document



- ▶ Specification as to whether additional information is needed to fulfill other applicable environmental reviews or consultation requirements
- ▶ Specification on any additional information needed to comment adequately on the [Draft] NEPA document analysis of site-specific effects associated with the granting or approving by the agency of necessary permits, licenses, or entitlements

Based on FHWA's approval of the Draft NEPA document for circulation, one or more public meetings will be conducted during the 45-day review in accordance with NEPA requirements and requirements in the project's Public Involvement Plan. [adjust timeframes and number of hearings as appropriate for this project]. Project teams should follow the project specific Public Involvement Plan and the guidance provided for stakeholder involvement in Chapter 7 of the CDOT NEPA Manual

4.5.4 Collaboration Point 4 – Preferred Alternative and Preliminary Mitigation

Chapter 9 of the CDOT NEPA Manual should be referenced for mitigation measures specific to impacted resources.

Based on the output of Collaboration Point 3, along with the PMT's consideration of any issues, concerns, and opportunities identified during the public meetings, the project consultant will prepare a "Preferred Alternative and Preliminary Mitigation" information package. The information package will be forwarded to the PMT, and the appropriate Cooperating and Participating Agencies, as determined appropriate. It is the discretion of the PMT how, and to whom, the information package is disseminated for review and comment.

The information package may include the following:

- ▶ Narrative describing the various elements of the Preferred Alternative
- ▶ Rationale for recommending the Preferred Alternative
- ▶ A preliminary mitigation summary describing the various elements of the proposed mitigation including a map locating the elements of the Preferred Alternative and preliminary mitigation

The Lead Agency, the PMT, the Cooperating and Participating Agencies will be given a [30 day] period from receipt of the package to review and provide a response. **At the end of the 30 day period, CDOT will receive a statement of support or statement of non-support, with comments, if provided.** CDOT will assume concurrence from those agencies from whom it has not heard at the end of the [30 day] period.

The output of Collaboration Point 4 will include concurrence among the Lead, Joint Lead, the PMT, the Cooperating and Participating Agencies on:

- ▶ Recommendation of the Preferred Alternative and preliminary mitigation. When avoidance of impacts to a resource is not practical, the Cooperating and Participating Agencies with jurisdiction by law or special expertise will assist the PMT and the project consultant in determining or reviewing appropriate and practical mitigation, including all practical measures to minimize harm. If an agency determines that it does not have enough information to make a recommendation on mitigation measures, it will comment to that effect. If the project impacts are deemed substantial by a regulatory or resource agency to the extent that permits would probably be denied, the Agencies that are party to this Coordination Plan will advise the Lead agencies to modify the project to reduce impacts.

Based on the output from Collaboration Point 4, the PMT will recommend a Preferred Alternative.





4.5.5 Collaboration Point 5 – Final NEPA document

Chapter 8 of the CDOT NEPA Manual should be referenced for review and distribution procedures for NEPA documents prepared for CDOT projects.

Based on the output of Collaboration Point 4 and the comments received from the public hearing on the [Draft] NEPA document, the project consultant will prepare a Final NEPA document. This document will be circulated to the Cooperating and Participating Agencies for their review and comment. Based on Lead Agency's approval, the Final NEPA document will be made available for public and agency review for a minimum of 30 days [NOTE to PMT—the length of the public review period must be approved by FHWA]. This period is the last period during which comments on the environmental evaluation process will be received from the public and agencies. Upon addressing the comments received in the comment period, the Final NEPA document will be forwarded by the PMT to the Lead Agency with a request for decision document.

4.6 Other Opportunities for Agency Involvement

Chapter 7 of the CDOT NEPA Manual provides guidance on public and stakeholder involvement.

Beyond the collaboration points outlined herein, the [insert name of project here] NEPA document also includes other strategies for encouraging agency input and involvement. The project's Public Involvement Plan was developed to include agencies, and stakeholders, in meaningful ways such as:

- ▶ to solicit input
- ▶ develop two-way communication
- ▶ document opinions
- ▶ achieve informed consent for the document's findings and recommendations

The Public Involvement Plan should be referenced for project specific strategies to disseminate information to the public. The following public involvement elements provide for such opportunities and are meant to reflect those commitments from the Public Involvement Plan [add or delete the following elements as necessary to match Public Involvement Plan].

4.6.1 Newsletters

The PMT will distribute project-related newsletters. These newsletters will provide important information on purpose and need, alternatives development/evaluation, results and next steps. The newsletters will be mailed to stakeholders such as property owners, public officials, elected officials, agencies and any other interested individuals.

4.6.2 Agency and Public Scoping Meetings

The PMT will prepare for and conduct an agency scoping meeting for Cooperating and Participating Agencies, and for those federal, state and local agencies not part of the PMT. Following the agency meeting, a public scoping meeting will be conducted.

4.6.3 Project Website

The PMT will maintain and update a project website [insert web site link here]. In addition to containing project information, this site will allow stakeholders to sign-up to receive project update information.





4.6.4 Project Information Meetings

Agencies/stakeholders will be invited to all public project meetings.

4.6.5 Project Management Team Workshops

Because the PMT is composed of several entities workshops will be conducted to present information and make decisions. As needed or requested, agencies and stakeholders may attend these workshops.



APPENDIX F
STANDARD LANGUAGE



STANDARD PLATTE RIVER DEPLETION LANGUAGE

This project has elements that will cause a depletion to the South Platte River basin. In order to address the effects this depletion will have on federally listed species downstream that depend on the river for their survival, CDOT, as a state agency, is participating in the South Platte Water Related Activities Program (SPWRAP). CDOT is cooperating with the Federal Highway Administration (FHWA) which provides a federal nexus for the project. In response to the need for formal consultation for the water used from the South Platte basin, FHWA has prepared a Programmatic Biological Assessment (PBA) dated 02/22/2012 that estimates total water usage until 2019. The PBA addresses the following species: Least Tern (interior population) (*Sternula antillarum*), pallid sturgeon (*Scaphirhynchus albus*), Piping Plover (*Charadrius melodus*), western prairie fringed orchid (*Platanthera praeclara*), and the Whooping Crane (*Grus americana*). On 04/04/2012, the USFWS signed a Biological Opinion which concurs with this approach and requires a yearly reporting of water usage. The water used for this project will be reported to the USFWS at the year's end after the completion of the project as per the aforementioned consultation. Effects to species not addressed in the PBA or affected by causes other than water depletions to the South Platte, will be analyzed separately.

GLOBAL CLIMATE CHANGE CUMULATIVE EFFECTS STANDARD LANGUAGE

The issue of global climate change is an important national and global concern that is being addressed in several ways by the Federal government. The transportation sector is the second largest source of total greenhouse gases (GHGs) in the U.S., and the greatest source of carbon dioxide (CO₂) emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all U.S. CO₂ emissions. The principal anthropogenic (human-made) source of carbon emissions is the combustion of fossil fuels, which account for approximately 80 percent of anthropogenic emissions of carbon worldwide. Almost all (98 percent) of transportation-sector emissions result from the consumption of petroleum products such as gasoline, diesel fuel, and aviation fuel.

Recognizing this concern, FHWA is working nationally with other modal administrations through the DOT Center for Climate Change and Environmental Forecasting to develop strategies to reduce transportation's contribution to greenhouse gases - particularly CO₂ emissions - and to assess the risks to transportation systems and services from climate changes.

At the state level, there are also several programs underway in Colorado to address transportation GHGs. The Governor's Climate Action Plan, adopted in November 2007, includes measures to adopt vehicle CO₂ emissions standards and to reduce vehicle travel through transit, flex time, telecommuting, ridesharing, and broadband communications. CDOT issued a policy Directive on Air Quality in May 2009. This Policy Directive was developed with input from a number of agencies, including the State of Colorado's Department of Public Health and Environment (CDPHE), the U.S. Environmental Protection Agency (EPA), the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), the Denver Regional Transportation District (RTD), the Denver Regional Air Quality Council (RAQC). This Policy Directive addresses unregulated mobile source air toxics (MSAT) and greenhouse gases (GHG) produced from Colorado's state highways, interstates, and construction activities.





As a part of CDOT's commitment to addressing MSATs and GHGs, some of CDOT's program-wide activities include:

1. Continue researching pavement durability opportunities with the goal of reducing the frequency of resurfacing and/or reconstruction projects.
2. Developing air quality educational materials, specific to transportation issues, for citizens, elected officials, and schools.
3. Offering outreach to communities to integrate land use and transportation decisions to reduce growth in vehicle miles traveled (VMT), such as smart growth techniques, buffer zones, transit-oriented development, walkable communities, access management plans, etc.
4. Promoting effective, sustained idling reduction programs for schools, commercial fleets and communities throughout the state.
5. Expanding Transportation Demand Management (TDM) efforts statewide to better utilize the existing transportation mobility network.
6. Continuing to diversify the CDOT fleet by retrofitting diesel vehicles, specifying the types of vehicles and equipment contractors may use, purchasing low-emission vehicles, such as hybrids, and purchasing cleaner burning fuels through bidding incentives where feasible. Incentivizing is the likely vehicle for this.
7. Funding truck parking electrification (note: mostly via exploring external grant opportunities)
8. Researching additional ways to improve freight movement and efficiency statewide.
9. Developing a low-VOC emitting tree landscaping specification.

Because climate change is a global issue, and the emissions changes due to project alternatives are very small compared to global totals, the GHG emissions associated with the alternatives were not calculated. Because GHGs are directly related to energy use, the changes in GHG emissions would be similar to the changes in energy consumption presented in section _____ of this [EA/EIS]. The relationship of current and projected Colorado highway emissions to total global CO₂ emissions is presented in the table below. Colorado highway emissions are expected to increase by 4.7% between now and 2035. The benefits of the fuel economy and renewable fuels programs in the 2007 Energy Bill are offset by growth in VMT; the draft 2035 statewide transportation plan predicts that Colorado VMT will double between 2000 and 2035. This table also illustrates the size of the project corridor relative to total Colorado travel activity.

Global CO ₂ emissions, 2005, million metric tons (MMT) ¹	Colorado highway CO ₂ emissions, 2005, MMT ²	Projected Colorado 2035 highway CO ₂ emissions, MMT ²	Colorado highway emissions, % of global total (2005) ²	Project corridor VMT, % of statewide VMT (2005) ³
27,700	29.9	31.3	0.108%	-----

1) EIA, International Energy Outlook 2007

2) Calculated by FHWA Resource Center

3) Statewide VMT was 47.9 billion in 2005, based on the Colorado Department of Transportation's *Fact Book 2006-2007, Transportation Facts* (CDOT 2007).





RIGHT-OF-WAY AND RELOCATION STANDARD LANGUAGE

Model Relocation Statement

In certain situations, it may also be necessary to acquire improvements that are located within a proposed acquisition parcel. In those instances where the improvements are occupied, it becomes necessary to “relocate” those individuals from the subject property (residential or business) to a replacement site. The Uniform Act provides for numerous benefits to these individuals to assist them both financially and with advisory services related to relocating their residence or business operation. Although the benefits available under the [Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, (Uniform Act)] are far too numerous and complex to discuss in detail in this document, they are available to both owner occupants and tenants of either residential or business properties. In some situations, only personal property must be moved from the real property and this is also covered under the relocation program. As soon as feasible, any person scheduled to be displaced shall be furnished with a general written description of the displacing agency’s relocation program that provides, at a minimum, detailed information related to eligibility requirements, advisory services and assistance, payments, and the appeal process. It shall also provide notification that the displace person(s) will not be required to move without at least 90 days advance written notice. For residential relocatees, this notice cannot be provided until a written offer to acquire the subject property has been presented, and at least one comparable replacement dwelling has been made available. Relocation benefits will be provided to all eligible persons regardless of race, color, religion, sex, or national origin. Benefits under the [Uniform] Act, to which each eligible owner or tenant may be entitled, will be determined on an individual basis and explained to them in detail by an assigned right-of-way Specialist.

Model Acquisition Statement

For any person(s) whose real property interests may be impacted by this project, the acquisition of those property interests will comply fully with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act). The Uniform Act is a federally mandated program that applies to all acquisitions of real property or displacements of persons resulting from federal or federally assisted programs or projects. It was created to provide for and ensure the fair and equitable treatment of all such persons. To further ensure that the provisions contained within this act are applied “uniformly,” CDOT requires Uniform Act compliance on any project for which it has oversight responsibility regardless of the funding source. Additionally, the Fifth Amendment of the US Constitution provides that private property may not be taken for a public use without payment of “just compensation.” All impacted owners will be provided notification of the acquiring agency’s intent to acquire an interest in their property including a written offer letter of just compensation specifically describing those property interests. A right-of-way specialist will be assigned to each property owner to assist them with this process.





STATUE OF LIMITATIONS STANDARD LANGUAGE

The Federal Highway Administration may publish a notice in the Federal Register, pursuant to 23 United States Code (USC) § 139(1), once the **Record of Decision (or Finding of No Significant Impact)** is approved. If such notice is published, a claim arising under Federal law seeking judicial review of a permit, license, or approval issued by a Federal agency for a highway or public transportation capital project shall be barred unless it is filed within 150 days after publication of a notice in the Federal Register announcing that the permit, license, or approval is final pursuant to the law under which judicial review is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.



**FHWA STANDARD MOBILE SOURCE AIR TOXICS (MSAT)
LANGUAGE**





U.S. Department
of Transportation
Federal Highway
Administration

Memorandum

SENT VIA ELECTRONIC MAIL

Subject: **INFORMATION:** Interim Guidance
Update on Mobile Source Air Toxic
Analysis in NEPA Documents
/S/Original signed by

Date: December 6, 2012

From: April Marchese
Director, Office of Natural Environment

In Reply Refer To:
HEPN-10

To: Division Administrators
Federal Lands Highway Division Engineers

PURPOSE

The purpose of this memorandum is to update the September 2009 interim guidance that advised Federal Highway (FHWA) Division offices on when and how to analyze Mobile Source Air Toxics (MSAT) under the National Environmental Policy Act (NEPA) review process for highway projects.

This update reflects recent changes in methodology for conducting emissions analysis and updates of research in the MSAT arena. The U.S. Environmental Protection Agency (EPA) released the latest emission model, the Motor Vehicle Emissions Simulator (MOVES) in 2010, and started a 2-year grace period to phase in the requirement of using MOVES for transportation conformity analysis. On February 8, 2011, EPA issued guidance on [Using the MOVES and Emission FACTors \(EMFAC\) Models in NEPA Evaluation](#) that recommended the same grace period be applied to project-level emissions analysis for NEPA purposes. At the end of this grace period, i.e. beginning December 20, 2012, project sponsors should use MOVES to conduct emissions analysis for NEPA purposes. To prepare for this transition, FHWA is updating the September 2009 Interim Guidance to incorporate the analysis conducted using MOVES. Based on FHWA's analysis using MOVES2010b, the latest version of MOVES, diesel particulate matter (diesel PM) has become the dominant MSAT of concern. We have also provided an update on the status of scientific research on air toxics. The update supersedes the September 2009 Interim Guidance and should be referenced as a whole in NEPA documentation.

BACKGROUND

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air

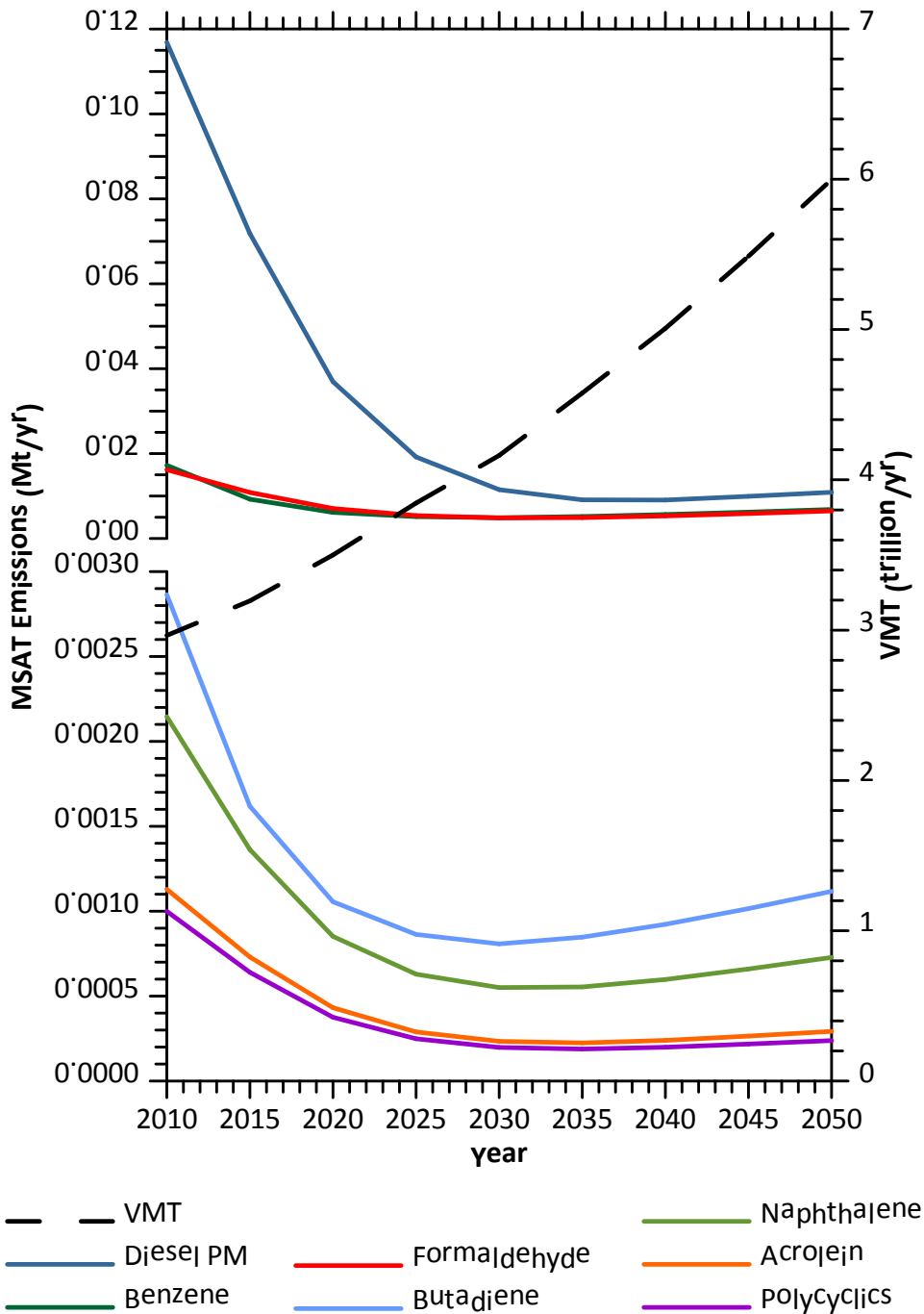
Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (<http://cfcpub.epa.gov/ncea/iris/index.cfm>). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (<http://www.epa.gov/ttn/atw/nata1999/>). These are *acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter*. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA's understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

Based on an FHWA analysis using EPA's MOVES2010b model, as shown in Figure 1, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

**Figure 1:
PROJECTED NATIONAL MSAT EMISSION TRENDS 2010 – 2050
FOR VEHICLES OPERATING ON ROADWAYS
USING EPA’S MOVES2010b MODEL**



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Source: EPA MOVES2010b model runs conducted during May – June 2012 by FHWA.

The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

NEPA CONTEXT

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. The NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. The NEPA requires and FHWA is committed to the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

CONSIDERATION OF MSAT IN NEPA DOCUMENTS

The FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

- (1) No analysis for projects with no potential for meaningful MSAT effects;
- (2) Qualitative analysis for projects with low potential MSAT effects; or

(3) Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

For projects warranting MSAT analysis, the seven priority MSAT should be analyzed.

(1) Projects with No Meaningful Potential MSAT Effects, or Exempt Projects.

The types of projects included in this category are:

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c) (subject to consideration whether unusual circumstances exist under 23 CFR 771.117(b));
- Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For projects that are categorically excluded under 23 CFR 771.117(c), or are exempt from conformity requirements under the Clean Air Act pursuant to 40 CFR 93.126, no analysis or discussion of MSAT is necessary. Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion and/or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is recommended.¹ However, the project record should document the basis for the determination of “no meaningful potential impacts” with a brief description of the factors considered. Example language, which must be modified to correspond with local and project-specific circumstances, is provided in Appendix A.

(2) Projects with Low Potential MSAT Effects

The types of projects included in this category are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects.

We anticipate that most highway projects that need an MSAT assessment will fall into this category. Any projects not meeting the criteria in category (1) or category (3) below should be included in this category. Examples of these types of projects are minor widening projects; new interchanges, replacing a signalized intersection on a surface street; or projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

For these projects, a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the project alternatives, including no-build, based on VMT, vehicle mix, and speed. It would also

¹ The types of projects categorically excluded under 23 CFR 771.117(d) or exempt from certain conformity requirements under 40 CFR 93.127 does not warrant an automatic exemption from an MSAT analysis, but they usually will have no meaningful impact.

discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects typically are low, we expect there would be no appreciable difference in overall MSAT emissions among the various alternatives.

Appendix B includes example language for a qualitative assessment, with specific examples for four types of projects: (1) a minor widening project; (2) a new interchange connecting an existing roadway with a new roadway; (3) a new interchange connecting new roadways; and (4) minor improvements or expansions to intermodal centers or other projects that affect truck traffic. The information provided in Appendix B must be modified to reflect the local and project-specific situation.

In addition to the qualitative assessment, a NEPA document for this category of projects must include a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts, in compliance with the Council on Environmental Quality (CEQ) regulations (40 CFR 1502.22(b)). This discussion should explain how current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that could result from a transportation project in a way that would be useful to decision-makers. Also in compliance with 40 CFR 1502.22(b), it should contain information regarding the health impacts of MSAT. See Appendix C.

(3) Projects with Higher Potential MSAT Effects

This category includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. We expect a limited number of projects to meet this two-pronged test. To fall into this category, a project should:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000² or greater by the design year;

And also

- Proposed to be located in proximity to populated areas.

Projects falling within this category should be more rigorously assessed for impacts. If a project falls within this category, you should contact the Office of Natural Environment (HEPN) and the

² Using EPA's MOVES2010b emissions model, FHWA staff determined that this range of AADT would result in emissions significantly lower than the Clean Air Act definition of a major hazardous air pollutant (HAP) source, i.e., 25 tons/yr. for all HAPs or 10 tons/yr. for any single HAP. Variations in conditions such as congestion or vehicle mix could warrant a different range for AADT; if this range does not seem appropriate for your project, please consult with the contacts from HEPN and HEPE identified in this memorandum.

Office of Project Development and Environmental Review (HEPE) in FHWA Headquarters for assistance in developing a specific approach for assessing impacts. This approach would include a quantitative analysis to forecast local-specific emission trends of the priority MSAT for each alternative, to use as a basis of comparison. This analysis also may address the potential for cumulative impacts, where appropriate, based on local conditions. How and when cumulative impacts should be considered would be addressed as part of the assistance outlined above. The NEPA document for this project should also include relevant language on unavailable information described in Appendix C.

If the analysis for a project in this category indicates meaningful differences in levels of MSAT emissions among alternatives, mitigation options should be identified and considered. See Appendix E for information on mitigation strategies.

You should also consult with HEPN and HEPE if you have a project that does not fall within any of the types of projects listed above, but you think has the potential to substantially increase future MSAT emissions.

CONCLUSION

What we know about mobile source air toxics is still evolving. As the science progresses FHWA will continue to revise and update this guidance. FHWA is working with Stakeholders, EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project level decision documentation process. FHWA wanted to make project sponsors aware of the implications of the transition to the MOVES model and that we will be issuing updates to this interim guidance when necessary. Additional background information on MSAT-related research is provided in Appendix D.

The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047, are available to provide information and technical assistance, support any necessary analysis, and limit project delays. All MSAT analysis beginning on or after December 20, 2012, should use the MOVES model. Any MSAT analysis initiated prior to that date may continue to operate under the previous guidance and utilize MOBILE6.2. We are available to answer questions from project sponsors as we transition to MOVES.

APPENDICES

Appendix A – Prototype Language for Exempt Projects

Appendix B – Prototype Language for Qualitative Project Level MSAT Analysis

Appendix C – The Council on Environmental Quality (CEQ) Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22) including a discussion of unavailable information for project-specific MSAT Health Impacts Analysis

Appendix D – FHWA Sponsored Mobile Source Air Toxics Research Efforts

Appendix E – MSAT Mitigation Strategies

APPENDIX A – Prototype Language for Exempt Projects

The purpose of this project is to (*insert major deficiency that the project is meant to address*) by constructing (*insert major elements of the project*). This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA's MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

APPENDIX B – Examples of Prototype Language for Qualitative Project-Level MSAT Analysis

The information in this Appendix is for projects with low potential MSAT effects – any non-exempt project that does not meet the threshold criteria for higher potential effects, as described in the interim guidance, should be considered for treatment provided here. The types of projects that fall into this category are those that improve operations of highways, or freight facilities without adding substantial new capacity. Examples include minor widening projects or new interchanges replacing signalized intersection on surface streets.

The following are some examples of qualitative MSAT analyses for different types of projects. Each project is different, and some projects may contain elements covered in more than one of the examples below. Analysts can use the example language as a starting point, but should tailor it to reflect the unique circumstances of the project being considered. The following factors should be considered when crafting a qualitative analysis:

- For projects on an existing alignment, MSAT are expected to decline due to the effect of new EPA engine and fuel standards.
- Projects that result in increased travel speeds will reduce MSAT emissions per VMT basis, although previously, the effect of speed changes on diesel particulate matter was not accounted for in the MOBILE6.2 model, however, MOVES does provide this estimation and should be accounted for accordingly. This speed benefit may be offset somewhat by increased VMT if the more efficient facility attracts additional vehicle trips.
- Projects that facilitate new development may generate additional MSAT emissions from new trips, truck deliveries, and parked vehicles (due to evaporative emissions). However, these may also be activities that are attracted from elsewhere in the metro region; thus, on a regional scale there may be no net change in emissions.
- Projects that create new travel lanes, relocate lanes, or relocate economic activity closer to homes, schools, businesses, and other populated areas may increase concentrations of MSAT at those locations relative to No Action.

Other elements related to a qualitative analysis are a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts and a discussion of any MSAT mitigation measures that may be associated with the project.

INTODUCTORY LANGUAGE FOR QUALITATIVE ANALYSIS FOR ALL PROJECTS

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at: www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

(1) Minor Widening Project

(For purposes of this scenario, minor highway widening projects are those in which the design year traffic is predicted to be less than 125,000 AADT. Widening projects that surpass these criteria are subject to a quantitative analysis.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. Refer to Table ___ (*specify*). This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Because the estimated VMT under each of the Alternatives are nearly the same, varying by less than ___ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

(The following paragraph may apply if the project includes plans to construct travel lanes closer to populated areas.)

The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under certain Build Alternatives than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along

the expanded roadway sections that would be built at _____ (*specify location*), under Alternatives _____ (*specify*), and along _____ (*specify route*) under Alternatives _____ (*specify*). However, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

(2) New Interchange Connecting an Existing Roadway with a New Roadway

(This scenario is oriented toward projects where a new roadway segment connects to an existing limited access highway. The purpose of the roadway is primarily to meet regional travel needs, e.g., by providing a more direct route between locations.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. Because the VMT estimated for the No Build Alternative is higher than for any of the Build Alternatives, higher levels of MSAT are not expected from any of the Build Alternatives compared to the No Build. Refer to Table ____ (*specify*). In addition, because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than ____ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Under each alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new roadway sections that would be built at _____ (*specify location*), under Alternatives _____ (*specify*), and along _____ (*specify route*) under Alternatives _____ (*specify*). However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No Build

Alternative, due to the reduced VMT associated with more direct routing, and due to EPA's MSAT reduction programs.

(3) New Interchange Connecting New Roadways

(This scenario is oriented toward interchange projects developed in response to or in anticipation of economic development, e.g., a new interchange to serve a new shopping/residential development. Projects from the previous example may also have economic development associated with them, so some of this language may also apply.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the interchange facilitates new development that attracts trips that would not otherwise occur in the area. Refer to Table ____ (*specify*). This increase in VMT means MSAT under the Build Alternatives would probably be higher than the No Build Alternative in the study area. There could also be localized differences in MSAT from indirect effects of the project such as associated access traffic, emissions of evaporative MSAT (e.g., benzene) from parked cars, and emissions of diesel particulate matter from delivery trucks (*modify depending on the type and extent of the associated development*). Travel to other destinations would be reduced with subsequent decreases in emissions at those locations.

Because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than ____ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various Build Alternatives. For all Alternatives, emissions are virtually certain to be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future than they are today.

(The following discussion would apply to new interchanges in areas already developed to some degree. For new construction in anticipation of economic development in rural or largely undeveloped areas, this discussion would be applicable only to populated areas, such as residences, schools, and businesses.)

The travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT would be higher under certain Alternatives than others. The localized differences in MSAT concentrations would likely be most pronounced along the new/expanded roadway sections that would be built at _____ (*specify location*), under Alternatives _____ (*specify*), and along _____ (*specify route*) under Alternatives _____ (*specify*).

However, the magnitude and the duration of these potential increases cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. Further, under all Alternatives, overall future MSAT are expected to be substantially lower than today due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the design year it is expected there would be slightly higher MSAT emissions in the study area relative to the No Build Alternative due to increased VMT. There also could be increases in MSAT levels in a few localized areas where VMT increases. However, EPA's vehicle and fuel regulations will bring about significantly lower MSAT levels for the area in the future than today.

(4) Minor Improvements or Expansions to Intermodal Centers or Other Projects that Affect Truck Traffic

(The description for these types of projects depends on the nature of the project. The key factor from an MSAT standpoint is the change in truck and rail activity and the resulting change in MSAT emissions patterns.)

For each alternative in this EIS/EA (*specify*), the amount of MSAT emitted would be proportional to the amount of truck vehicle miles traveled (VMT) and rail activity, assuming that other variables (such as travel not associated with the intermodal center) are the same for each alternative. The truck VMT and rail activity estimated for each of the Build Alternatives are higher than that for the No Build Alternative, because of the additional activity associated with the expanded intermodal center. Refer to Table ____ (*specify*). This increase in truck VMT and rail activity associated with the Build Alternatives would lead to higher MSAT emissions (particularly diesel particulate matter) in the vicinity of the intermodal center. The higher emissions could be offset somewhat by two factors: 1) the decrease in regional truck traffic due to increased use of rail for inbound and outbound freight; and 2) increased speeds on area highways due to the decrease in truck traffic. The extent to which these emissions decreases will offset intermodal center-related emissions increases is not known.

Because the estimated truck VMT and rail activity under each of the Build Alternatives are nearly the same, varying by less than ____ (*specify*) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the EPA-projected reductions are so significant (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future as well.

(The following discussion may apply if the intermodal center is close to other development.)

The additional freight activity contemplated as part of the project alternatives will have the effect of increasing diesel emissions in the vicinity of nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT would be higher than under the No Build alternative. The localized differences in MSAT concentrations would likely be most pronounced under Alternatives _____ (*specify*). However, as discussed above, the magnitude and the duration of these potential differences cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific health impacts. Even though there may be differences among the Alternatives, on a region-wide basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that in almost all cases the MSAT levels in the future will be significantly lower than today.

(Insert a description of any emissions-reduction activities that are associated with the project, such as truck and train idling limitations or technologies, such as auxiliary power units; alternative fuels or engine retrofits for container-handling equipment, etc.)

In sum, all Build Alternatives in the design year are expected to be associated with higher levels of MSAT emissions in the study area, relative to the No Build Alternative, along with some benefit from improvements in speeds and reductions in region-wide truck traffic. There also could be slightly higher differences in MSAT levels among Alternatives in a few localized areas where freight activity occurs closer to homes, schools, and businesses. Under all alternatives, MSAT levels are likely to decrease over time due to nationally mandated cleaner vehicles and fuels.

MSAT MITIGATION STRATEGIES

Although there is no obligation to identify and consider MSAT mitigation strategies as part of a qualitative analysis, such strategies may be part of a project's design. Refer to the examples provided in (4) Minor Improvements or Expansions to Intermodal Centers or Other Projects that Affect Truck Traffic, or Appendix E. For these and similar circumstances, MSAT mitigation strategies should be discussed as part of a qualitative analysis.

CEQ PROVISIONS COVERING INCOMPLETE OR UNAVAILABLE INFORMATION (40 CFR 1502.22)

The introductory language for qualitative analysis should be followed by a 40 CFR 1502 assessment of incomplete or unavailable information. Refer to Appendix C for details.

APPENDIX C – CEQ Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22)

Sec. 1502.22 INCOMPLETE OR UNAVAILABLE INFORMATION

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

- (a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.
- (b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:
 - 1. a statement that such information is incomplete or unavailable;
 - 2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
 - 3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
 - 4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.
- (c) The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not,

would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA, <https://www.epa.gov/iris/>). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA’s Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are; cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, <http://pubs.healtheffects.org/view.php?id=282>) or in the future as vehicle emissions substantially decrease (HEI, <http://pubs.healtheffects.org/view.php?id=306>).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (<http://pubs.healtheffects.org/view.php?id=282>). As a result, there is no national

consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (<http://www.epa.gov/risk/basicinformation.htm#g>) and the HEI (<http://pubs.healtheffects.org/getfile.php?u=395>) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Due to the limitations cited, a discussion such as the example provided in this Appendix (reflecting any local and project-specific circumstances), should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)]. The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047, are available to provide guidance and technical assistance and support.

APPENDIX D – FHWA Sponsored Mobile Source Air Toxics Research Efforts

Human epidemiology and animal toxicology experiments indicate that many chemicals or mixtures termed air toxics have the potential to impact human health. As toxicology, epidemiology and air contaminant measurement techniques have improved over the decades, scientists and regulators have increased their focus on the levels of each chemical or material in the air in an effort to link potential exposures with potential health effects. The EPA's list of 21 mobile source toxics represents their prioritization of these chemicals or materials for further study and evaluation. The EPA's strategy for evaluating air toxic compounds effects is focused on both national trends and local impacts. The FHWA has embarked on an air toxics research program with the intent of understanding the mobile source contribution and its impact on local and national air quality. Several of studies either initiated or supported by FHWA are described below¹.

Air toxics emissions from mobile sources have the potential to impact human health and often represent a regulatory agency concern. The FHWA has responded to this concern by developing an integrated research program to answer the most important transportation community questions related to air toxics, human health, and the NEPA process. To this end, FHWA has performed, funded or is currently managing several research projects. Many of these projects are based on an Air Toxics Research Workplan that provides a roadmap for agency research efforts². These efforts include:

THE NATIONAL NEAR ROADWAY MSAT STUDY

The FHWA, in conjunction with the EPA and a consortium of State departments of transportation, studied the concentration and physical behavior of MSAT and mobile source PM 2.5 in Las Vegas, Nevada and Detroit, Michigan. The study criteria dictated that the study site be open to traffic and have 150,000 Annual Average Daily Traffic or more. These studies were intended to provide knowledge about the dispersion of MSAT emissions with the ultimate goal of enabling more informed transportation and environmental decisions at the project-level. These studies are unique in that the monitored data was collected for the entire year. The Las Vegas, NV report revealed there are a large number of influences in this urban setting and researchers must look beyond the roadway to find all the sources in the near road environment. Additionally, in Las Vegas, meteorology played a large role in the concentrations measured in the near road study area. More information is available at <http://www.fhwa.dot.gov/environment/airtoxicmsat/index.htm>.

¹ The information provided here is an update to research work discussed in the 2009 release of this interim guidance. The current title of each research activity is followed by the title used to describe the activity previously.

² Available at <http://www.fhwa.dot.gov/environment/airtoxic/workplan/index.htm>

TRAFFIC-RELATED AIR POLLUTION

Going One Step Beyond: A Neighborhood Scale Air Toxics Assessment in North Denver (The Good Neighbor Project)

In 2007, the Denver Department of Environmental Health (DDEH) issued a technical report entitled *Going One Step Beyond: A Neighborhood Scale Air Toxics Assessment in North Denver (The Good Neighbor Project)*. This research project was funded by FHWA. In this study, DDEH conducted a neighborhood-scale air toxics assessment in North Denver, which includes a portion of the proposed I-70 East project area. Residents in this area have been very concerned about both existing health effects in their neighborhoods (from industrial activities, hazardous waste sites, and traffic) and potential health impacts from changes to I-70.

The study was designed to compare modeled levels of the six priority MSATs identified in FHWA's 2006 guidance with measurements at existing MSAT monitoring sites in the study area. MOBILE6.2 emissions factors and the ISC3ST dispersion model were used (some limited testing of the CALPUFF model was also performed). Key findings include: 1) modeled mean annual concentrations from highways were well below estimated Integrated Risk Information System (IRIS) cancer and non-cancer risk values for all six MSAT; 2) modeled concentrations dropped off sharply within 50 meters of roadways; 3) modeled MSAT concentrations tended to be higher along highways near the Denver Central Business District (CBD) than along the I-70 East corridor (in some cases, they were higher within the CBD itself, as were the monitored values); and 4) dispersion model results were generally lower than monitored concentrations but within a factor of two at all locations.

Mobile Source Air Toxic Hot Spot

Given concerns about the possibility of MSAT exposure in the near road environment, The Health Effects Institute (HEI) dedicated a number of research efforts at trying to find a MSAT "hotspot." In 2011 three studies were published that tested this hypothesis. In general the authors confirm that while highways are a source of air toxics, they were unable to find that highways were the only source of these pollutants and determined that near road exposures were often no different or no higher than background or ambient levels of exposure, and hence no true hot spots were identified. These links provide additional information <http://pubs.healtheffects.org/getfile.php?u=659> page 137, <http://pubs.healtheffects.org/getfile.php?u=656> page 143, and <http://pubs.healtheffects.org/getfile.php?u=617> page 87, where monitored on-road emissions were higher than emission levels monitored near road residences, but the issue of hot spot was not ultimately discussed.

Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects

In January 2010, HEI released Special Report #17, investigating the health effects of traffic related air pollution. The goal of the research was to synthesize available information on the effects of traffic on health. Researchers looked at linkages between: (1) traffic emissions (at the tailpipe) with ambient air pollution in general, (2) concentrations of ambient pollutants with human exposure to pollutants from traffic, (3) exposure to pollutants from traffic with human-health effects and toxicologic data, and (4) toxicologic data with epidemiological associations. Challenges in making exposure assessments, such as quality and quantity of emissions data and models, were investigated, as was the appropriateness of the use of proximity as an exposure-assessment model. Overall, researchers felt that there was “sufficient” evidence for causality for the exacerbation of asthma. Evidence was “suggestive but not sufficient” for other health outcomes such as cardiovascular mortality and others. Study authors also note that past epidemiologic studies may not provide an appropriate assessment of future health associations as vehicle emissions are decreasing overtime. The report is available from HEI’s website at <http://www.healtheffects.org/>. The FHWA provides financial support to HEI’s research work.

HEI SPECIAL REPORT #16

In November 2007, the HEI published Special Report #16: Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects. The purpose of this Report was to accomplish the following tasks:

- Use information from the peer-reviewed literature to summarize the health effects of exposure to the 21 MSATs defined by the EPA in 2001;
- Critically analyze the literature for a subset of priority MSAT; and
- Identify and summarize key gaps in existing research and unresolved questions about the priority MSAT.

The HEI chose to review literature for acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, naphthalene, and polycyclic organic matter (POM). Diesel exhaust was included, but not reviewed in this study since it had been reviewed by HEI and EPA recently. In general, the Report concluded that the cancer health effects due to mobile sources are difficult to discern since the majority of quantitative assessments are derived from occupational cohorts with high concentration exposures and some cancer potency estimates are derived from animal models. The Report suggested that substantial improvements in analytical sensitivity and specificity of biomarkers would provide better linkages between exposure and health effects. Noncancer endpoints were not a central focus of most research, and therefore require further investigation. Subpopulation susceptibility also requires additional evaluation. The study is available from HEI’s website at <http://www.healtheffects.org/>.

KANSAS CITY PM CHARACTERIZATION STUDY (KANSAS CITY STUDY)

This study was initiated by EPA to conduct exhaust emissions testing on 480 light-duty, gasoline vehicles in the Kansas City Metropolitan Area (KCMA). Major goals of the study included characterizing PM emissions distributions of a sample of gasoline vehicles in Kansas City; characterizing gaseous and PM toxics exhaust emissions; and characterizing the fraction of high emitters in the fleet. In the process, sampling methodologies were evaluated. Overall, results from the study were used to populate databases for the MOVES emissions model. The FHWA was one of the research sponsors. This study is available on EPA's website at: <http://www.epa.gov/otaq/emission-factors-research/420r08009.pdf>

ESTIMATING THE TRANSPORTATION CONTRIBUTION TO PARTICULATE MATTER POLLUTION (AIR TOXICS SUPERSITE STUDY)

The purpose of this study was to improve understanding of the role of highway transportation sources in particulate matter (PM) pollution. In particular, it was important to examine uncertainties, such as the effects of the spatial and temporal distribution of travel patterns, consequences of vehicle fleet mix and fuel type, the contribution of vehicle speed and operating characteristics, and influences of geography and weather. The fundamental methodology of the study was to combine EPA research-grade air quality monitoring data in a representative sample of metropolitan areas with traffic data collected by State departments of transportation (DOTs) and local governments.

Phase I of the study, the planning and data evaluation stage, assessed the characteristics of EPA's ambient PM monitoring initiatives and recruited State DOTs and local government to participate in the research. After evaluating and selecting potential metropolitan areas based on the quality of PM and traffic monitoring data, nine cities were selected to participate in Phase II. The goal of Phase II was to determine whether correlations could be observed between traffic on highway facilities and ambient PM concentrations. The Phase I report was published in September 2002. Phase II included the collection of traffic and air quality data and data analysis. Ultimately, six cities participated: New York City (Queens), Baltimore, Pittsburgh, Atlanta, Detroit and Los Angeles.

In Phase II, air quality and traffic data were collected. The air quality data was obtained from EPA AIRS AQS system, Supersite personnel, and NARSTO data archive site. Traffic data included ITS (roadway surveillance), Coverage Counts (routine traffic monitoring) and Supplemental Counts (specifically for research project). Analyses resulted in the conclusion that only a weak correlation existed between PM_{2.5} concentrations and traffic activity for several of the sites. The existence of general trends indicates a relationship, which however is primarily unquantifiable. Limitations of the study include the assumption that traffic sources are close enough to ambient monitors to provide sufficiently strong source strength, that vehicle activity is an appropriate surrogate for mobile emissions, and lack of knowledge of other factors such as non-traffic

sources of PM and its precursors. A paper documenting the work of Phase II was presented at the 2004 Emissions Inventory Conference and is available at <http://www.epa.gov/ttn/chief/conference/ei13/mobile/black.pdf>.

APPENDIX E – MSAT Mitigation Strategies

Lessening the effects of mobile source air toxics should be considered for projects with substantial construction-related MSAT emissions that are likely to occur over an extended building period, and for post-construction scenarios where the NEPA analysis indicates potentially meaningful MSAT levels. Such mitigation efforts should be evaluated based on the circumstances associated with individual projects, and they may not be appropriate in all cases. However, there are a number of available mitigation strategies and solutions for countering the effects of MSAT emissions.

Mitigating for Construction MSAT Emissions

Construction activity may generate a temporary increase in MSAT emissions. Project-level assessments that render a decision to pursue construction emission mitigation will benefit from a number of technologies and operational practices that should help lower short-term MSAT. In addition, the Federal Highway Administration has supported a host of diesel retrofit technologies in the Congestion Mitigation and Air Quality Improvement (CMAQ) Program provisions – technologies that are designed to lessen a number of MSATs.¹

Construction mitigation includes strategies that reduce engine activity or reduce emissions per unit of operating time, such as reducing the numbers of trips and extended idling. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits when sites are near populated areas. For example, agreements that stress work activity outside normal hours of an adjacent school campus would be operations-oriented mitigation. Verified emissions control technology retrofits or fleet modernization of engines for construction equipment could be appropriate mitigation strategies. Technology retrofits could include particulate matter traps, oxidation catalysts, and other devices that provide an after-treatment of exhaust emissions. Implementing maintenance programs per manufacturers' specifications to ensure engines perform at EPA certification levels, as applicable, and to ensure retrofit technologies perform at verified standards, as applicable, could also be deemed appropriate. The use of clean fuels, such as ultra-low sulfur diesel, biodiesel, or natural gas also can be a very cost-beneficial strategy.

The EPA has listed a number of approved diesel retrofit technologies; many of these can be deployed as emissions mitigation measures for equipment used in construction. This listing can be found at: www.epa.gov/otaq/retrofit/index.htm.

Post-Construction Mitigation for Projects with Potentially Significant MSAT Levels

Travel demand management strategies and techniques that reduce overall vehicle-mile of travel; reduce a particular type of travel, such as long-haul freight or commuter travel; or improve the transportation system's efficiency will mitigate MSAT emissions. Examples of such strategies include congestion pricing, commuter incentive programs, and increases in truck weight or length limits. Operational strategies that focus on speed limit

enforcement or traffic management policies may help reduce MSAT emissions even beyond the benefits of fleet turnover. Well-traveled highways with high proportions of heavy-duty diesel truck activity may benefit from active Intelligent Transportation System programs, such as traffic management centers or incident management systems. Similarly, anti-idling strategies, such as truck-stop electrification can complement projects that focus on new or increased freight activity.

Planners also may want to consider the benefits of establishing buffer zones between new or expanded highway alignments and populated areas. Modifications of local zoning or the development of guidelines that are more protective also may be useful in separating emissions and receptors.

The initial decision to pursue MSAT emissions mitigation should be the result of interagency consultation at the earliest juncture. Options available to project sponsors should be identified through careful information gathering and the required level of deliberation to assure an effective course of action. Such options may include local programs, whether voluntary or with incentives, to replace or rebuild older diesel engines with updated emissions controls. Information on EPA diesel collaborative around the country can be found at <http://www.epa.gov/otaq/diesel/whereyoulive.htm>.

¹

http://www.fhwa.dot.gov/environment/air_quality/cmaq/policy_and_guidance/2008_guidance/index.cfm