National Environmental Policy Act Manual

Version 2

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DOT

DEPARTMENT OF TRANSPORTATION

CHAPTER 1: INTRODUCTION - CONTENTS

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.

This Manual is a companion document to CDOT's *Environmental Stewardship Guide* (CDOT, 2005). The *Environmental Stewardship Guide* has been developed to assist users who want an overview of the transportation decision-making process and a better understanding of the environmental considerations contained in that process. Both this Manual and the *Environmental Stewardship Guide* should be used when preparing CDOT NEPA documents. Users of these guidance documents should

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.dot.state.co.us/

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 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.

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.

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 National Environmental Policy Act (NEPA) elements of the Colorado Department of Transportation's (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.
- 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 Regulations and Policies
- Appendix D Style Guide for NEPA Documents
- Appendix E Generic Environmental Scope of Work
- Appendix F Quality Assurance (QA)/Quality Control (QC) Guidance for NEPA Documents
- Appendix G Forms

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 NEPA Program Manager at CDOT EPB.

1.2 References

AASHTO, ACEC, and FHWA. 2006. Improving the Quality of Environmental Documents. May. Retrieved July 2008 from http://environment.transportation.org/pdf/IQED-1_for_CEE.pdf.

CDOT. 2005. Environmental Stewardship Guide. May. Retrieved July 2008 from http://www.dot.state.co.us/environmental/StandardsForms/ESGuide5-12-05PrePress.pdf.

National Environmental Policy Act (NEPA). 1969, as amended August 9, 1975. 42 USC § 4321 – 4347. Retrieved July 2008 from http://ceq.hss.doe.gov/nepa/regs/nepa/nepaeqia.htm.

CHAPTER 2: NATIONAL ENVIRONMENTAL POLICY ACT AND IMPLEMENTING REGULATIONS - CONTENTS

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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. Additional detailed information on regulations, such as purpose, applicability, timing/considerations and agency coordination/ consultation is included in Appendix C.

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.

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

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.

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.

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 – Predecision 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

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

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 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

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 Federal Transit Administration (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.

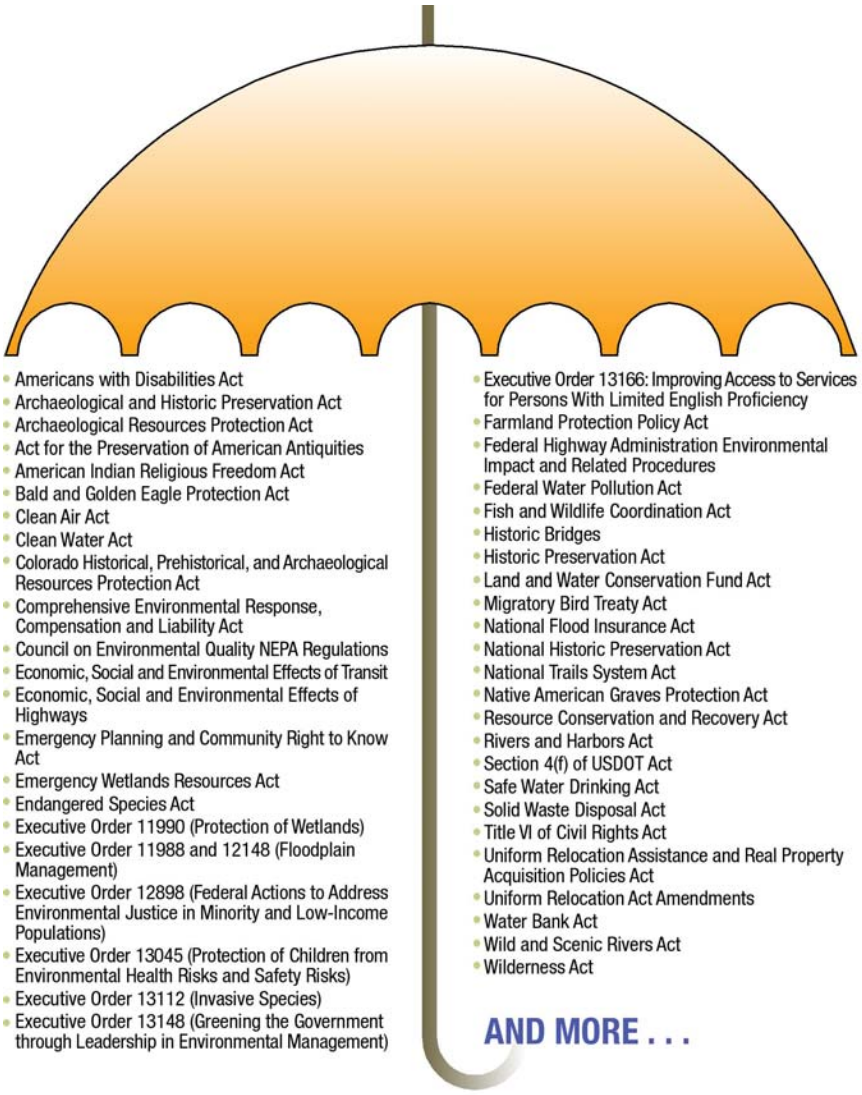
FTA's website
http://www.fta.dot.gov/

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



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.

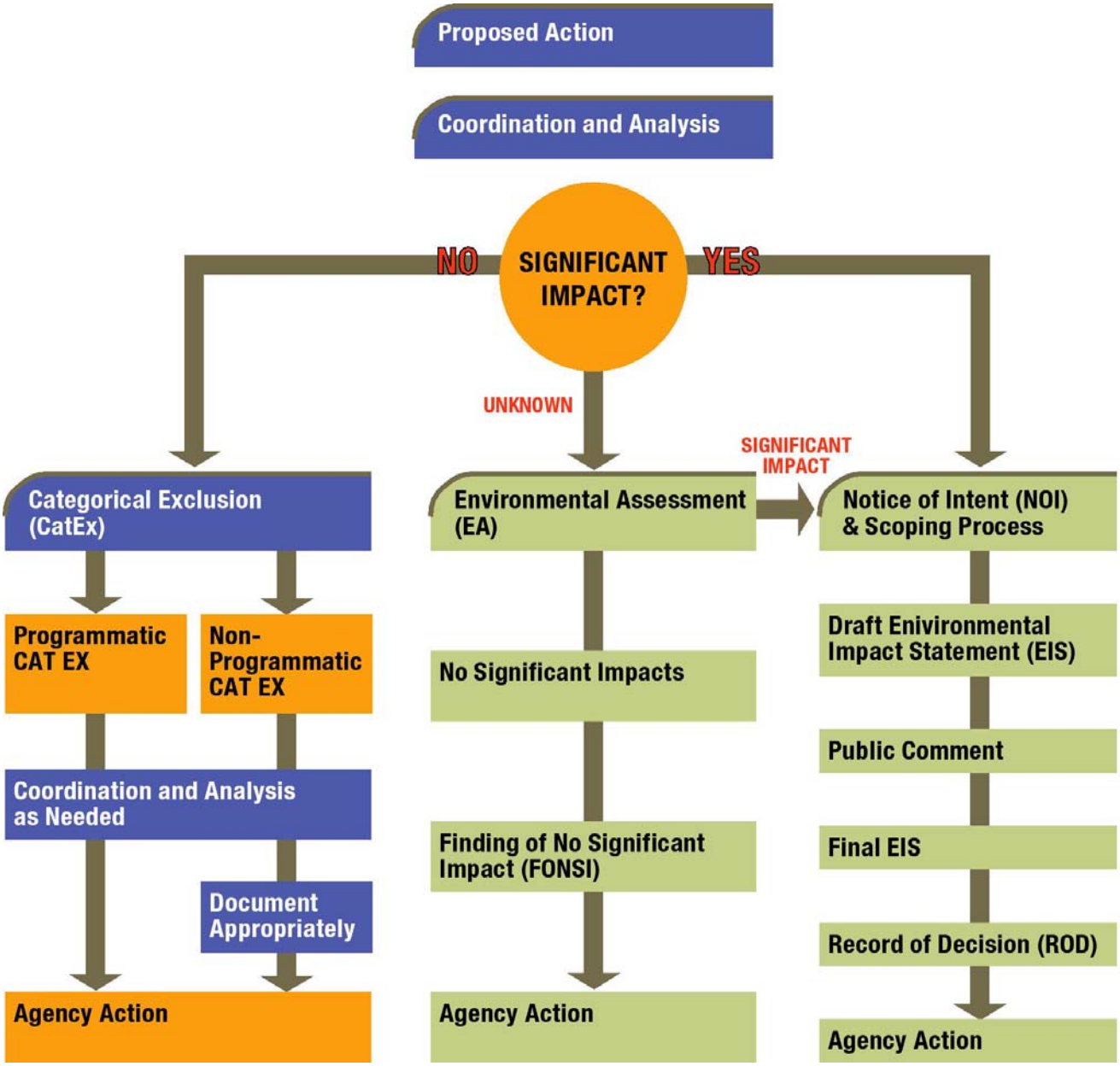
If there are any changes to the project that may affect the classification determination, the CDOT project team and FHWA jointly reconsider the appropriate classification and FHWA approves the revised classification determination. FHWA is the ultimate decision-maker for federal project classification. 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 Environmental Impact Statement (EIS) – Chapter 4	Class II Categorical Exclusion (CatEx) – Chapter 5	Class III Environmental Assessment (EA) – Chapter 6
Required for actions likely to have significant environmental effects that can not 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: ▸ 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: ▸ Pedestrian facilities ▸ Landscaping ▸ Routine maintenance, including resurfacing, bridge replacement and rehabilitation, and minor widening	Examples include: ▸ 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, CDOT (or FHWA for federal projects) 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.[1]	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

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 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 requirements for engaging broad agency and public input throughout the development and approval processes. Section 6002 requires notice and comment periods for purpose and need statements and the range of reasonable alternatives prior to circulation of the draft

Section[1]	Title	Description of Section
		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]).
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	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. Section 6006 makes activities for the control of noxious weeds and the establishment of native species eligible for federal-aid funds.
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.
Section 6008	Integration of Natural Resource Concerns into Transportation Project	Section 6008 mandates the integration of natural resource concerns into transportation planning.

Section[1]	Title	Description of Section
	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 Additional Regulations and Policies

Appendix C identifies federal laws, executive orders, and regulations applicable to transportation projects; policy, guidance, directives, and advisories pertaining to NEPA and related federal environmental laws; and agreements pertaining to NEPA and Section 4(f) compliance. Additionally, agreements pertaining to other federal and state requirements are found in this appendix. Full text of the regulations and guidance can be found online at the identified websites.

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 and its links, the CDOT environmental website and its links, and the FHWA environmental website and its links. Additional resource specific guidance is provided in Chapter 9.

FHWA's website
http://www.fhwa.dot.gov/

2.7 Permits and Other Regulatory Requirements

During the course of a highway construction project, there are many environmental permits, certifications, approvals, and concurrences that must be obtained before the project can proceed from one phase to the next. Since environmental requirements and regulations are constantly changing and being updated, it is necessary to identify required permits with CDOT staff, as applicable and create a project specific permit list for each project. Refer to the regulations and additional resources listed in Appendix C for information on obtaining the following permits.

- Air Quality Concurrence Letter
- Senate Bill (SB) 40
- Endangered Species Act Section 7 Consultation
- Depredation Permit
- Wetland Finding
- Clean Water Act Section 404 Permit
- Clean Water Act 401 Certification
- Clean Water Act 402 Certification
- Colorado Discharge Permit System (CDPS) Construction General Permit
- Section 303 4(f) Evaluation
- Section 6(f) Approval
- Section 106 Consultation
- Farmland Protection Clearance
- Floodplains Development Permit
- Special Use Permits

2.8 References

Council on Environmental Quality (CEQ). 1978. NEPA Regulations. 40 Code of Federal Regulations (CFR) § 1500 – 1508. Retrieved July 2008 from http://ceq.hss.doe.gov/nepa/regs/ceq/toc_ceq.htm.

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. Retrieved July 2008 from http://ceq.hss.doe.gov/nepa/regs/40/40p3.htm.

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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.

Intermodal Surface Transportation Efficiency Act (ISTEA). 1991. 23 United States Code (USC) § 1001 – 8005. Retrieved July 2008 from http://www.dot.gov/ost/govtaffairs/istea/.

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

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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.

"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

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 are federally funded. 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.

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.

CDOT's *Environmental Stewardship Guide* (CDOT, 2005a) was developed to document CDOT's environmental ethic and contains more detailed information.

CDOT's website http://www.dot.state.co.us/

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* (Appendix G), which is used in conjunction with the *Project Development Manual* (CDOT, 2001), to scope the project and track documentation or activity sign off dates. 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 RPEM provides the initial NEPA class of action designation and environmental study requirements. 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. Early coordination with the RPEM and environmental specialists will reduce the potential for time delays, increased costs, and changes to project design.

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). Table 3-1 is an attempt to more clearly define those roles and responsibilities. Variations from this template will occur, especially for specific resources. More detailed descriptions of roles and responsibilities are covered in Chapter 9.

To provide continuity and to gain a more specific understanding and familiarity of each Region's issues and staff, a primary EPB NEPA Partner will be assigned to each Region. This NEPA Partner will be one of the members of the EPB NEPA Program.

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 Partner, 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.

CDOT is organized into six transportation regions.

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).

Table 3-1 FHWA, CDOT Region, and CDOT EPB Staff Roles

Activity	CDOT Region	CDOT EPB	FHWA
Consistency with SWP, STIP, RTP, and TIP, as applicable	Lead	Support	Review
Policy development	Support	Lead	Support
Project development	Lead	Support	Approval
Scoping	Lead	Support	Review/Approval
Agency coordination	Lead	Support	Review/Approval
Public involvement	Lead	Support	Approval
Document preparation	Lead	Review/Support	Review/Approval
Document review	Review/Approval	Review/Approval	Review/Approval
Obtaining permits	Lead	Support	Support
Specialty area expertise	Support/Lead	Support/Lead	Support/Approval
Programmatic agreements	Support	Lead	Approval
Mitigation measures	Lead	Support	Approval
Training	Support	Lead	Support/Lead
Research/innovation	Support	Lead	Approval
Compliance	Lead	Support	Review/Approval

SWP – Statewide Transportation Plan, STIP – Statewide Transportation Improvement Program, RTP – Regional Transportation Plan, TIP – Transportation Improvement Program

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.

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.

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. Any time CDOT prepares and processes or assists in the processing of an environmental document to comply with NEPA, the standard used for document development and processing will be this CDOT NEPA Manual. 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 the Environmental Impact Statement [EIS] that 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, 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.

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

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

involvement may also be dictated by existing intergovernmental agreements 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 Section 404 Merger Process
- MOU between FHWA, US Environmental Protection Agency (EPA), and CDOT that formalizes the cooperative working relationship between these agencies

For more information on these and additional MOUs, refer to Appendix C.

In summary, the RPEM must assure that funding for the project is in the STIP, or that an amendment to the STIP is planned or in process. The project team should then review a list of environmental requirements to determine the level of effort. Finally, be sure that the team concurs with the anticipated class of action, general approach to analysis, etc., with clarity among all participating members of the team.

The SWP is a 20-year long range plan that provides significant policy direction and forms the basis for transportation planning and development of the transportation system.

The STIP is a four-year capital programming document that prioritizes projects.

3.1.2 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 identifying and prioritizing their long-range transportation needs for all modes. These regional plans and priorities are integrated and consolidated into the state's 20 year multi-modal plan, 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, 2001) 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* (Appendix G). 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.

  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.

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

http://www.dot.state.co.us/StatewidePlanning/PlansStudies/2035Plan.asp

3.2 Planning and Environmental Linkages (PEL)

FHWA defines Planning and Environmental Linkages (PEL) as a voluntary approach to transportation decision-making that considers environmental, community, and economic goals early in the planning stage and carries them through project development, design, and construction (show in Figure 3-1). This can lead to a better decision-making process that minimizes duplication of effort, promotes environmental stewardship, and reduces delays in project implementation. PEL is also a program promoting tools and resources to help aid a project from cradle to grave. Examples of these tools include corridor/planning studies, trainings, FHWA and CDOT PEL guidelines (FHWA, 2005a; FHWA, 2005b; CDOT 2007; CDOT, 2005b), the FHWA PEL Questionnaire and others.

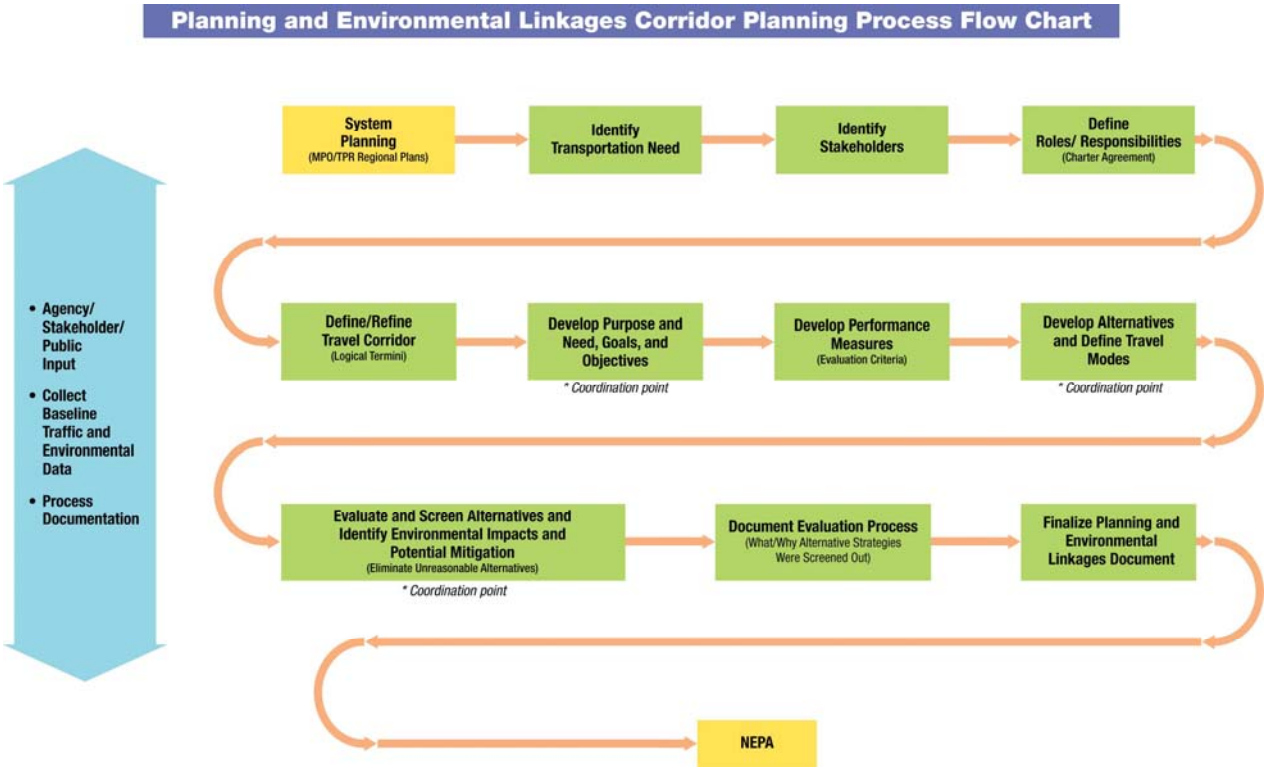
This approach encourages internal and external communication and coordination throughout the decision-making process — between transportation staff responsible for planning, environmental and project development, between transportation agencies and resource agencies, and between agencies and the public. It also enables agencies to take a broader, ecosystem-scale perspective instead of one that looks only at individual projects.

PEL efforts coordinate easily with other regulatory guidance on transportation planning and environmental review processes. On September 18, 2002, President George W. Bush signed Executive Order 13274, titled Environmental Stewardship and Transportation Infrastructure Project Reviews (EO 13274, 2002), which emphasizes the importance of expedited transportation project delivery by federal agencies while being good stewards of the environment.

On August 10, 2005, SAFETEA-LU was signed into law further supporting PEL. SAFETEA-LU includes several provisions intended to enhance the consideration of environmental issues and impacts within the transportation planning process and encourage the use of the products from planning in the NEPA process. Specifically, Section 6001 requires many of the activities that were previously considered "good" practices to strengthen linkages.

The planning process and the environmental assessment required during project development by NEPA should work in tandem, with the results of the transportation planning process feeding into the NEPA process (FHWA, 2005).

Figure 3-1 Planning and Environmental Linkages Corridor Planning Process Flow Chart



Section 6001 (Environmental Considerations in Planning) of SAFETEA-LU requires certain elements and activities to be included in the development of long-range transportation plans, including:

- Consultations with resource 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
- Participation plans that identify a process for stakeholder involvement
- Visualization of proposed transportation strategies where practicable

The planning rule (FHWA, 23 CFR 450) explains how results or decisions of transportation planning studies may be used as part of the overall project development process consistent with NEPA. Appendix A of 23 CFR 450 provides details on how information, analysis, and products from

transportation planning can be incorporated into and relied upon in NEPA documents under existing laws (FHWA, 23 CFR 450). It is intended to be non-binding and voluntary. The FHWA *Memorandum Regarding Integration of Planning and NEPA Processes* (FHWA, 2005a) provides guidance on how transportation planning level information and products may be used to focus the documentation prepared to comply with NEPA when federal approvals are needed to build a transportation project federal law and regulations and best practices ensure that much information that is relevant to the NEPA process is in fact developed during the planning process. Both federal transportation law and NEPA law strongly suggest that to the extent practicable, the NEPA process should use and build on the decision made and information developed during the planning process. Of course, where the transportation planning process fails to address or document issues, the NEPA analyses and documentation may have to supplement the information developed during the planning process.

The publicly available documents produced by PEL studies may be incorporated directly or by reference into subsequent NEPA documents. Examples of studies that could be incorporated into NEPA include:

- Environmental Overview Study
- Corridor Optimization Plan
- Feasibility Study
- Access Control Plan
- Access Management Plan
- Aesthetic Plan
- Conservation Plan

CDOT has had a PEL program in place since 2006 and since then, CDOT has become a PEL national leader because of its many accomplishments. Various tools and techniques that have been incorporated into the transportation planning process in the PEL approach include various corridor/planning studies, trainings, FHWA PEL Questionnaire that reflects Appendix A of 23 CFR 450 (FHWA, 23 CFR 450), PEL Guidance and training, Context Sensitive Solution techniques and analytical tool development. When the PEL approach is successfully implemented, the lifecycle of the project flows more efficiently.

CDOT's PEL program accomplishments include the development of PEL on-line training, PEL Decision Tool, PEL Guidance, and a March 2007 Environmental Forum. CDOT is committed to continuing to enhance and improve the PEL program by offering trainings, developing a project lifecycle

Interactive training to link planning and NEPA is available at:

http://www.dot.state.co.us/environmental/Training/NEPA_index.asp

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

flowchart, and utilizing the PEL Decision Tool to assist transportation planners. The tool is interactive and asks for specific information such as location, money and time availability, and what the purpose of the study would be such as purpose and need development, environmental considerations, etc. Once the information is entered, the tool will give the planner an idea of what kind of study can be done within the parameters specified.

CDOT and FHWA continue their PEL initiatives to promote a more integrated approach to transportation and environmental planning and the project development process (FHWA, 2005a; FHWA, 2005b; CDOT 2007; CDOT, 2005b),. CDOT has recently incorporated PEL opportunities into the 2035 SWP. The 2035 SWP includes an environmental section that lists conservation and management plans for resource agencies in each Transportation Planning Region (TPR) and Metropolitan Planning Organization (MPO) regional plans. Each of the 15 TPRs updated the corridor visions to integrate community values, land use decisions, and environmental concerns with transportation needs. The corridor vision concept introduced in the 2030 SWP was further refined in the 2035 SWP. Approximately 350 corridor visions have been updated by the TPRs to identify current trends and conditions. Environmental resources and mitigation strategies were included in response to SAFETEA-LU. Together, the individual corridor visions present a statewide vision that links transportation goals and strategies to investment decisions. Corridor visions increase the efficiency and accountability of the transportation system by aligning vision strategies and project priorities.

Benefits of PEL to CDOT, local agencies, resource agencies, and other stakeholders include:

- Early identification of stakeholders
- More positive working relationships with resource agencies and the public by enhancing participation and coordination efforts
- Streamlining the project development and environmental review process
- Early identification of environmental "red flags" in project study areas
- Reducing duplication of work by conducting some analysis at the planning stage
- Ultimate time and money savings

An additional resource for linking planning and NEPA includes:

FHWA's Environmental Streamlining and Stewardship program at:

http://environment.fhwa.dot.gov/strmlng/index.asp

3.3 Context Sensitive Solutions (CSS)

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 features in designing a facility that are 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.

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 1601 Policy Directive *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.

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CHAPTER 4 ENVIRONMENTAL IMPACT STATEMENT (CLASS I) CONTENTS

LIST OF FIGURES

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.

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

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.

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.

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:

- 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]). State or local agencies with special environmental expertise may also become a cooperating agency by agreement with the lead agencies (e.g., Colorado Division of Wildlife [CDOW] 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

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

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

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 20408-00001

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.

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 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.

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, 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 during 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 administrative record.

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 administrative record and are public documents that must be available for review.

Use simple terms understandable to a lay person.

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.

- 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. Exhibits should be produced such that the information is clearly depicted regardless of whether the EIS is printed in black and white or color.
- 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 – Affected Environment

- Chapter 4 – Environmental Consequences (Including Mitigation Measures and Cumulative Impacts)
- Chapter 5 – Section 4(f) Evaluation, if required
- Chapter 6 - Agency Coordination and Public Involvement
- Chapter 7 – List of Preparers
- Chapter 8 – 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 or on the back cover. Information can be incorporated on the interior cover sheet under "the following company may be contacted for additional information concerning this document".

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

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., Draft or Final, Programmatic or Supplemental, EA or 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 Regional Transportation Director, Chief Engineer and Division Administrator
- 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 that can be used for decision-making regarding the Preferred Alternative. 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.

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

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.

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

CEQ § 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.

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

The Preferred Alternative is not discussed in the purpose and need.

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.

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 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. 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.

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)

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 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

The CDOT NEPA/404 Merger Agreement can be found on CDOT's main website at: www.dot.state.co.us/environmental/Wetlands/Docs/NEPA404Merger.pdf

4.6.3 Purpose and Need and the NEPA/404 Merger

When multiple agencies, such as the USACE with jurisdiction are involved in the same project, the purpose and need is jointly developed and can present evaluation criteria that can be used to screen alternatives. A merger 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, 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.

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 identifying the Preferred Alternative

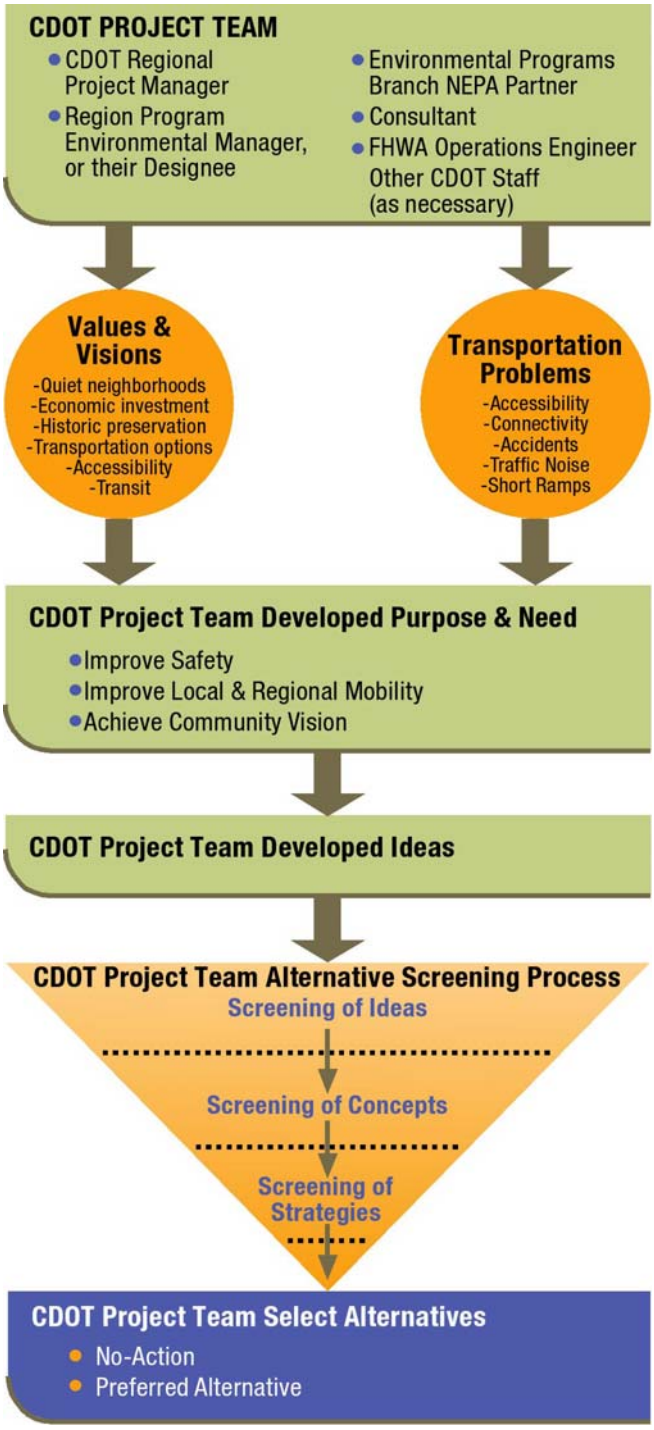
4.7.1 Developing Reasonable Alternatives for the Proposed Action

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 data, 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

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

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]).

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 fiscally constrained and funding cannot be guaranteed within the planning horizon for the project, a determination of whether a project-specific EIS or a Tiered EIS is applicable for the corridor should occur in consultation with FHWA and CDOT. Tiered documents and RODs are further discussed in Section 4.15.

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.

TSM AND TDM ALTERNATIVES

Among the reasonable alternatives, transportation system management (TSM) programs that focus on making the transportation systems more efficient need to be considered. 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.

Transportation demand management (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 reasonable 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 statewide plan, approved through the NEPA process, or longer-term maintenance activities that would occur even if the No-Action Alternative is selected.

The No-Action Alternative is the alternative that would be selected if the lead agency, typically FHWA, chooses not to select the proposed action as the Preferred Alternative. 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 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.

The current TIP/STIP can be found at http://www.dot.state.co.us/StatewidePlanning/

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 and the proposed action. 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 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 administrative record.

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), and Section 106 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.

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

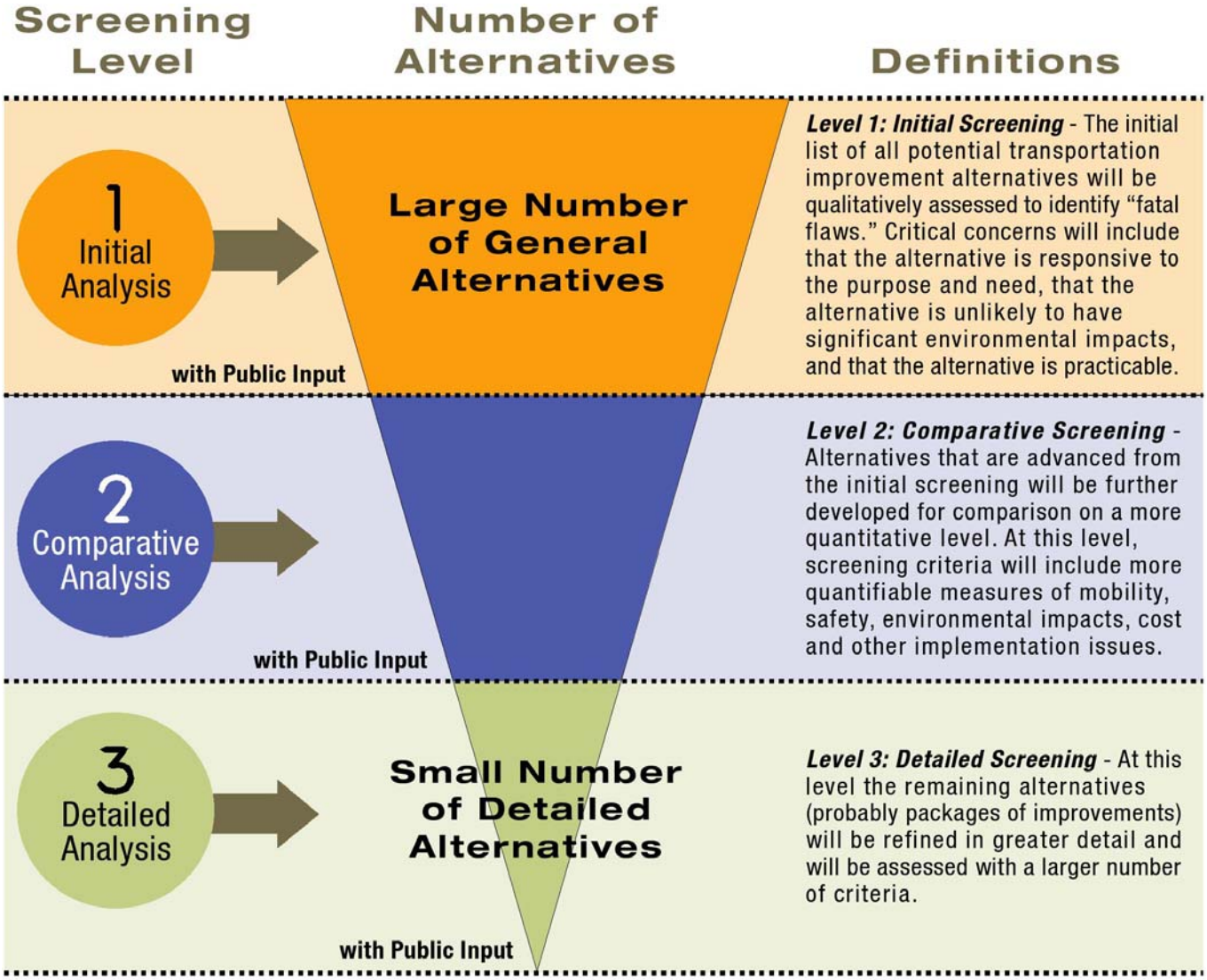
http://www.epa.gov/owow/wetlands/pdf/40cfrPart230.pdf

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 EISs, 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 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 Section 2.3 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 dictated by 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 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.

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, because of numerous factors such as studying ways to avoid or minimize impacts, 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

It is not necessary to identify a Preferred Alternative in the Draft EIS. The Final EIS must identify and describe the Preferred Alternative and the basis for that decision.

- The final selection of an alternative will not be made until after any new proposed reasonable alternatives and public comments on the Draft EIS have been fully evaluated

If a Preferred Alternative has been 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 "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 to 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 FEIS (or DEIS 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 Affected Environment

The Affected Environment, typically Chapter 3 in an EIS, 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.

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))

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 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 and local regulations and local administrative standards
- Environmental and socioeconomic trends

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.

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 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 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' (AASHTO's) *Improving the Quality of Environmental Documents* for suggestions on preparing good, concise, readable, and legally sufficient EISs. Appendix D of this Manual provides a recommended style guide for preparation of EISs.

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.

4.8.1 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. 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, 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, Colorado Historical Society, Publication #1308b, 8CCR 1504–7 Rules and Procedures Historical, Prehistorical, and Archaeological Resources Act (revised 01/04)) 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 CDOW 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.

4.8.2 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.

4.9 *Environmental Consequences (Including Mitigation Measures and Cumulative Impacts)*

The analysis of environmental consequences, typically Chapter 4 in an EIS, 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 implication) that may have resulted from modification or identification of substantive new circumstances or information regarding the Preferred Alternative following the draft document's 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 4.15 for more details.

4.9.1 Types of Impacts

NEPA uses the terms "impact," "effect," and "consequences" synonymously. This Manual utilizes "impact". For an action to affect (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).

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 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).

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.

To help CDOT Program Managers completely understand how a resource will be affected, 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.

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.

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.

4.9.2 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 must 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 Mitigation and Monitoring Commitments" table. This summary should be formatted to allow its use as a stand-alone document that can be reproduced separately and 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.

4.9.3 Mitigation and the NEPA/404 Merger

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

In Section 4.9, 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.

4.9.4 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).

4.9.5 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.

4.9.6 Cumulative Impacts

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.

4.9.7 Incomplete or Unavailable Information

When evaluating reasonably foreseeable significant adverse impacts on the human environment in a 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

4.10 Section 4(f) Evaluation

Section 4(f) guidance for historic and non-historic properties is discussed in detail in Chapter 9 of this Manual. Section 4(f) findings are typically Chapter 5 in an EIS, if required.

4.11 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.

4.12 List of Preparers

CEQ regulation requires 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.

4.13 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. CDOT's specific policies for distribution between CDOT Regions is further discussed in Chapter 7.

4.13.1 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, consultation with USFWS, Section 106 coordination with the SHPO, and important communications with similar agencies.

4.14 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. No CEQ Regulations exist for the bibliography.

4.15 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 administrative draft for CDOT headquarters (Environmental Programs Branch [EPB] and others) review and FHWA administrative review and approval. All reports and studies referred to in the environmental document must be readily available for public review and copying at a convenient location, which is usually the CDOT regional office. An exception to this is during the public comment period prior to the public hearing when the EIS and the technical reports are placed in additional 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

4.16 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).

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.

4.17 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. Five originals of the EIS, with appendices, must be provided to the EPA. In addition, a letter of transmittal should accompany the five (5) copies of the EIS.

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 EPA's notice and at least 15 days prior to the public hearing.

CDOT follows the FHWA directives in 23 CFR § 223 771.123 (Draft EIS), 771.125 (Final EIS), and 771.127 (ROD). Available at: http://environment.fhwa.dot.gov/projdev/impcfr0771.asp

4.18 The Draft EIS

4.18.1 Circulation of the Draft EIS

After clearance 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 45-day review period (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.

4.18.2 Comments on the Draft EIS

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 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

4.19 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 NOA in local newspapers. When 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.

4.19.1 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 what approach seems applicable for the project. FHWA will make the final determination as to what 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 selection of an 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 selection, 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 selected. 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.

4.19.2 EIS Approval Process

Specific details regarding the NEPA review process for Draft and Final EISs is discussed in Chapter 8.

4.19.3 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.

4.19.4 Record of Decision

The ROD typically follows a Final EIS and identifies the Preferred Alternative. 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, nor sooner than 90 days after the Draft EIS is circulated.

The following key items are addressed in the ROD:

- Decision – Identify the Preferred Alternative 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 preferred alternative(s) and, if the alternative selected is not the environmentally preferred 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.
- Monitoring or Enforcement Program – Describe any monitoring or enforcement program adopted for specific mitigation measures, as outlined in the Final EIS
- 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 Analysis, Reevaluations Supplemental EIS)

4.20.1 Tiered NEPA Analyses

Agencies are allowed by CEQ regulations to tier their typically 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 § 7111[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.

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

After completion of the NEPA process, 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.

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

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).

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 *1991 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.

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.

Written reevaluation methods could be as simple as FHWA documenting a phone conversation, with a note to the project file, where assurance was given that no changes had occurred that affect the environmental document. As a process, FHWA and CDOT could agree that CDOT will provide a letter documenting that the existing approved EIS is still valid and that there no changes, or that changes do not result in major project scope modification or significant environmental impacts. All methods should be made part of the administrative record where they can be viewed by the public.

A Draft EIS, Final EIS, or ROD may be supplemented at any time.

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 addition, 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 document 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 Administrative Record

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 entire 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 CDOT Project Team determines where the administration record will initially kept, typically at the consultant's office (if utilizing a consultant). Upon the completion of the project, the consultant organizes and files the appropriate documents and provides to CDOT for final storage.

The administrative record for each project will be drawn from the CDOT project files 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. The CDOT project filing system will identify non-public information that is not appropriate for inclusion in the administrative record.

There is no general NEPA guidance on how long an administrative record should be kept and federal agencies are free to establish their own guidelines on retention. 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 (i.e., the administrative record)

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

4.22.1 Administrative Record Documentation

Types of documentation relative to the NEPA process placed in the CDOT administrative record include:

- Documents and materials prepared, reviewed, or received by agency personnel and used by or available to the decision-maker
- Policies, guidelines, directives and manuals, or easy references to these materials if they are readily available
- Articles and books. Be sensitive to copyright laws governing duplication. Include factual information or data
- Communications the agency received from other agencies and from the public, and any responses to those communications. Be aware that documents concerning meetings between the lead and cooperating agencies should be included but may be deemed confidential material within a litigation.

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

- Documents and materials that contain information that support or oppose the challenged agency decision
- 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. Generally, include 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, 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
- Minutes or transcripts of meetings
- Memos of telephone conversations and meetings, such as a memorandum or handwritten notes, unless they are personal notes
- Notes of meetings where key decisions are made about the content of the document
- Issues to be examined in detail
- Alternatives
- Notes
- Public comment letters
- Minutes of meetings
- Phone calls
- E-mails
- Documentation of public involvement efforts
- Copies of EAs or EISs that were circulated within CDOT, FHWA, or to other agencies or entities outside CDOT and FHWA, for review or comment

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.

Refer to AASHTO's *Improving the Quality of Environmental Documents* for further information on the legal sufficiency of EISs prepared for transportation projects.

4.23 Statute of Limitations

Section 6002 of SAFETEA-LU established a 180-day statute of limitations on litigation for projects being implemented under either the new or old procedures. The 180-day clock starts with Federal Register publication of a notice that a permit, license, or approval action is final. As part of implementing this procedure, a new process for publication of notices regarding RODs will need to be developed.

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CHAPTER 5: CATEGORICAL EXCLUSIONS (CLASS II) - CONTENTS

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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.

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 Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) regulations at Title 23 Code of Federal Regulations (CFR) § 771.117 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:

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

- 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 have significant impacts on travel patterns
- Do not involve substantial controversy on environmental grounds

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 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. 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 regulations (FHWA, 23 CFR § 771. 117) contain two lists of CatExs:

- Programmatic CatEx Projects – These 20 projects are identified in Part C of the regulation and do not normally require any further NEPA approvals from FHWA. CDOT also has been granted specific "Programmatic Categorical Exclusions" for an expanded list of 22 additional activities based on an agreement with FHWA (CDOT, 1998).
- 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 approval and 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).

In addition to the Programmatic and Non-Programmatic CatEx projects, an Expanded Non-Programmatic CatEx category has been identified. Expanded Non-Programmatic CatEx projects meet the criteria for activities as defined in 23 CFR § 771.117 Part A but are not listed in 23 CFR § 771.117 Part C or Part D, or through agreement with FHWA (CDOT, 1998). Actions that may be approved through an Expanded Non-Programmatic CatEx are project-specific and should only be pursued on a case-by-case basis after coordination and agreement by FHWA and CDOT.

Types of CatExs

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

5.2 Programmatic CatEx Projects

Based on the actions identified in 23 CFR § 771.117 Part C and through agreement with FHWA (CDOT, 1998), 42 activities may be approved programmatically by CDOT. The following sections discuss:

- Actions that may be approved as Programmatic CatExs
- Programmatic CatEx process

CDOT. 1998. Letter to Mr. James Daves, FHWA Colorado Division Administrator. June 24. FHWA concurrence on July 21, 1998.

- Documentation required
- Approval procedures

5.2.1 Programmatic CatEx - Actions

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 § 771.117 Part A. These actions normally do not require any further NEPA approvals by FHWA:

C1. Activities which do not involve or lead directly to construction, such as planning and technical studies; grants for training and research programs; research activities as defined in 23 United States Code (USC) 307; approval of a unified work program and any findings required in the planning process pursuant to 23 USC 134; approval of statewide programs under 23 CFR part 630; approval of project concepts under 23 CFR Part 476; engineering to define the elements of a proposed action or alternatives so that social, economic, and environmental effects, including impacts to Section 4(f) properties, 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 when the subsequent action is not an FHWA action

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 CFR part 480 for property previously acquired with Federal-aid participation

Forty-two (42) activities may be approved programmatically by CDOT without further NEPA approvals by FHWA.

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

In addition to the 20 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, 1998). The expanded list of 22 additional project and maintenance activities that may be approved programmatically includes:

An expanded list of 22 additional project and maintenance activities that may be approved programmatically by CDOT were agreed to by FHWA in 1998.

prg1. Adding or lengthening turning lanes (including continuous turning lanes), intersection improvements, channelization of traffic, or dualizing lanes at intersections and interchanges

prg2. Flattening slopes; improving vertical and horizontal alignments

prg3. 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

prg4. Restoring, replacing, or rehabilitating culverts, inlets, drainage pipes and drainage systems, including safety treatments to improve these features

prg5. Preventive maintenance activities, such as joint repair, pavement patching, crack sealing, skid hazard treatments, striping, and shoulder repair

prg6. Restoration, rehabilitation or resurfacing of existing pavement or the removal and replacement of old pavement structure

prg7. Upgrading, removal or addition of guardrail, median barrier or impact attenuators

prg8. Railroad crossing elimination by closure, and railroad overpass removal within existing right-of-way

prg9. Clear zone safety improvements, such as fixed object removal or relocation

prg10. Screening unsightly areas

prg11. 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

prg12. Widening of substandard bridge structures to provide shoulders

prg13. Acquisition of scenic easements and scenic or historic sites

prg14. Preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails)

prg15. Historic preservation, rehabilitation and operation of historic transportation buildings, structures, or facilities (including railroad facilities and canals)

prg16. Control and removal of outdoor advertising

prg17. Landscaping and other scenic beautification

prg18. Mitigation of water pollution due to highway runoff

prg19. 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

prg20. Approvals for changes in access control (Non-Interstate)

prg21. Rehabilitation or reconstruction of existing rail and bus transit 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

prg22. 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

Approvals for change in Interstate access control may not be conducted by CDOT. This activity is a non-programmatic action and requires further NEPA approval by FHWA.

activity center in which there is adequate street capacity for project bus traffic

The above listed project types (actions 21 to 42) qualify as programmatic CatExs only if each of the following criteria are met or as individually granted through consultation by FHWA if the following criteria is not met:

- Project improvements will not result in the addition of through lanes
- Projects cause no adverse impacts to local traffic patterns, property access, community cohesiveness, or planned community growth or land use patterns
- Air, noise, and water quality impacts are negligible or nonexistent
- Wetland areas are not taken, or if wetlands are involved, they qualify for the programmatic agreement on Wetland Findings (impacts less than one acre)
- An Individual Clean Water Act Section 404 Permit is not required
- Threatened or endangered species and their critical habitat will remain unaffected
- No significant amount of right-of-way may be acquired and no significant amount of relocations are involved
- Properties protected under Section 106 of the Historic Preservation Act are not affected or will have no adverse effect as determined in consultation with the State Historic Preservation Officer (SHPO)
- No significant hazardous waste contamination is involved

Actions 39 to 42 are listed under 23 CFR 771.117 Part D but can be programmatically approved by CDOT without further NEPA approval by FHWA (CDOT, 1998).

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

CDOT Region 6. 2003. Categorical Exclusion: Region 6 Environmental Red Flags. August.

5.2.2 Programmatic CatEx - Process

As discussed in Section 2.4, CDOT staff, typically the CDOT Regional Planning and Environmental Manager (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 Programmatic CatEx and a Local Agency Project with CDOT Oversight Programmatic CatEx. Conducting actions documented by the Form 128 (Appendix G) will required information input by CDOT into the CDOT SAP computer tracking system. Attachment 1 includes the step-by-step process

Any questions or concerns regarding the Programmatic CatEx process should be directed to the relevant RPEM.

to input information into the CDOT SAP computer tracking system. The CDOT SAP computer tracking system is only accessible to CDOT personnel.

CDOT Project

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

1. Internal Scoping: The CDOT Project Manager 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. To assist in identifying anticipated environmental clearances, CDOT has prepared an environmental red flags summary that covers many of the key environmental resources and the threshold needed for an environmental clearance (CDOT, 2003).
2. The CDOT Project Manager drafts a preliminary detailed project schedule and circulates to the multi-disciplinary project development team for comments. 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 Waste (Initial Site Assessment [ISA]/Modified Phase I Environmental Site Assessment [MESA])
    d. Farmland Protection

CDOT Form 128 requires two sets of approvals:

- 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) needed for right-of-way plan authorization and obligation of funds for right-of-way acquisition
- Bottom part (Parts C, D, and E) for environmental permits and for ensuring environmental commitments are in the final plans and specifications
- Bottom part (Parts C, D, and E) needed for project advertisement and obligation of funds for construction

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

e. Threatened and Endangered Species

f. Wetland Determination (Survey)

g. Archaeology (Effects Determination)

h. Paleontology (Effects Determination)

i. History

j. Historic Bridge

k. Section 4(f)/6(f)

l. Other (Potentially may include Environmental Justice, Noxious Weeds, Water Resources, Visual/Aesthetics, etc.)

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 fits Categorical Exclusion or Programmatic CE number _____
2. All required Clearance Actions indicated in Part B below have been completed. All Permits and Additional Requirements indicated in Part C below will be obtained before project ad.
3. No significant environmental impacts will result from this project. The Region Planning and Environmental Manager (RPEM) will ensure implementation of required mitigation commitments.
4. CDOT Form #463 dated _____ (Revised _____) is attached

B. Clearance Actions

REQUIRED Yes	REQUIRED No		DATE COMPLETED	REQUIRED Yes	REQUIRED No		DATE COMPLETED
☐	☐	Air Quality (hot spot analysis)		☐	☐	Archaeology (effects determination)	
☐	☐	Noise		☐	☐	Paleontology (effects determination)	
☐	☐	Hazardous Waste (ISA/M-ESA)		☐	☐	History	
☐	☐	Farmland Protection		☐	☐	Historic Bridge	
☐	☐	Threatened or Endangered Species		☐	☐	4(f), 6(f)	
☐	☐	Wetland Determination (survey)		☐	☐	Other	

All clearance requirements have been completed for the work indicated in the CDOT Form #463 referenced above.

RPEM Signature | Date | Region#

I concur in the above category designation and the scope of environmental clearances/permits indicated

FHWA Division Administrator signature (when required) (Please return form to RPEM) | Date

4. Field Inspection Review (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.

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): 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 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, a minimum of three (3) weeks prior to when final clearance is required. The RPEM, or a designee, verifies that the 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.

11. Environmental Project Certification: The RPEM approves the Environmental Project Certification in Part E of Form 128 (Figure 5-2).

12. The CDOT Resident Engineer signs and (in some cases the CDOT Project Manager) submits the final Form 463 and as applicable, 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 Yes	REQUIRED No		DATE COMPLETED	REQUIRED Yes	REQUIRED No		DATE COMPLETED
☐	☐	404 Permit	_____	☐	☐	401 Permit	_____
		402 Permits		☐	☐	Division of Wildlife SB 40	_____
☐	☐	- Stormwater Permit (NPDES)	_____	☐	☐	Wetland Finding	_____
☐	☐	- Municipal Permit	_____	☐	☐	Hazardous Waste (PSI/SI)	_____
☐	☐	- Dewatering Permit	_____	☐	☐	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 #128 9/98

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. Project documentation and records should be maintained in accordance with CDOT Procedural Directive 51.1.

Local Agency Project with CDOT Oversight

1. Preliminary Agency Scoping: The Local Agency Project Manager 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. To assist the project team in identifying anticipated environmental clearances, CDOT has prepared an environmental red flags summary that covers many of the key environmental resources and the threshold needed for an environmental clearance (CDOT, 2003).
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 documentation required is further discussed in Section 5.2.3.
4. FIR: The 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

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).

Mitigation Measures and provides this summary to the project team 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, 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, a minimum of three (3) weeks prior to when final clearance is required. The RPEM, or a designee, verifies that the 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.
12. Environmental Project Certification: The RPEM approves the Environmental Project Certification in Part E of the Form 128.
13. The Resident Engineer signs and (in some cases the Project Manager) submits the final Form 463, and as applicable, the completed and signed Form 128, and the signed by the 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.
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).

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

5.2.3 Programmatic CatEx - Documentation

CDOT policy requires that documentation (Form 128, Appendix G) must be provided for all CatEx projects, regardless of whether they are Programmatic, Non-Programmatic, or Expanded Non-Programmatic CatEx 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: A project that adds additional through lanes or turn lanes at an intersection or includes signalization of an intersection for the first time requires a Level of Service (LOS) traffic analysis. The LOS traffic analysis measures traffic operations with values ranging from A to F. LOS A represents the best possible operational conditions, while LOS F is characterized by severe congestion and extremely poor traffic operations (i.e. gridlock). A LOS of D, E, or F will require an air quality hot spot analysis. Additional information on conducting an air quality hot spot analysis is included in Section 9.1. If a hot spot analysis is not required, a brief technical memorandum or similar documentation to the project file should be prepared documenting the reasons why a hot spot analysis is not necessary.

- Noise: A project that involves construction of a roadway in a new location that physically alters the vertical or horizontal alignment of an existing roadway, or increases the number of through traffic lanes is required to conduct a noise analysis. Additional information on conducting a noise analysis is included in Section 9.22. If a noise analysis is not required, a brief technical memorandum or similar documentation to the project file should be prepared documenting the reasons why a noise analysis is not necessary.
- Hazardous Waste (Materials): Every project requires an ISA (Form 881, Appendix G), a MESA, or a Phase I Environmental Site Assessment. Section 9.25 provides additional information on when an ISA or MESA is applicable depending on the size and type of project.
- Farmland Protection: Prime and unique farmlands fall under the jurisdiction of the US Department of Agriculture, which is administered by the Natural Resources Conservation Service (NRCS). Coordination with the NRCS is required if farmland is to be acquired for right-of-way. Section 9.21 provides additional information on the process for evaluating farmlands. If farmlands are not to be acquired for right-of-way, a brief technical memorandum to the project file should be prepared for documentation.
- Threatened and Endangered Species: As a first step, it is recommended that an Initial Biological Resources Report 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, prairie dogs, and noxious weeds. If there are potential impacts to a threatened and endangered species, the process outlined in Section 9.8 should be followed. Otherwise, the Initial Biological Resources Report serves as documentation for the absence of threatened and endangered species in the project area.
- Wetlands: A wetland identification should be conducted. It is recommended that the wetland identification be conducted as part of the Initial Biological Resources Report. If wetlands are identified that would be impacted, a Wetland Delineation will be conducted for submittal to the US Army Corps of Engineers (USACE) for a jurisdictional determination as outlined in Section 9.5. Otherwise, the Initial Biological Resources Report serves as documentation for the absence of wetlands in the project area.

- Archaeology: If the project requires any type of excavation (six inches or greater in ground 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 9.9 provides additional information on the process for the survey of archaeological resources.
- History/Historic Bridges: A Historic Resource Inventory and coordination with SHPO in accordance with Section 106 of the National Historic Preservation Act is required for all projects affecting structures, causing change to features near structures, or is located within or near eligible historic districts. Section 9.9 provides additional information on the process for the survey of historic resources. In relation to historic bridges, CDOT has a Historic Bridge Programmatic Agreement with SHPO to review and provide clearance for bridges that were found to not be eligible for the National Register of Historic Places (NRHP) in the statewide Historic Bridge Survey (CDOT, 2000). Coordination with a CDOT Historian is required.
- 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 9.10 provides additional information on the process for the survey of paleontological resources.
- Section 4(f)/6(f): Once any Section 4(f)/6(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)/6(f) impacts include parks, trails, or historic properties. Sections 9.19 and 9.20 discuss the Section 4(f)/6(f) process.
- 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, Noxious Weeds, Water Resources, Migratory Birds, Species of Special Concern (Prairie Dogs), Visual/Aesthetics, 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:

- Clean Water Action Section 404 Permit: Impacts to streams and related jurisdictional wetlands will 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 9.5.
- Clean Water Act Section 402 Stormwater Permit: For ground disturbances greater than one acre in size, a Colorado Department of Public Health and Environment (CDPHE) permit is required. There are some municipalities that have been given permitting authority, and these permits would be required in place of the CDPS. It should be noted that some construction projects may occur in areas where two MS4 permits apply. Section 9.4 discusses why CDOT evaluates water quality as part of NEPA and includes information on permitting requirements. Every construction project within CDOT right of way requires a Storm Water Management Plan (SWMP) in CDOT format. Projects that disturb one acre or greater require a SWMP in CDOT format and a CDPS construction storm-water permit from the Water Quality Control Division (WQCD). Additional information on the permitting process is included in Section 9.4.
- Municipal Permit: For discharge of wastewater generated during construction activities to the local municipal wastewater treatment works, a permit from the local municipality is required. Additional information on the permitting process is included in Section 9.3.
- Clean Water Act Section 402 Dewatering Permit: If groundwater is encountered, a CDPHE dewatering permit may be required. Additional information on the permitting process is included in Section 9.3.
- Clean Water Act Section 401 Permit: A CDPHE Section 401 water quality certification is required if an Individual Section 404 permit is required.
- Colorado Division of Wildlife (CDOW) Senate Bill 40 (SB 40): For impacts to stream banks, stream channels, and riparian areas, SB 40 certification from the CDOW is required. Additional information on the certification process is included in Section 9.7.
- 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. Additional information on preparing a Wetland Finding is included in Section 9.5.

- Hazardous Waste (Preliminary Site Investigation [PSI]/Site Investigation [SI]): If recommended by the ISA or MESA, a PSI or SI 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, is required. Section 9.25 provides additional information on when PSI or SI is applicable depending up the size and type of project.
- 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.

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.

5.2.4 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 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 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, include but are not limited to:

Hardship and protective buying will be permitted only for a particular parcel or a limited number of parcels. These types of land acquisition qualify for a CatEx only where the acquisition will not limit the evaluation of alternatives, including shifts in alignment for planned construction projects, which may be required in the NEPA process. No project development on such land may proceed until the NEPA process has been completed.

D1. Modernization of a highway by reconstruction, adding shoulders, or adding auxiliary lanes (e.g., parking, weaving, turning, climbing)

D2. Highway safety or traffic operations improvement projects

D3. Bridge 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 changes in access control (Interstate)

D7. 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 zoning and located on or near a street with adequate capacity to handle anticipated bus and support vehicle traffic

D8. 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

D9. 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

FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary form available at **http://www.dot.state.co.us/environmental/StandardsForms/8_14_03%20CE%20Checklist.pdf**

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?
- 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 other 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 (Appendix G) will required 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:

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

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 brief afterwards if they can not 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. To assist in identifying anticipated environmental clearances, CDOT has prepared an environmental red flags summary that covers many of the key environmental resources and the threshold needed for an environmental clearance (CDOT, 2003).
2. The CDOT Project Manager drafts a preliminary detailed project schedule and circulates to the multi-disciplinary project development team for comments. The project schedule is adopted and shared with the multi-disciplinary project development team.
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 can not 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. 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
b. Project Description
c. Project Planning and Programming
d. Public Involvement, if necessary
e. Right-of-Way
f. Threatened or Endangered Species/Migratory Birds/Wildlife
g. Water Quality, Wetlands, Floodplains/Stream Encroachments
h. Air Quality
i. Invasive Species
j. Hazardous Materials
k. Land Use/Urban Policy
l. Prime, Unique, Statewide, or Locally Important Farmland
m. Recreation
n. Noise
o. Historic Preservation
p. Native American Consultation, if necessary
q. Paleontological
r. Section 4(f) Properties
s. Socio/Economic Factors
t. Other Environmental Factors (Visual, Environmental Justice, etc.)
u. Mitigation

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, prepares a Summary of Mitigation Measures and provides this summary 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.
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 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, a minimum of three (3) weeks prior to when final clearance is required. The RPEM, or a designee, verifies that the 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.

14. Environmental Project Certification: The RPEM, or a designee, approves the Environmental Project Certification in Part E of Form 128.
15. The CDOT Resident Engineer signs and (in some cases the CDOT Project Manager) 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

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 can not 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. To assist the project team in identifying anticipated environmental clearances, CDOT has prepared an environmental red flags summary that covers many of

the key environmental resources and the threshold needed for an environmental clearance (CDOT, 2003).

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 can not 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 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 a Summary of Mitigation Measures 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 Summary of Mitigation Measures is provided to the RPEM.

8. Form 128 (Parts A and B): The RPEM approves the top portion of Form 128.

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, a minimum of three (3) weeks prior to when final clearance is required. The RPEM, or a designee, verifies that the 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.
15. Environmental Project Certification: The RPEM approves the Environmental Project Certification in Part E of Form 128.
16. The Resident Engineer signs and (in some cases the Project Manager) 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 (Form 128, Appendix G) must be provided for all CatEx projects, regardless of whether they are Programmatic, Non-Programmatic, or Expanded Non-Programmatic CatEx 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 provide a list of environmental clearances to be completed as part of the Programmatic CatEx process. 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:

- Purpose and Need for Action: A brief (one to two paragraph) purpose and need shall be prepared. Section 4.6 provides additional information on preparing a purpose and need for the project.

- 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.
- 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.
- Public Involvement: Public involvement is required and shall be documented. 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
- 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.
- Threatened or Endangered Species/Migratory Birds/Wildlife: These environmental clearances are also required for Form 128 and were previously discussed in Section 5.2.3.
- 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 accessed, including if it is included on the 303 (d) list of state impaired waters. In addition, the project shall comply with CDOT's and the local agency's (if applicable) municipal separate storm sewer systems (MS4) permit. The requirements for wetlands are also required for Form 128 and were previously discussed in Section 5.2.3. If a floodplain is impacted, coordination with the Federal Emergency Management Agency (FEMA) and mitigation is required.

- Air Quality: This environmental clearance is also required for Form 128 and was previously discussed in Section 5.2.3.
- Invasive Species: If noxious weeds are identified in the initial survey of the project area, the extent of the infestation, the risk to 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 BMPs should be documented in the plans and specifications. Additional information on the process is included in Section 9.6.
- Hazardous Materials: This environmental clearance is also required for Form 128 and was previously discussed in Section 5.2.3.
- 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.
- Prime, Unique, Statewide, or Locally Important Farmland: This environmental clearance is also required for Form 128 and was previously discussed in Section 5.2.3.
- Recreation: This environmental clearance (Section 6[f]) is also required for Form 128 and was previously discussed in Section 5.2.3.
- Noise: This environmental clearance is also required for Form 128 and was previously discussed in Section 5.2.3.
- Historic Preservation: This environmental clearance is also required for the CDOT Form 128 and was previously discussed in Section 5.2.3.
- Native American Consultation: Native American consultation is conducted by CDOT EPB staff. The project team should coordinate with the RPEM and CDOT EPB staff as necessary.
- Paleontological: This environmental clearance is also required for Form 128 and was previously discussed in Section 5.2.3.
- Section 4(f) Properties: This environmental clearance is also required for Form 128 and was previously discussed in Section 5.2.3.
- 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 9.12, 9.13, and 9.14.

- 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 Species of Special Concern (Prairie Dogs), Visual/Aesthetics, etc. Chapter 9 further discusses the methodologies and processes for these resources.
- Mitigation: A Summary of Mitigation Measures should be prepared to provide a summary to the project team for inclusion in the FOR plans and specifications

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.

It is important to note that a NEPA decision document, such as a Record of Decision (ROD), non-programmatic CatEx, or a Finding of No Significant Impact (FONSI), cannot be signed until the project is in the fiscally constrained long-range SWP.

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 returns it to the CDOT RPEM for the administrative record, right-of-way negotiations can proceed. The RPEM will not sign Part E of Form 128 until all clearances and permits for the project have been obtained, FHWA has signed Part B, and mitigation requirements are included in the plans and specifications.

Actions that may be approved through an Expanded Non-Programmatic CatEx are project-specific and should only be pursued as an Expanded Non-Programmatic CatEx after coordination and agreement by FHWA and CDOT.

5.4 Expanded Non-Programmatic CatEx

Expanded Non-Programmatic CatEx projects are actions that meet the criteria for a CatEx in the CEQ regulations (CEQ, 40 CFR § 1508.4) but are not identified in 23 CFR § 771.117 Part C or D or in the expanded list of programmatic CatExs. These projects must be appropriately analyzed, documented, and approved by FHWA and CDOT to qualify as an Expanded Non-Programmatic CatEx. 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.

5.4.1 Expanded Non-Programmatic CatEx - Actions

FHWA regulation 23 CFR § 771.117 Part A provides that CatExs are actions that meet the definition contained in 40 CFR 1508.4. These actions, based on past experience with similar actions, do not involve significant environmental impacts. They are actions which: 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; and do not otherwise, either individually or cumulatively, have any significant environmental impacts. FHWA regulation 23 CFR § 771.117 Part B provides that any action which normally would be classified as a CatEx but could involve unusual circumstances requires FHWA and CDOT to conduct environmental studies to determine whether a CatEx is appropriate. Unusual circumstances include actions that involve:

- Significant environmental impacts
- Substantial controversy on environmental grounds
- Significant impact on properties protected by Section 4(f) of the US Department of Transportation (DOT) Act or Section 106 of the National Historic Preservation Act
- Inconsistencies with any federal, state, or local law relating to environmental impacts

The type and scope of the studies necessary to determine the appropriateness of a CatEx will vary with the facts and circumstances of each situation. If studies conclude that the project will not cause a substantial effect, the studies, or a summary, are included with the request to FHWA for CatEx approval. If the studies conclude that unusual circumstances exist, a CatEx does not apply, and an EA or EIS should be conducted.

5.4.2 Expanded Non-Programmatic CatEx – Process

The Expanded Non-Programmatic CatEx process follows the same step-by-step process provided in Section 5.3.2.

5.4.3 Expanded Non-Programmatic CatEx - Documentation

In addition to the documentation that is required of a Non-Programmatic CatEx, which is discussed in Section 5.3.3, a summary document is required. This summary document must include the following components:

- Introduction: This section includes the project background, brief summary of purpose and need and goals, and the project categorization.
- Preferred Alternative: This section is a description of the Preferred Alternative and discusses the alternative development and screening process. Additional information on alternatives development is provided in Chapter 4.
- Affected Environment and Environmental Consequences: This section introduces those resources dismissed from further consideration and those that were carried through for additional study. For the latter of these, the baseline conditions, anticipated effects, and mitigations that are applicable are discussed. In addition, Summary of Mitigation Measures is included.
- Public Involvement and Agency Coordination: This section summarizes the public and agency outreach and coordination that were conducted for the project. Public involvement is required for expanded non-programmatic CatExs where as it is not usually required for normal non-programmatic CatExs.
- Section 4f Evaluation: If warranted, the Section 4(f) Evaluation, including *de minimis* finding if applicable, is presented in this section.
- Project Categorization: This section presents the project categorization and requests concurrence.
- Appendix A: This appendix is a compilation of the agency coordination information.
- Appendix B: This appendix is a compilation of the Technical Reports (environmental clearances) prepared for the project.
- Appendix C: This appendix is a compilation of the public involvement materials.
- Appendix D: This appendix includes Form 128 and *FHWA Non-Programmatic Categorical Exclusion Environmental Review Summary.*

5.4.4 Expanded Non-Programmatic CatEx - Approval

The Expanded Non-Programmatic CatEx approval follows the same step-by-step process provided in Section 5.3.4.

5.5 References

Colorado Department of Transportation (CDOT). 1998. Letter to Mr. James Daves, Federal Highway Administration (FHWA) Colorado Division Administrator. June 24. FHWA concurrence on July 21, 1998. Retrieved August 2008 from http://www.dot.state.co.us/environmental/docs/Agreements/002LOA1191.pdf.

CDOT. 2000. Historic Bridge Inventory. Retrieved August 2008 from http://www.dot.state.co.us/environmental/CulturalResources/ArchaeologyTechnical.asp.

CDOT. 2006. Local Agency Manual. Retrieved August 2008 from http://www.dot.state.co.us/DesignSupport/Local Agency Manual/2006 Local Agency Manual/2006 Local Agency Manual.htm.

CDOT Region 6. 2003. Categorical Exclusion: Region 6 Environmental Red Flags. August. Retrieved August 2008 from http://www.dot.state.co.us/environmental/StandardsForms/Environmental RED FLAGS List.pdf.

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 1 – 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 Categorical Exclusion 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 un-grayed and will be available for entering data.
    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 what ever you want to communicate at that time.
    g. The other gray-out fields will to 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 Categorical Exclusion 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 Categorical Exclusion 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 Categorical Exclusion clearance.

a. 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. If you get a Prompter that says "Milestones are not maintained", that indicates that you cannot save any data in this Form 128 and will need to get the engineer to go into Project Builder and enter and "confirm" a "Project Scoping" date in order to allow access to the Form 128 (See Quirks and Trouble Shooting section below for a person – Tony Bemelen - that can help the engineer do this step if necessary). This is a frustrating quirk in SAP that will hopefully be changed soon so that the environmental and planning staff is not limited in their documentation because this information is missing in Project Builder.

b. 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 not be grayed-out and you can skip this step. If this is a Categorical Exclusion project, there will be a pull-down menu that selects from the "FHWA Expanded List (July 27th, 1998)" 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" Categorical Exclusion, 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 CE 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, there could be a change soon 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 Categorical Exclusion, check the boxes of the resources that need further investigation. If you cannot enter information in Part B and this is a categorical exclusion, 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 Categorical Exclusion category, the FHWA signature box will be grayed-out and will not be accessible.

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 CE/non-programmatic CE) 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 two factors, the project must be set up in SAP by the engineer in Project Builder AND the engineer must have a date entered for Project Scoping. If the date for project scoping has not been entered and "confirmed" within SAP, then the prompter "Milestones are not maintained" will pop up. ("Confirmed" is a fancy word for entered but with a specific SAP meaning.) You will need to close out of that Form 128 and ask the engineer to enter this data.

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 ROW actions to occur but this is more of a notification rather than an entry that is required for SAP. The ROW group will need special notification that they are cleared to proceed with ROW 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: 303-757-9855 or 303-918-5541 (cell). His email is Antoon.Bemelen@dot.state.co.us.

b. How do I print a blank Form 128? This is currently a quirk in SAP and is being worked on. 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 Categorical Exclusion "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.

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 does not exist in the STP_F128 Table", 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, even though the project information gets auto-populated in the top part of the form and you get a prompter that says "Milestones are not maintained", that indicates that the engineer needs to enter and "confirm" the project scoping date into Project Builder. If the "milestones" prompter does not pop up after entering the 5-digit sub-account code, that 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 Categorical Exclusion "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 Enviornmental 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 enter the Environmental Tab. Only authorized environmental and planning personnel will be allowed into this 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 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 to get that authorization changed to the right one.

f. Who can access 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 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.

CHAPTER 6 ENVIRONMENTAL ASSESSMENT (CLASS III) CONTENTS

LIST OF FIGURES

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.

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

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.

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.

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 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. 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 administrative record.

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 administrative record and are public documents that must be available for review.

Use simple terms understandable to a lay person.

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

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. Exhibits should be produced such that the information is clearly depicted regardless of whether the EA is printed in black and white or color.

- 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.

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

- EA 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 – 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

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 or on the back 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

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

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 that can be used for decision-making regarding the

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.

Preferred Alternative. 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).

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

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

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.

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.

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 National Environmental Policy Act (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 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)

A project expected to require an EA will enter the CDOT NEPA/404 Merger process only if the FHWA, USACE and CDOT determine it is in the overall best interest of the projects. The agreement can be found on CDOT's main website at: www.dot.state.co.us/environmental/Wetlands/Docs/NEPA404Merger.pdf.

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

"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

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

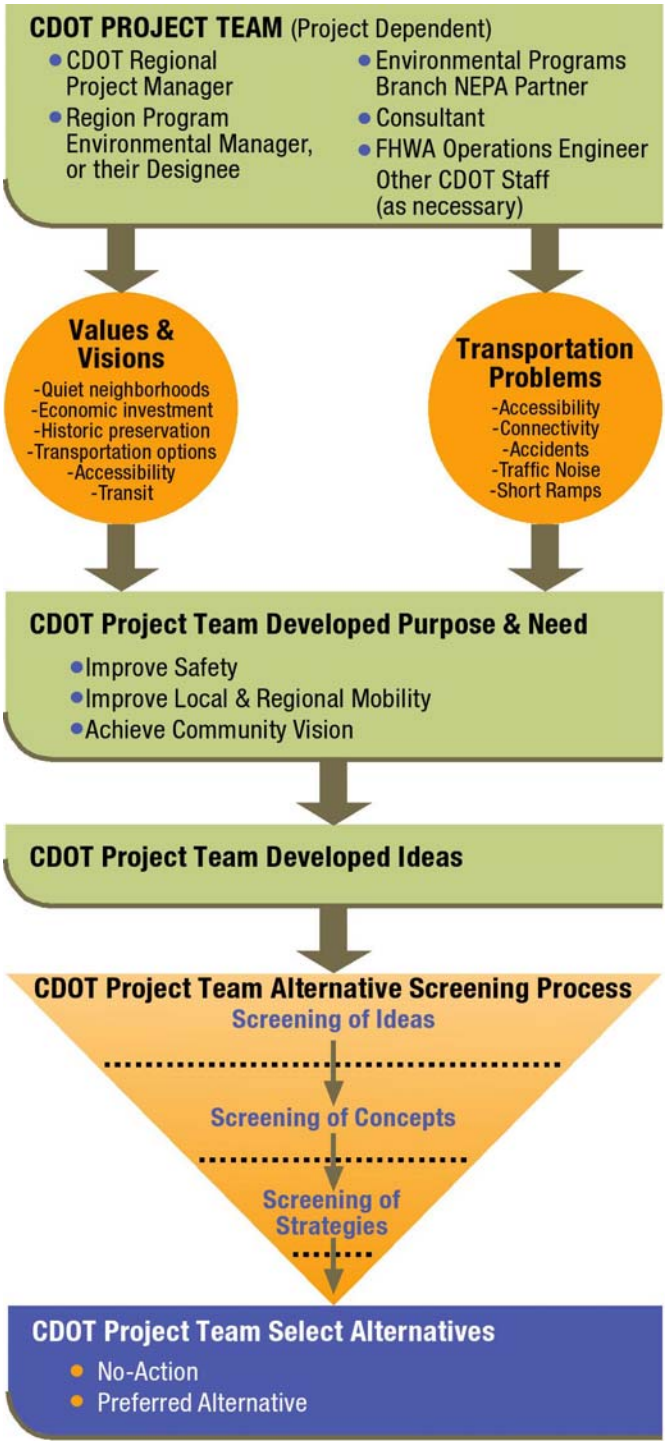
The No-Action alternative is the alternative that would be selected if the lead agency, typically FHWA, chooses not to select the build alternative as the Preferred Alternative. The No-Action alternative is fully assessed in the same manner as an alternative and is used as a baseline comparison for environmental 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 the build alternative and (2) do not take any action. It is important to indicate to readers which meaning of No-Action the EA is using. 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 the 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.dot.state.co.us/StatewidePlanning/.

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), and Section 106 as they pertain to avoidance and minimization. Documentation can be maintained in the project file or in the administrative record.

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 Selecting a Preferred Alternative

The Preferred Alternative (build 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, because of numerous factors found during the NEPA analysis, such as studying ways to avoid or minimize impacts, 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's) *Improving the Quality of Environmental Documents* (AASHTO, ACEC, FHWA, 2006) for suggestions on preparing a good, concise, readable, and legally sufficient EA. Appendix D 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 knowledgable 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,

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

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

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.

6.5.2 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.

6.5.3 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, Colorado Historical Society, Publication #1308b, 8CCR 1504–7 Rules and Procedures Historical, Prehistorical, and Archaeological Resources Act (revised 01/04)) 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 Division of Wildlife (CDOW) 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.

6.5.4 Environmental Consequences (Mitigation Measures and Cumulative Impacts)

The analysis of environmental consequences forms the basis for comparing alternatives. This section of the EA addresses the impacts of the build alternative 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.

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.

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, No-Action, and other alternatives (if any exist). 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.

When preparing the decision document (FONSI, if no significant impacts), the impacts and mitigation measures of the build 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.

6.5.5 Types of Impacts

NEPA uses the terms "impact," "effect," and "consequences" 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

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.

significant, actions that take place over time (CEQ, 40 CFR § 1508.7).

Impacts may be ecological, aesthetic, historical, cultural, economic, and social. Impacts may ether be either beneficial or adverse. Beneficial impacts 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).

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.

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

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.

6.5.6 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 must 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, as applicable. The NEPA decision document makes commitments about implementing and monitoring the proposed mitigation measures, and the commitments are documented in a "Summary of Mitigation and Monitoring Commitments" table. This summary should be formatted to allow its use as a stand-alone document that can be reproduced separately and 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.

6.5.7 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 historic and non-historic properties 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 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 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.

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

6.8 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. No CEQ regulations exist for the bibliography section.

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 administrative copy for CDOT headquarters (Environmental Programs Branch [EPB] and others) review and FHWA administrative review and approval. All reports and studies referred to in the environmental document must be readily available for public review and copying at a convenient location, which is usually the CDOT regional office. Some EAs may have reports available on CD-ROM, or via the internet. An exception to this is during the public comment period prior to the public hearing when the EA and the technical reports are placed in additional 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.

6.10 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. Five originals of the EA, with appendices, must be provided to the EPA. In addition, a letter of transmittal should accompany the five (5) copies of the EA.

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). Publication in local newspapers (in papers of general circulation rather than legal papers) is one way to send notice to the public, as is 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 NOA 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 days prior to a public meeting (Section 7.3.7)
- A point of contact at CDOT for further information

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.

6.11 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 publication of the NOA, the public and agencies have 30 calendar days to submit comments. During this time, a public meeting/hearing is also recommended.
- 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 EA is prepared in order to:

- Reflect changes in the build alternative 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.

6.12 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 assessment is included, the finding need not repeat any of the discussion in the assessment but may incorporate it by reference."

The project described in the EA must be in a fiscally constrained plan for FHWA to sign a FONSI.

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.

A Notice of availability (NOA) 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. As soon as a FONSI is signed, efforts on final design for construction can begin. No construction activities can begin, however, until after the FONSI has been in place for 30 days.

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).

6.13 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."

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

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 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 *1991 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.

Written reevaluation methods could be as simple as FHWA documenting a phone conversation, with a note to the project file, where assurance was given that no changes had occurred that affect the environmental document. As a process, FHWA and CDOT could agree that CDOT will provide a letter documenting that the existing approved EA is still valid and that there are no changes, or that changes do not result in major project scope modification or significant environmental impacts. All methods should be made part of the administrative record where they can be viewed by the public.

6.13.1 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.

6.14 Administrative Record

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 entire 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 CDOT Project Team determines where the administration record will initially be kept, typically at the consultant's office (if utilizing a consultant). Upon the completion of the project, the consultant organizes and files the appropriate documents and provides to CDOT for final storage.

The administrative record for each project will be drawn from the CDOT project files 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. The CDOT project filing system will identify non-public information that is not appropriate for inclusion in the administrative record.

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

There is no general NEPA guidance on how long an administrative record should be kept and federal agencies are free to establish their own guidelines on retention. 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 (i.e., the administrative record)

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

6.14.1 Administrative Record Documentation

Types of documentation relative to the NEPA process placed in the CDOT administrative record include:

- Documents and materials prepared, reviewed, or received by agency personnel and used by or available to the decision-maker
- Policies, guidelines, directives and manuals, or easy references to these materials if they are readily available
- Articles and books. Be sensitive to copyright laws governing duplication. Include factual information or data
- Communications the agency received from other agencies and from the public, and any responses to those communications. Be aware that documents concerning meetings between the lead and cooperating agencies should be included but may be deemed confidential material within litigation.
- Documents and materials that contain information that support or oppose the challenged agency decision
- 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. Generally, include all 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.

Phone calls and emails retained in the administrative record should only be retained if key decisions are made about the content of the document.

- Technical information, sampling results, survey information, 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
- Minutes or transcripts of meetings
- Memos of telephone conversations and meetings, such as a memorandum or handwritten notes, unless they are personal notes
- Notes of meetings where key decisions are made about the content of the document
- Issues to be examined in detail
- Alternatives
- Notes
- Public comment letters
- E-mails
- Documentation of public involvement efforts
- Copies of the EA that were circulated to other agencies or entities outside CDOT and FHWA, for review or comment

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.

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COLORADO DEPARTMENT OF TRANSPORTATION

Stakeholder Involvement Guidance and Public Involvement Plan

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CHAPTER 7: STAKEHOLDER INVOLVEMENT GUIDANCE AND PUBLIC INVOLVEMENT PLAN - CONTENTS

7.0 STAKEHOLDER INVOLVEMENT GUIDANCE AND PUBLIC INVOLVEMENT PLAN

This chapter provides guidance on public involvement and stated public involvement principles of the Colorado Department of Transportation (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 the 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.

This chapter replaces the *CDOT Procedures for Public Involvement and Participation in the Project Development and Environmental Analysis Process* (CDOT, 1995).

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. 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.

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.

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 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.

Section 9.10 of this Manual discusses the Tribal consultation coordination activities completed for each NEPA document by CDOT EPB.

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:

- 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 responsiblities 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:

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 7.5.1).

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 7.2.2), 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.

Refer to CDOT's *Title VI and Environmental Justice Guidelines for NEPA Projects* for more information on public involvement and outreach for minority and low-income populations (CDOT, 2004).

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. In addition, copies of the document are sent to affected property owners, neighborhood/community groups, interested public officials, government agencies that have jurisdiction, responsibility, or special expertise, and federal land management agencies and adjacent states, if applicable.

Anyone on the mailing list who does not receive a copy of the document will receive information on where to view the document or how to obtain a copy.

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 the 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 serve 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 under-served 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 7.2.2), 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, charrette, 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 administrative record. 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

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."

- 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.

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.

CDOT. 2004. CDOT's Title VI and Environmental Justice Guidelines for NEPA Projects Rev. 3. December 1. Retrieved August 2008 from http://www.dot.state.co.us/environmental/StandardsForms/Rev_3_EJ_Guidelines.pdf.

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) – Title 23 Highways
http://epw.senate.gov/envlaws/title23.pdf

- 23 USC 134: Metropolitan Transportation Planning
- 23 USC 135: Statewide Planning
- 23 USC 128: Public Hearings
- 33 USC
- 42 USC
- 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
- 23 CFR 740
- 49 CFR 24
- 40 CFR 51
- 40 CFR 93
- 36 CFR 800

Source	Citation
PROJECT DEVELOPMENT – DESIGN CRITERIA	
23 USC 109	(c) Design Criteria for National Highway System. – (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, -- (A) the constructed and natural environment of the area; (B) the environmental, scenic, aesthetic, historic, community, and preservation impacts of the activity; and (C) access for other modes of transportation. (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: (1) air, noise, and water pollution; (2) destruction or disruption of man-made and natural resources, aesthetic values, community cohesion and the availability of public facilities and services; (3) adverse employment effects, and tax and property values losses; (4) injurious displacement of people, businesses and farms; and (5) disruption of desirable community and regional growth.
PROJECT DEVELOPMENT – NEPA	
SAFETEA-LU	6002(f) Purpose and Need.-- (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. 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. 6002 (g) Coordination and Scheduling.-- (1) Coordination plan.-- (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. (B) Schedule.-- (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. (ii) Factors for consideration.--In establishing the schedule, the lead agency shall consider

Source	Citation
	factors such as— (i) the responsibilities of participating agencies under applicable laws; (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. (C) Consistency with other time periods.--A schedule under subparagraph (B) shall be consistent with any other relevant time periods established under federal law. (D) Modification.--The lead agency may-- (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. (E) Dissemination.--A copy of a schedule under subparagraph (B), and of any modifications to the schedule, shall be-- (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. (2) Comment deadlines.--The lead agency shall establish the following deadlines for comment during the environmental review process for a project: (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-- (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. (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-- (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. (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-- (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.

Source	Citation
	(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 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.

Source	Citation
	(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 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. (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. (v) Explanation at the public hearing of the following information, as appropriate: (A) The project's purpose, need, and consistency with the goals and objectives of any local urban planning, (B) The project's alternatives, and major design features, (C) The social, economic, environmental, and other impacts of the project, (D) The relocation assistance program and the right-of-way acquisition process. (E) The State highway agency's procedures for receiving both oral and written statements from the public. (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. (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. (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.
23 CFR 771.113	Timing of Administration activities. (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 (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;

Source	Citation
23 CFR 771.119	Environmental Assessments. (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. (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. (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. (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. (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. (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.
23 CFR 771.121	Findings of No Significant Impact. (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.
23 CFR 771.123	Draft Environmental Impact Statements. (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. (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,

Source	Citation
	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. (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. (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: (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. (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. (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.
23 CFR 771.125	Final Environmental Impact Statements. (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. (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. (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

Source	Citation
	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.
23 CFR 771.127	Record of Decision. (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. (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).
23 CFR 771.135	Section 4(f) (a)(l) 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: (i) There is no feasible and prudent alternative to the use of land from the property; and (ii) The action includes all possible planning to minimize harm to the property resulting from such use.
Regulations of the Council on Environmental Quality for Implementation of NEPA	
40 CFR 1500.1	(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.
40 CFR 1500.2	Policy federal agencies shall to the fullest extent possible: (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. (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 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.
40 CFR 1500.4	Reducing paperwork. Agencies shall reduce excessive paperwork by: (d) Writing environmental impact statements in plain language (Sec. 1502.8). (f) Emphasizing the portions of the environmental impact statement that are useful to decision-makers

Source	Citation
	and the public (Secs. 1502.14 and 1502.15) and reducing emphasis on background material (Sec. 1502.16). (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).
40 CFR 1501.4	Whether to prepare an Environmental Impact Statement. In determining whether to prepare an environmental impact statement the federal agency shall: (a) Determine under its procedures supplementing these regulations (described in Sec. 1507.3) whether the proposal is one which: (1) Normally requires an environmental impact statement, or (2) Normally does not require either an environmental impact statement or an environmental assessment (categorical exclusion). (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). (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. (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: (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	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). (a) As part of the scoping process the lead agency shall: (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. (b) As part of the scoping process the lead agency may: (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.
40 CFR 1502.1	Purpose [of Environmental Impact Statement].

Source	Citation
	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.
40 CFR 1502.8	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.
40 CFR 1502.9	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.
40 CFR 1502.11	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).
40 CFR 1502.19	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.
40 CFR 1503.1	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.
40 CFR 1503.4	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. (4) Make factual corrections.

Source	Citation
	(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	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: (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	Implementing the decision. The lead agency shall: (d) Upon request, make available to the public the results of relevant monitoring.
40 CFR 1506	Other Requirements of NEPA 1506.2 Elimination of duplication with State and local procedures. (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: (3) Joint public hearings (except where otherwise provided by statute).
40 CFR 1506.6	Public involvement. Agencies shall: (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. (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: (i) Notice to State and area wide clearinghouses pursuant to OMB Circular A-95 (Revised).

Source	Citation
	(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. (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: (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). (d) Solicit appropriate information from the public. (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. (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].
NOISE ABATEMENT	
23 CFR 772	Procedures for Abatement of Highway Traffic Noise and Construction Noise Sec. 772.9 Analysis of traffic noise impacts and abatement measures. (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. Sec. 772.11 Noise abatement. (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. (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. (c) If a noise impact is identified, the abatement measures listed in Sec. 772.13(c) of this chapter must

Source	Citation
	be considered. (d) When noise abatement measures are being considered, every reasonable effort shall be made to obtain substantial noise reductions. (e) Before adoption of a final environmental impact statement or finding of no significant impact, the highway agency shall identify: (1) Noise abatement measures which are reasonable and feasible and which are likely to be incorporated in the project, and (2) Noise impacts for which no apparent solution is available. (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. 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: (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, (b) Information that may be useful to local communities to protect future land development from becoming incompatible with anticipated highway noise levels, and (c) Eligibility for federal-aid participation for Type II projects
Uniform Relocation Assistance and Real Property Acquisition	
49 CFR 24	Transportation. Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs 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. Sec. 24.205 Relocation planning, advisory services, and coordination. (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. (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. (2) Services to be provided. The advisory program shall include such measures, facilities, and services as may be necessary or appropriate in order to: (i) Determine the relocation needs and preferences of each person to be displaced and

Source	Citation
	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). (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.
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	Transportation Conformity Rule Environmental Protection Agency, Part 51 – Requirements for Preparation, Adoption, and Submittal of Implementation Plans
40 CFR 93	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 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). Sec. 93.105 Consultation. (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. (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 conformity finding for a transportation plan or TIP. These agencies shall also provide opportunity for

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	public involvement in conformity determinations for projects where otherwise required by law. Sec. 93.156 Public Participation. 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. 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. 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. 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.
ADVISORY COUNCIL ON HISTORIC PRESERVATION – HISTORIC PROPERTIES, Section 106	
36 CFR 800	Protection of Historic Properties Sec. 800.1 Purposes. (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. Sec. 800.2 Participants in the Section 106 process. (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. (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. (d) The public. (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 a manner that reflects the nature and complexity of the undertaking and its effects on historic

Source	Citation
	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. (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. (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. Sec. 800.4 Identification of historic properties the agency official shall (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; 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. (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). 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.
CLEAN WATER ACT – U.S. ARMY CORPS OF ENGINEERS	
33 USC	Navigation and Navigable Waters Water Pollution Prevention and Control – Permits and Licenses SECTION 401 OF THE CLEAN WATER ACT SEC. 1341. CERTIFICATION (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 the case of all applications for certification by it and, to the extent it deems appropriate, procedures

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	for public hearings in connection with specific applications. Section 404 of the Clean Water Act Sec. 1344. 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. 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.
42 USC 2000(d) to (d)(1) Civil Rights Act of 1964	Title VI – Non-Discrimination in Federally Assisted Programs General 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. Section 601 -- 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.

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) and FHWA's Actions to Address Environmental Justice in Minority Populations and Low-income Populations (DOT Order 6640.23). DOT Order 5610.2 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 requires FHWA to implement the principles of DOT Order 5610.2 and EO 12898 by incorporating environmental justice principles in all FHWA programs, policies and activities. Both of these laws 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.

CDOT has also developed guidelines for CDOT staff and consultants entitled, *Title VI and Environmental Justice Guidelines for NEPA Projects* (May 2005). This document provides clear and concise guidance for incorporating Title VI and environmental justice mandates throughout the transportation project development process.

ATTACHMENT 3: ADDITIONAL RESOURCES

FHWA Public Involvement Website
http://www.fhwa.dot.gov/environment/pubinv2.htm

International Association for Public Participation Website
http://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
http://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

Transportation Research Board Committee on Public Involvement Website
http://www.trbpi.com/

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/news/blurb_detail.asp?id=700

FHWA's A Citizen's Guide to Transportation Decisionmaking 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.ciatrans.net/CIA_Quick_Reference/Purpose.html

FHWA's "Community Impact Mitigation: Case Studies" Website
http://www.ciatrans.net/Casestud.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/news/blurb_detail.asp?id=4143

International Association for Impact Assessment Website
http://www.iaia.org/

National Civic League, Publications and Newsletters Website
http://www.ncl.org/publications/index.html

VA Tech's Partnerships and Participation in Planning Website
http://www.planning.dot.gov/

National Transportation Library Digital Collection on Social Impacts Website
http://ntl.bts.gov/ruraltransport/toolbox/

US Census Bureau FactFinder Website
http://factfinder.census.gov/

ATTACHMENT 4: STEPS FOR DEVELOPING A PROJECT PUBLIC INVOLVEMENT PLAN[1]

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

1. L = Local
   R = Regional
   S = Statewide
   N = National
   Add Further Definition (for example: Main Street Park boundaries)

2. 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. De 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?			

Evaluation Criteria	Tool/Technique A	Tool/Technique B	Tool/Technique C
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: _____

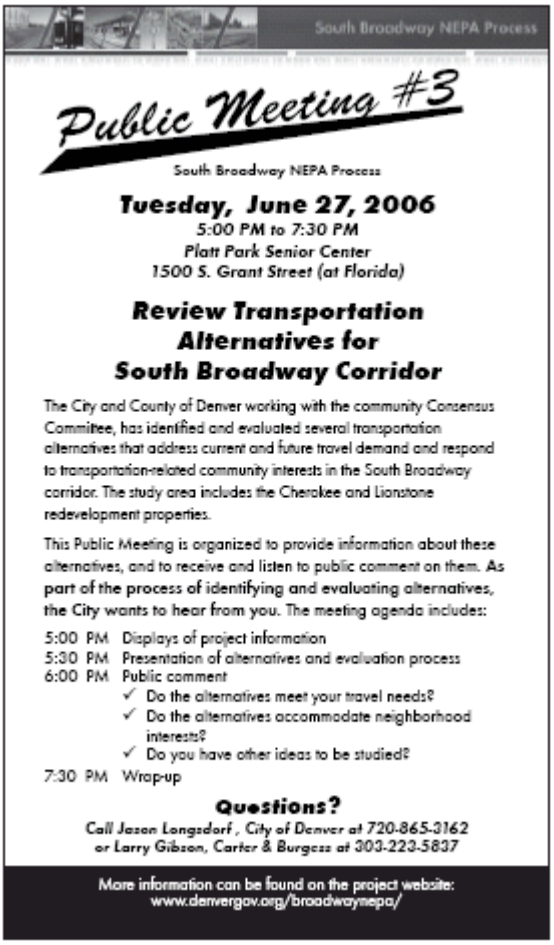
Address: _____

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 303-223-5837

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: NEPA DOCUMENT REVIEW PROCEDURES - CONTENTS

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8.0 NEPA 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 Environmental Assessments (EAs), Findings of No Significant Impact (FONSIs), Environmental Impact Statements (EISs), and Records of Decision (RODs). This review procedure also includes the Purpose and Need and Alternatives chapter submittals. For more information on NEPA, please see Chapter 2. Categorical Exclusions (CatExs) follow the process discussed in Chapter 5. CDOT and the Federal Highway Administration (FHWA) will update this procedure as necessary.

"To provide the best multi-modal transportation system for Colorado that most effectively moves people, goods and information"

-CDOT's Mission Statement

8.1 Review Process

There are three review options that should be considered by the NEPA 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 NEPA project team, please see Chapter 3. No matter which review process is selected by the NEPA project team, all documents will be reviewed by the FHWA Operations Engineer (OE) and may involve a separate review by FHWA legal counsel. FHWA comments must be addressed 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 F). 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.

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.

8.1.1 Sequential Review

In a sequential review, the project team submits the document or individual chapter (Purpose and Need or Alternatives) to the Region for review after the consultant has completed its QA review. After the Region comments are addressed, the document is sent by the Region to Environmental Programs Branch (EPB) for review. For a list of EPB reviewers, please see Attachment 4. After the EPB comments are addressed, CDOT completes its QA 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 comments received are relatively straight-forward, comment resolution can also be handled via email 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 process. Option one is when the Region reviews the document or individual chapter (Purpose and Need or Alternatives) and then EPB and FHWA review the document at the same time.

There are three options for a concurrent review process.

Under option two, all CDOT staff (Region and EPB/other headquarters staff) review the document at the same time. FHWA would review the document after the CDOT review.

In some cases, using option three, the Region, EPB and FHWA may all participate in concurrently reviewing the document.

The intent of the concurrent review process is to shorten the review period. For this review technique to be used, the consultant should have confidence that the document from the project team will require only minor revisions since there is more staff reviewing at one time.

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 project team's document or individual chapter (Purpose and Need or Alternatives) 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 environmental NEPA project manager, the EPB NEPA Partner, 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.

The intent of the team review process is to have only one full review cycle.

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 specialists throughout the process to bring their issues and concerns into the NEPA project early on. If a resource is not present in the NEPA project area and there is no team member for the resource area, the NEPA Partner is responsible for coordinating with the EPB resource specialist. The Region environmental NEPA project manager or the EPB NEPA Partner will be responsible for compiling or condensing all comments for transmittal to the project team. This point of contact will be designated at the CDOT scoping meeting.

Two options may be used for the team review. Option one is a combined CDOT/FHWA review for the document. Option two consists of one CDOT review and then a FHWA review.

Two options may be used for the team review. Option one is a combined CDOT/FHWA review for the document. Option two consists of one CDOT review and then a 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 such as purpose and need.

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.

Comment resolution will be decided by the decision-making team, which will be comprised of the Region environmental NEPA project manager, the EPB NEPA Partner, 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). Once per month, a designated EPB staff member will email the previous month's calendar to the Region Planning and Environmental Managers (RPEMs) with a request that each Region send updates. The RPEMs (or their designee) update the calendar and send it back to the designated EPB staff member by the due date. The update includes review dates for EAs, Draft EISs, Final EISs, FONSIs, RODs, technical reports,

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. EPB updates the calendar with all of the Regions' information and sends it out to the Regional Transportation Directors (RTDs), RPEMs, FHWA (Team Leaders and Environmental Program Manager), and EPB staff. The EPB Manager meets with the RTDs once per month and reviews the calendar. Therefore, it is important for the calendar to be updated with the most realistic information possible.

If a document is not on the calendar, the document is reviewed at the discretion of EPB. The Regions notify the EPB staff member as soon as possible if a document's schedule has changed. This can happen at any time during the month. 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 RTDs. During the major holiday weeks and conference weeks, the Regions are responsible for working with the EPB NEPA Partners to coordinate realistic review times.

8.3 Document Review Transmittal Process

CDOT EPB maintains the Master Document Review Calendar.

Consultants are expected to complete an independent QA 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 review and certification letter must accompany formal submittal of the draft or final document submitted to the Region, EPB, and FHWA for review. Attachment 1 includes a certification letter template.

The RPEM will submit pre-signature/draft NEPA documents to the EPB NEPA Partner with a signed transmittal memo (Attachment 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.

Responses to comments must be documented and submitted back to the reviewers. Work with the EPB NEPA Partner to decide the best approach for documenting responses. The most common approach is to use the comment matrix that is submitted (Attachment 3) and use the response column. This table can be modified by the project team as necessary. See Section 8.5 for more information on the comment resolution process.

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.

For a sequential or concurrent review, EPB requires 20 copies of EAs and EISs for the first review (Attachment 4 contains a list of EPB and other headquarters reviewers). EPB prefers to receive three (3) hard copies and 17 CDs of each document. If additional reviews are required, the EPB NEPA Partner will determine how many copies will be needed for these reviews. Typically, the number of copies required will be the same as the number of reviewers who provided substantive comments during the prior review.

For a team review, the number of documents required will depend on the number of EPB staff on the review team. The EPB NEPA Partner will determine how many copies will be required on a NEPA project-specific basis.

FHWA requires three (3) hard copies of an EA for review. However, if a Section 4(f) evaluation is included, four (4) hard copies are required to account for the legal review. FHWA requires four (4) hard copies (three [3] for the FHWA Colorado Division office and one (1) for FHWA legal) of Draft EISs (with or without a Section 4(f) evaluation) for review. One (1) additional hard copy is required 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 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. The FHWA OE has the discretion to request additional copies and to change the format (hard copy versus

For more information on policy assistance, please see FHWA's Environmental Guidebook website http://www.environment.fhwa.dot.gov/guidebook/index.asp

For more information on reviews by the DOI, please see http://www.doi.gov/oepc/Environmental_Review_Process.pdf.

electronic). Please double-check with the OE to determine the correct number and type of documents required.

For draft documents with draft Section 4(f) evaluations, up to 18 copies are also required for US Department of Interior (DOI) review with a minimum of one (1) hard copy. CDs or a website can be substituted for the remaining copies. For documents with final Section 4(f) evaluations, up to nine (9) copies are required for DOI review with a minimum of one (1) hard copy.

The number of copies required by EPB for FONSIs and RODs will be project-specific. The EPB NEPA Partner will determine how many copies will be necessary for each NEPA project. FHWA requires three (3) hard copies of FONSIs and RODs for review; however, if a Section 4(f) evaluation is included, four (4) hard copies are required.

The standard review period for an EIS is 20 days.

The standard review period for EAs, FONSIs, RODs, technical reports and individual chapters is 11 working days.

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 EAs, FONSIs, RODs, technical reports, and individual chapters, the standard review period is 11 working days. For an EIS, the review period is 20 working days. The EPB NEPA Partner will notify the Region environmental NEPA project manager early in the review period if problems are presented that may require additional review time.

Documents scheduled for review 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 must be received for the review period to begin. Unless otherwise negotiated with the EPB NEPA Partner, incomplete documents will not be reviewed.

The RPEM and the EPB NEPA Partner 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.

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 NEPA project manager, the Region environmental NEPA project manager, the FHWA OE, the EPB NEPA Partner, the reviewers, and the project team. 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 environmental NEPA project manager makes the determination through consultation with the EPB NEPA Partner, FHWA, and any participating or cooperating agency 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, the signature page (Attachment 5) and two (2) copies of the final document are sent to the EPB Manager with a transmittal memo from the RTD (Attachment 6). This 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).

The EPB NEPA Partner 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 (Attachment 7). The EPB NEPA Partner also prepares a transmittal letter from the Chief Engineer to the FHWA Division Administrator requesting signature (Attachment 8). The EPB NEPA Partner will check on the Chief Engineer's availability, will obtain the Chief Engineer's signature, and will either forward the signature and two (2) copies of the document to FHWA for signature or contact the Region to hand carry the package to FHWA. If the EPB NEPA Partner forwards the document to FHWA, the EPB NEPA Partner will let the Region know when the Chief Engineer has signed 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.

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 Central Files and Administrative Services each 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.

EPB requires one (1) hard copy and one (1) CD of each signed NEPA document for the library.

The FHWA Colorado Division office has agreed to submit by priority mail one hard copy of the approved EA to the US Environmental Protection Agency (EPA) Region 8 in Denver. The OE is responsible for this submission. EPA will develop a checklist letter and at its earliest opportunity, but not later than 15 days, will advise FHWA (1) that EPA will have no comments, (2) that EPA will have comments within the 30-day public review period, or (3) that EPA has serious objections to the FONSI, and call for a meeting to discuss the issues. The OE, with the FHWA Environmental Program Manager and the RPEMs, will coordinate a response to any comments and, if requested, review the draft response with EPA to ensure

the issues are adequately covered and that EPA has no objection to the signing of the FONSI.

If EPA has serious objections, EPA will discuss the issues with FHWA. FHWA will decide and advise EPA whether it will select a no build alternative, prepare an EIS, or issue a FONSI. EPA will decide and advise FHWA how it will proceed (i.e. whether it will defer to FHWA's judgment or refer the document to the Council on Environmental Quality [CEQ]). In the latter case, EPA will have 10 additional working days to make the referral to CEQ. In the meantime, FHWA will agree not to sign a FONSI until such time as CEQ indicates no interest or no further objection.

FHWA requires four (4) hard copies of signed EA documents; however, up to 23 copies are required if a Section 4(f) Evaluation is included (three [3] hard copies for the FHWA Colorado Division office, one (1) hard copy for FHWA legal, one (1) hard copy for EPA Region 8, and up to 18 for the DOI with a minimum of one (1) hard copy - CDs or a website can be substituted for the remaining copies). 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.

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 notice of availability (NOA).

All document review locations must have documents in place by the notice of availability (NOA).

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 Central Files and Administrative Services each 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.

EPB requires one (1) hard copy and one (1) CD of each signed NEPA document for the library.

FHWA requires four (4) final hard copies of the signed FONSI; however, up to 13 copies are required if a Section 4(f) evaluation is included (three [3] hard copies for the FHWA Colorado Division office, one (1) hard copy for

EPA Region 8, and up to nine (9) copies for the DOI with a minimum of one (1) hard copy - CDs or a website can be substituted for the remaining copies). 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, a NOA 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.

8.9 Draft and Final EIS Distribution

The number of final 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 Central Files and Administrative Services each 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.

EPB requires one (1) hard copy and one (1) CD of each signed NEPA document for the library.

FHWA requires up to 32 copies of the signed Draft EIS (three (3) hard copies for the FHWA Colorado Division office, one (1) hard copy for the FHWA legal office, two (2) hard copies for the FHWA headquarters office, 3 copies for EPA Region 8 [two (2) hard copies and one (1) CD], five (5) hard copies for EPA headquarters, and up to 18 copies for the DOI with a minimum of one (1) hard copy - CDs or a website can be substituted for the remaining copies). If the Draft EIS does not include a Section 4(f) analysis, the copies for the DOI can be omitted. 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

The Federal Register Handbook is available at: http://www.archives.gov/federal-register/write/handbook/chapters.html

documents in place by the NOA, and cooperating and participating agencies must have received copies of the document by the NOA.

For the Draft EIS, the NOA will be published by the EPA upon receipt of the 5 copies sent to EPA headquarters. (CEQ, 40 Code of Federal Regulations [CFR] § 1506.10) Comments on Draft EISs must be submitted within 60 calendar days after publication in the Federal Register. The FHWA OE will submit the appropriate number of Draft EIS copies to the EPA.

For a signed Final EIS, up to 32 copies are required (three [3] hard copies for the FHWA Colorado Division office, one [1] hard copy for FHWA legal, two [2] hard copies for FHWA headquarters, three [3] copies for EPA Region 8 [two (2) hard copies and one (1) CD], five (5) hard copies for EPA headquarters, and up to 18 for the DOI with a minimum of one (1) hard copy - CDs or a website can be substituted for the remaining copies). If the Final EIS does not include a Section 4(f) analysis, the copies for the DOI can be omitted. 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.

For the Final EIS, the NOA will be published by the EPA upon receipt of the five (5) copies sent to EPA headquarters (CEQ, 40 CFR § 1506.10). Comments on Final EISs must be submitted within 30 calendar days after publication in the Federal Register. The FHWA OE will submit the appropriate number of Final EIS copies to the EPA.

If FHWA decides to submit a NOA to the Federal Register for listing separate from the EPA NOA, the RPEM will prepare a draft NOA, including the date(s) and location(s) of a public hearing(s). The draft NOA should be reviewed and approved by the FHWA OE with assistance of the FHWA Environmental Program Manager, as necessary. The FHWA OE will submit the NOA to the Federal Register for publication in the Federal Register.

A minimum 30-day period is required after publication of a Final EIS before any ROD may be issued.

The notice of availability (NOA) is published each Friday in the Federal Register for those EISs filed during the preceding week.

8.10 ROD Distribution

The number of final 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 Central Files and Administrative Services each 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.

EPB requires one hard copy and one CD of each signed document for the library.

FHWA requires up to 15 final copies of the signed ROD (three [3] hard copies for the FHWA Colorado office, one [1] hard copy for FHWA headquarters, and up to nine [9] copies for the DOI with a minimum of one [1] hard copy - CDs or a website can be substituted for the remaining copies). 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 6-month limitations of claims clause provided for in Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (SAFETEA-LU, 23 USC § 1001 - 11167). 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 July 2008 from http://ceq.hss.doe.gov/nepa/regs/ceq/toc_ceq.htm.

National Environmental Policy Act (NEPA). 1969, as amended August 9, 1975. 42 USC § 4321 – 4347. Retrieved July 2008 from http://ceq.hss.doe.gov/nepa/regs/nepa/nepaeqia.htm.

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.

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ATTACHMENT 1
CONSULTANT CERTIFICATION LETTER TO RPEM

Firm Name and Address

Date

Subject:

Dear RPEM:

Enclosed are xx copies of the (EA, FONSI, EIS, ROD) for 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 NAME, TITLE. In my professional opinion, the quality of this document meets the standards expected by CDOT and FHWA.

Sincerely,

Firm Principal

Enclosures

ATTACHMENT 2
TRANSMITTAL MEMO FROM RPEM TO EPB NEPA PARTNER

DATE:

TO: EPB NEPA Partner

FROM: RPEM

SUBJECT: Review of Project Number, Subaccount, Project Name (EA, FONSI, EIS, ROD)

Attached for your (first, second, etc.) review are (xx hard copies, xx CDs) of the above-referenced environmental document. This document was prepared by FIRM NAME (certification letter 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

ATTACHMENT 3
ENVIRONMENTAL PROGRAM BRANCH NEPA COMMENT SUBMITTAL FORM

Project Name								
YOUR NAME (last name, first name)	**SECTION #**	**PAGE**	**PARA.**	**LINE**	**COMMENT**	**S, R, E**	**A, R, C**	**RESPONSE**

S – Substantive, R – Requested, E – Editorial (for reviewer)
A – Accepted, R – Rejected with Explanation, C – Need Clarification (for project team use)

ATTACHMENT 4
LIST OF EPB AND HEADQUARTERS NEPA DOCUMENT REVIEWERS

Environmental Programs Branch Reviewers

Mike Banovich (Regions 2, 3, 5)	*Vegetation/Noxious Weeds*
Cathy Curtis (Regions 1, 4, 6)	*Vegetation/Noxious Weeds*
Zac Graves	*Noise/Air Quality*
Vanessa Henderson	*NEPA Oversight**
Dan Jepson	*Archaeology/History*
Sheble McConnellogue	*Land Use/Planning & Environmental Linkages/Cumulative*
Yates Oppermann	*Section 4(f) Non-Historic Resources*
Jeff Peterson	*Wildlife/Threatened and Endangered Species*
Rebecca Pierce	*Wetlands*
Bryan Roeder	*Noxious Weeds/Wildlife*
Lisa Schoch	*History/Section 4(f) Historic Resources*
Rebecca Sturgeon	*Water Quality*
Steve Wallace	*Paleontology*
Rick Willard	*Water Quality*

Other Headquarters Reviewers

Mehdi Baziar, Division of Transportation Development	*Access/Traffic*
Andy Flurkey, Hazardous Materials Unit, Maintenance and Operations	*Hazardous Materials*
Hamid Ghavam, Construction and Design, Project Development Branch	*Hydraulics*
Janice Leaverton, Right of Way Services, Project Development Branch	*Right of Way*
Tracey MacDonald, Division of Transportation Development	*Planning*

* The general NEPA category includes all sections that are not specifically listed.

** These reviewers are current as of the date of publication of this document and are subject to change.

ATTACHMENT 5
NEPA DOCUMENT SIGNATURE PAGE FORMAT CHECKLIST

- Project name and number
- Type of NEPA document (Environmental Assessment, Finding of No Significant Impact, Draft Environmental Impact Statement, Final Environmental Impact Statement)

If a Section 4(f) or 6(f) Evaluation is part of the document it must be listed as well. Draft Section 4(f) Evaluations are in EAs and Draft EISs, Final Section 4(f) Evaluations are in FONSIs and Final EISs. In some cases, a draft Section 4(f) evaluation may be included in a Final EIS.

Document Submitted Pursuant to: (list of regulations - please cite only those that apply)

- 42 USC 4332 (2) (c) (always used)
- 49 USC 303 (if Section 4(f) Evaluation required)
- 16 USC 460 (if Section 6(f) Evaluation required)

Document Submitted by: (lists of agencies)

US Department of Transportation, Federal Highway Administration, Federal Transit Administration (if applicable), Colorado Department of Transportation, any others
Cooperating Agencies, if any (federal, state, or local agencies who have formally accepted this status)

Signature lines:

- Submitted by Region Transportation Director, Colorado Department of Transportation
- Concurred by Chief Engineer, Colorado Department of Transportation
- Approved by Division Administrator, Colorado Division, Federal Highway Administration

Region Transportation Directors
Region 1 – Anthony DeVito, P.E.
Region 2 - Timothy J. Harris, P.E.
Region 3 – Weldon Allen
Region 4 - Karla Harding, P.E.
Region 5 - Richard Reynolds
Region 6 - Randy L. Jensen

Chief Engineer
Pamela A. Hutton, P.E.

FHWA Division Administrator
Karla Petty, P.E.

These individuals are current as of the date of publication of this document and are subject to change.

ATTACHMENT 6
TRANSMITTAL MEMO FROM RTD TO EPB MANAGER

Date:

To: EPB Manager

From: RTD

Subject: Submittal of Project Number, Project Name, (EA, FONSI, Draft EIS, Final EIS, ROD) for Signature

The (EA, FONSI, Draft EIS, Final EIS, ROD) is ready to be signed by CDOT and FHWA. Enclosed are two copies of the (EA, FONSI, Draft EIS, Final EIS, ROD) and the original signature page. All CDOT, FHWA, (and any other cooperating or participating agency) comments have been resolved, incorporated into the (EA, FONSI, Draft EIS, Final EIS, ROD), and I have signed the document.

Please contact (Region contact) at (telephone number) once the signature page has been signed by the Chief Engineer. The Region (will/will not) hand carry the signature page to FHWA.

Enclosures

ATTACHMENT 7
TRANSMITTAL MEMO FROM EPB MANAGER TO CHIEF ENGINEER

DATE:

TO: Chief Engineer

FROM: EPB Manager

SUBJECT: Project Number, Project Name (EA, FONSI, Draft EIS, Final EIS, ROD)

The Environmental Programs Branch has reviewed this document and recommends the document be signed. Please sign the attached signature page of the (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

ATTACHMENT 8
TRANSMITTAL LETTER FROM CHIEF ENGINEER TO FHWA

Date

Name
Division Administrator
Colorado Division
Federal Highway Administration
12300 W. Dakota Avenue, Suite 180
Lakewood, Colorado 80228

Dear Division Administrator:

Transmitted herewith for your signature and approval are two copies of the (EA, FONSI, Draft EIS, Final EIS, ROD) for Project Number, Project Name (Subaccount).

Upon approval, please return the signed and dated title page to (Name with Region X). Thank you.

Sincerely,

Name
Chief Engineer

Attachments

CHAPTER 9: RESOURCE CONSIDERATIONS - CONTENTS

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.

CDOT has developed methodologies for some of the resources within this chapter. Methodologies for resources are located at the end of Chapter 9 in Attachment 1. The methodologies are brief descriptions of how resources should be handled within a NEPA document and who should be part of the coordination.

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 chapters of a NEPA document for the resource. 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

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.

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 evaluations to denote the area within which cumulative impacts of the proposed project and other projects should be addressed.

Appendix C contains regulations, policies, and memorandums of agreement (MOA) that pertain to resources.

9.1 Geospatial Data

Geographic information systems (GIS) assemble, store, manipulate, and display data associated by location and can relate information from different sources. GIS data can be utilized during scoping. GIS can also convert existing digital information into forms easy to recognize and use. For example, census or other tabular data can be converted to map form. It is also possible to assign values, such as direction and speed, to simulate movement through a transportation network. The basic uses of GIS in the NEPA process (for transportation) include:

- Mapmaking – Incorporating the mapmaking of traditional cartographers into GIS technology for the automated production of maps
- Evaluation of Environmental Impacts - GIS can be used to calculate environmental impacts (e.g., area of wetland impacts, numbers of historic properties)
- Simulating Environmental Impacts – Realistic, three-dimensional "before and after" perspective views of the environmental impacts of a given project that support decision-making
- Static or 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 or analysis.
- Design Meetings – The project team and community residents can collaboratively sketch community boundaries, as seen by local residents, and identify important community assets and liabilities

Steps in Analyzing the Resource

- Limit description of affected environment to an explanation of components affected by the project
- Address impacts
- Discuss alternatives with the same impacts together and contrast those that differ
- Acknowledge benefits
- Acknowledge commitments to avoid, minimize and reduce impacts
- Identify all mitigation measure commitments that are required.
- Present a brief summary of impacts by alternative after analyzing project impacts to a resource
- Present the impact/mitigation summary by project phase

(for example, cultural resources, historic sites, or hazardous waste sites).

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, rock outcroppings, and parks
- Project design scenarios and alternatives

Project managers should ensure that all information remains as separate layers to enable manipulation later in the project and take care 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. The CDOT standards are to be referenced and utilized on all CDOT projects.

CDOT's GIS standards are found in *Corridor GIS Standards Guidance Document* (CDOT, 2001a).

9.2 Air Quality

Air quality discussions address the emissions of pollutants from transportation systems 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.

Air quality is regulated under the 1970 Clean Air Act (Clean Air Act, 42 United States Code (USC) 85), as amended in 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 the Hazardous Air Pollutants (HAPs) added in the 1990 amendment. The US Environmental Protection Agency (EPA) promulgated regulations to address regional haze in 1999, and continually modifies the regional haze program, most recently in October 2006. Other air quality legislation include the Intermodal Surface Transportation Efficiency Act (known as ISTEA) (ISTEA, 23 USC § 1001 – 8005) and the more recent Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (known as SAFETEA-LU) (SAFETEA-LU, 23 USC § 1001 – 11167).

The two 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 Analysis and Documentation Procedures* (CDOT, 2006a).

9.2.1 Reasons for Evaluation of Air Quality under NEPA

CDOT conducts air quality evaluations for its projects for a variety of reasons, including the following:

- 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

9.2.2 Air Quality Evaluation Process

The CDOT Environmental Programs Branch (EPB) or Regional Air Quality Specialist evaluates the potential for air quality impacts from a proposed transportation project and then determines if coordination with the Colorado Department of Public Health and the Environment (CDPHE), Air Pollution Control Division (APCD) is required. Coordination with APCD involves notifying them of the project, discussing air quality concerns, and determining the appropriate level of analysis required to assess the air quality impacts of the project. This process is discussed further in the following sections. The CDOT Project Manager will determine early in the scoping process whether the required air quality analyses will be conducted by EPB, the Regional Air Quality Specialist, or a hired subcontractor. The regulations applicable to air quality evaluations are summarized in the sidebar.

CDOT conducts project-level conformity analysis in non-attainment or attainment/maintenance areas for proposed projects included in the Statewide Transportation Improvement Plan (STIP), unless the project is exempt. This analysis considers a limited area (such as the right-of-way [ROW]) surrounding selected intersections. Larger, system-wide air quality assessments are conducted by the lead air quality planning organizations, such as Denver Regional Council of Governments (DRCOG), which conducts the air modeling for the Denver Metro area.

The State Implementation Plan (SIP) establishes the motor vehicle emissions budget. The budget is not a financial figure but rather an emissions limit. In order to demonstrate that the SIP will achieve the emission reductions necessary for compliance, limits are established on the amount of emissions that any one 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 (aka the MVEB or "the budget"). Metropolitan Planning Organizations (MPOs) are required to demonstrate that transportation plans and programs stay within these budgets. This is done in the transportation conformity process through a MOA between the APCD and CDOT.

Clean Air Act and Transportation Conformity Rule (Clean Air Act, 42 USC 85)

- Ensures that transportation plans, programs, and projects conform to the state's air quality implementation plan and provide for attainment of the NAAQS
- Applicable to non-attainment and maintenance areas

Congestion Mitigation and Air Quality Improvement Program (CMAQ, 23 USC 149, Sec. 1008)

- Assists non-attainment and maintenance areas in reducing transportation emissions by working with them to develop proposals to improve air quality.

Evaluation of the potential air quality impacts of a transportation project must begin as soon as the design is sufficiently mature to determine if the project will be exempt from or require a project-level conformity analysis.

9.2.1.1 Emission Sources

Emission sources are typically tracked in five categories: point, area, on-road mobile, non-road (off-road) mobile, and biogenics. CDOT is responsible for addressing on-road mobile and non-road source dust emissions during construction activities.

Criteria Pollutants and Non-attainment Areas

Under the Clean Air Act, EPA sets limits on how much of a pollutant is allowed in the air anywhere in the United States (US). In the 1970 Clean Air Act, EPA identified six air pollutants (known as criteria pollutants) that can be harmful to public health and the environment. For each criteria pollutant, health-based (or primary) standards have been established to protect public health with an adequate margin of safety, and 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.

For the criteria pollutants, EPA has established NAAQS (Table 9-1), a maximum concentration for a specific averaging time above which adverse effects on human health may occur. Short averaging times (1, 3, 8, and 24 hours) address short-term exposure while the annual standards address long-term exposure. Longer term "acute "standards are set to recognize the cumulative "chronic" effects of long-term exposure.

The CDPHE has been delegated authority by the EPA to administer many of the requirements of the Clean Air Act for the state. CDPHE has adopted NAAQS, so there are no ambient air quality standards specific to Colorado.

Non-attainment areas are geographic areas where air quality does not meet NAAQS. The boundaries of a non-attainment area are ultimately defined by EPA after consultation with the states.

To identify current attainment and non-attainment designations, refer to CDPHE APCD's website at:

http://emaps.dphe.state.co.us/APInv/viewer.htm

Criteria Pollutants:

- Ozone (O_3)
- Carbon Monoxide (CO)
- Sulfur Dioxide (SO_2)
- Nitrogen Dioxide (NO_2)
- Particulate Matter (PM_{10} and $PM_{2.5}$)
- Lead (Pb)

Table 9-1 National Ambient Air Quality Standards [a]

Pollutant	Averaging Time	NAAQS	
		(µg/m3)	(ppm)
Ozone (O_3)	**1 hour**		**0.12**
	8 hour		**0.08[b] 0.075[c]**
Carbon Monoxide (CO)	**1 hour**	**40,000**	**35**
	8 hour	**10,000**	**9**
Sulfur Dioxide (SO_2)	**3 hour**	**1,300**	**0.5**
	24 hour		**0.14**
	Annual		**0.030**
Nitrogen Dioxide (NO_2)	**Annual**	**100**	**0.053**
Particulate Matter (PM_{10})	**24 hour**	**150**	
Particulate Matter ($PM_{2.5}$)	**24 hour**	**35**	
	Annual	**15**	
Lead (Pb)[d]	**Calendar quarter**	**1.5**	

Notes:
[a] Ambient air concentrations refers to the mass of pollutants present in a volume of and can be reported in units of micrograms per cubic meter ($\mu g/m^3$) or parts per million (ppm).
[b] 1997 standard
[c] 2008 standard
[d] Note new rules on lead, which are located at http://www.epa.gov/air/criteria.html.

Areas determined to be non-attainment are also given classifications based on the magnitude of the area's problem. Non-attainment classifications are used to specify certain regulatory requirements, establish deadlines for states to submit air quality plans, and determine when an area must be in compliance (attainment) with NAAQS.

For ozone, the non-attainment classifications are:

- Marginal
- Moderate
- Serious
- Severe
- Extreme

The attainment and non-attainment status of a region may change over time. The attainment/non-attainment status of the region where a project is located should be verified as an early action item for a new project (see CDPHE APCD's website for current designations).

For carbon monoxide and particulate matter, the non-attainment classifications are moderate and serious.

As of the date of publication of this Manual, Colorado has 12 non-attainment or attainment/maintenance areas. Once an area has attained the standard, a maintenance plan must be prepared to demonstrate that the standard will be maintained in the future. After the maintenance plan is approved by EPA, the area is re-designated an attainment/maintenance area.

Ozone Early Action Compact (EAC) Areas

EAC areas are those areas that have chosen to implement plans to achieve and maintain compliance with the 8-hour ozone standard earlier than otherwise required under federal Clean Air Act requirements and that these areas were about to be designated non-attainment for ozone. At this time, the Denver area is the only 8-hour ozone non-attainment area in the state. The EAC concept was designed to give local areas more control over the selection of control measures to implement in their early action plans. In exchange for submitting an early action plan and for complying with other milestones outlined within the compact, EPA agreed to defer the effective date of the non-attainment designation for any EAC area that was above the standard when 8-hour designations were finalized in June 2004.

In 2004, EPA designated the Denver metropolitan area, as well as portions of Larimer and Weld counties, as non-attainment for the 8-hour ozone standard. However, the non-attainment designation is deferred as long as the milestones in the EAC are met. The EAC is an air quality implementation plan that includes control measures to reduce emissions of ozone precursors (volatile organic compounds and oxides of nitrogen) and timelines for complying with the 8-hour ozone standard by December 31, 2007 and maintaining the standard into the future.

The U.S. Environmental Protection Agency (EPA) designated the Denver and North Front Range region (which includes most of Larimer and Weld counties) as non-attainment of the 8-hour ozone standard of 80 parts per billion (ppb) on Nov. 20, 2007.

The non-attainment designation came about when the fourth highest maximum reading over a three-year period (2005-2007) at the Rocky Flats monitor exceeded the "design value" of 85 ppb, largely due to high readings in July 2007. The Rocky Flats monitor is one of 15 ozone monitors along the Front Range from Colorado Springs north.

To view current non-attainment designations for the 8-hour ozone standard, refer to CDPHE APCD's website at:

http://www.cdphe.state.co.us/ap/images/ozoneareamap.gif

Since the designation of the non-attainment area, two air quality planning agencies-- Regional Air Quality Council (RAQC) and North Front Range Metropolitan Planning Organization (NFRMPO)-- have developed a State Implementation Plan (SIP) for 8-hour ozone outlining strategies for reducing ground-level ozone levels. Both air quality agencies used the expertise of the Air Pollution Control Division of the Colorado Department of Public Health and Environment. The SIP is set for adoption by the Air Quality Control Commission on Dec. 11, 2008. The Colorado General Assembly will review the plan January-May 2009. After legislative action (if forthcoming), the SIP will go the EPA for approval by July 2009. All the strategies will need to be implemented and the ozone levels reduced by 2010.

9.2.1.2 Hazardous Air Pollutants (HAPs)

The Clean Air Act amendments of 1990 listed 189 pollutants known or suspected to cause serious health problems, and directed EPA to establish emission limits for them. The act also provided a mechanism for amending the original list of pollutants, based on new information about health and environmental effects. There are now 188 HAPs, which also are known as toxic air pollutants or air toxics. Monitoring of ambient concentrations of HAPs is not mandated by the Clean Air Act. While monitoring under the Clean Air Act is not the norm, some monitoring of selected HAPs is performed in areas where relatively high HAP emissions occur. The monitoring of diesel particulate matter (DPM), one of the 21 Mobile Source Air Toxics (MSATs) and one of the six priority MSATs, may be of importance to certain kinds of projects in certain locations. EPA may propose HAP concentration/exposure limits in the future, but this has not yet occurred. If it does occur and the limits are given formal approval, FHWA and CDOT will develop revised guidance. Without these concentration/exposure limits, detailed analysis of potential concentrations of HAPs are not useful because they cannot be related to applicable health risk standards.

9.2.1.3 Collection and Evaluation of Baseline Information

Collection of Baseline Information

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. This information can be found through the National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS), CDPHE, and the EPA.

NWS website at:

http://www.nws.noaa.gov/

General information includes:

- Climate and air quality data. This information is needed to characterize the general project setting with an emphasis on aspects that are likely to be impacted by the project.
- Historical meteorological data. Information includes wind direction, frequency or diurnal, altitudinal, or seasonal variations that affect dispersion, as it pertains to identifying and characterizing impacts or in developing mitigation measures.
- Historical air monitoring data. Information should display trends in pollutant concentrations in the project vicinity and/or the air quality region, as it pertains to any potential project emissions that could result in concentrations that exceed NAAQS.

Evaluation of Baseline Information

The evaluation of air quality impacts is dictated by federal and state law. The most significant federal air quality regulation that applies to transportation projects is the transportation conformity rule. This rule is implemented in Colorado by the Air Quality Control Commission Regulation 10 (5 Code of Colorado Regulations (CCR) 1001–12). The purpose of this rule is to implement Section 176 of the Clean Air Act, which requires all transportation plans, transportation improvement programs, and transportation projects to:

- Conform to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards.
- Ensure that these transportation activities will not cause or contribute to any new violation of any standard, increase the frequency or severity of existing violations of any standard, or delay timely attainment of any standard or any required interim emissions reductions.

A prescribed air quality clearance process must be used to evaluate potential impacts that may result from construction of transportation projects. All federal projects in non-attainment or attainment/maintenance areas must have a project-level conformity determination unless they fit into one of the exempt categories described in the sidebar. In either case, air quality issues must be addressed as part of the project environmental clearance process. The level of analysis and documentation for the air quality clearance will vary depending upon the scope of the project and the type of NEPA document being prepared. Categorical Exclusions (CatEx) are "minor projects," and usually require less analysis and documentation than projects that require an Environmental Assessment (EA) or Environmental Impact Statement (EIS).

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)

Federally funded or approved project types included in one of the categories listed in Table 2--Exempt Projects (Appendix 4.1-B) of the transportation conformity rule.

At the project level, CDOT is primarily concerned with CO and particulate matter, which may be present in either of two sizes: less than 2.5 microns ($PM_{2.5}$) and less than 10 microns (PM_{10}). Since CO is emitted in tailpipe exhaust from motor vehicles, concentrations of CO are higher in the immediate vicinity of roadways and intersections than at other locations. Sources of PM_{10} associated with motor vehicles include tailpipe exhaust, brake and tire wear, re-entrained road dust (which is especially associated with wintertime street sanding), and ground disturbance during construction. $PM_{2.5}$, associated with diesel exhaust and believed to pose greater health risks than PM_{10}, is not a pollutant of concern in Colorado.

Although ozone is not directly emitted by motor vehicles, motor vehicle emissions of Oxides of Nitrogen (NOx) and Volatile Organic Compounds (VOCs) contribute to ozone formation. Ozone is created by the reaction of NOx and VOCs on hot summer days. This reaction takes place over several hours, which allows for mixing and dispersion in the atmosphere; therefore, ozone is generally a regional, rather than localized, pollutant. The Denver metropolitan area is designated as an attainment/maintenance area for the 1-hour ozone standard, but in non-attainment for the 8-hour standard. Since ozone is a regional pollutant and cannot be analyzed in the vicinity of a particular roadway, a project-level analysis is not required for ozone. A regional ozone analysis is conducted as part of the air quality conformity determination for the Denver Regional Transportation Plan (RTP).

Conformity Determination

The first step in the air quality clearance process is to determine if the project is exempt from a conformity determination. Conformity is a way to ensure that federal funding and approval are given to those transportation activities that are consistent with air quality goals. It ensures that emissions attributed to transportation activities do not worsen air quality or interfere with the purpose of the SIP, which is to meet the EPA standards for air quality. The Federal Highway Administration (FHWA) has issued a *Transportation Conformity Reference Guide* (FHWA, 2006a) to assist in the conformity process.

In non-attainment and maintenance areas, FHWA and Federal Transit Administration (FTA) projects must be found to conform before they are adopted, accepted, approved or funded and before a NEPA decision document can be signed. With some exceptions (e.g., safety, landscaping, and other projects with neutral or minimal emissions impacts), transportation projects must meet the following criteria:

- They must be included in a conforming RTP and STIP.

- The design concept and scope of the project that was in place at the time of the RTP and STIP conformity finding must be maintained through implementation.
- The project design concept and scope must be sufficiently defined to ascertain emissions at the time of the conformity determination.

Areas that have CO or particulate matter problems must also show that new localized violations of those pollutants will not result from project implementation, and that any existing violations will not be worsened.

The MPO and US Department of Transportation (USDOT), through FHWA and FTA, have a responsibility to ensure that the transportation plan and program within the metropolitan planning boundaries conform to the SIP. In metropolitan areas, the policy board of each MPO must formally make a conformity determination on its transportation plan and STIP prior to submitting them to the USDOT for an independent review and conformity determination. Coordination with FHWA and the MPO is part of the overall project development process. Development of conformity determinations for projects outside of these MPO boundaries is the responsibility of CDOT.

Conformity determinations must be made at least every four years (or more often if changes occur) for RTPs and STIPs. Certain events, such as SIP revisions that establish or revise a transportation-related emissions budget, or add or delete Transportation Control Measures (TCMs), may trigger new conformity determinations.

If a conformity determination cannot be made within appropriate timeframes, a conformity lapse can occur and no new non-exempt projects may advance until a new determination for the plan and STIP can be made. This affects transit as well as highway projects. There are exceptions for specific categories of projects that are exempt from the conformity process (pursuant to 40 Code of Federal Regulations (CFR) Parts 93.126 and 93.128). TCMs that are included in approved SIPs may proceed during a conformity lapse.

Only those projects that have received approval of Plans, Specifications, and Estimates (PS&E) and transit projects that have received a full funding grant agreement or equivalent approvals prior to the conformity lapse may proceed to construction during a conformity lapse. Project phases that were approved by FHWA prior to the lapse (such as acquisition of right-of–way (ROW)) can also proceed, although no subsequent phases can be approved. Environmental review activities can proceed, but FHWA cannot sign a Findings of No Significant Impact (FONSIs), Record of Decision (ROD), or approve CatExs for non-exempt projects.

Once the regional conformity process for the plan and STIP is successfully completed by the MPO and USDOT, certain projects are also subject to project-level conformity. Project-level conformity applies only to projects that are funded and/or approved by FHWA or FTA or are considered regionally significant. A conformity determination is not required for state and locally funded projects. If a federally funded or approved project type is categorically excluded, it is exempt. The CDOT Project Manager should coordinate with the EPB or Regional Air Quality Specialist to determine if a project is exempt.

Selecting Project Areas for Air Quality Impact Analysis

If a project is not exempt, the EPB or Regional Air Quality Specialist determines which roadways and intersections in the project area will be evaluated for air quality impacts. Only intersections that will be constructed, reconstructed, or modified as part of the project are normally evaluated. If the project will result in an increase in traffic at nearby intersections, these intersections should also be evaluated. To determine which intersections should be evaluated, the Regional Project Manager should provide an analysis of traffic and Level of Service (LOS) to the EPB or Regional Air Quality Specialist. The traffic and LOS analysis should evaluate existing and future (20-year) conditions at all intersections affected by the project for the morning (AM) and afternoon (PM) peak hour periods for all project alternatives, including the No-Action Alternative.

The traffic and LOS analysis serves as a screening method to determine if a CO hot spot analysis is needed. EPA hot spot modeling guidance indicates the following:

Intersections operating at LOS C or better are not likely to cause a violation of CO standards and therefore do not need to be modeled. For individual projects, if the LOS for the preferred alternative is C or better at all signalized intersections affected by the project for all years and peak hours analyzed, then hot spot modeling is not required. However, the conformity rule still requires a qualitative analysis of likely CO impacts.

Hot Spot Modeling Process

If the project does not pass the LOS screening test discussed in the previous section, hot spot modeling is required. Hot spot modeling is a procedure for calculating CO concentrations along roadways and near intersections. The purpose of hot spot modeling is to determine whether or not the project will cause or contribute to a violation of federal CO standards.

The EPA-approved hot spot model is the Transportation Air Quality Dispersion Model (CAL3QHC), which predicts CO concentrations in the vicinity of intersections affected by a project. The specific information required for CAL3QHC and the modeling process is discussed in CDOT's *Air Quality Analysis and Documentation Procedures* (CDOT, 2006a).

Hot spot modeling is required at intersections where the LOS is D or worse. For projects with LOS D that affect more than five or six intersections, a screening procedure based on traffic volumes and level of congestion, that is, volume-to-capacity ratio greater or equal to 0.85, can be used to select the three or four worst-case intersections for hot spot modeling. If model results for the worst-case intersections do not exceed standards, lower volume intersections would also pass the hot spot test. The screening procedure reduces the amount of modeling required, yet still complies with the intent of the transportation conformity rule.

Particulate Matter Hot Spot Analysis

Hot spot assessments are also required for PM_{10}. However, no approved models exist for this purpose; instead of modeling, a qualitative hot spot assessment is performed. EPA and FHWA have issued joint guidance for these types of assessments. In the Denver area, these assessments rely on air quality modeling performed for the PM_{10} maintenance plan. In other areas, factors such as changes in traffic, emissions, receptor distances, and other elements that can impact concentrations are discussed.

In March 2006, EPA published a rule for determining which transportation projects must be analyzed for local air quality impacts. EPA specified that projects of air quality concern are certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified in the PM_{10} SIP as a localized air quality concern:

- New or expanded highway projects that have a significant number of or significant increase in diesel vehicles
- Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project
- New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location

- Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location
- Projects in or affecting locations, areas, or categories of sites which are identified in the PM_{10} SIP as sites of violation or possible violation

Particulate matter analyses must be based on the latest planning assumptions. The requirements include:

- Analysis must include the total emissions burden of direct particulate matter emissions which may result from the implementation of the projects summed together with the background concentrations
- Analyzing the entire transportation project, after the identification of major design features which will significantly impact local concentrations
- Using consistent assumptions with those used in regional emissions analyses for inputs that are required for both analyses (e.g., temperature, humidity)
- Assuming the implementation of mitigation or control measures only where written commitments for such measures have been obtained not considering temporary emissions from construction-related activities which occur only during the construction phase and last five years or less at any individual site

Hazardous Air Pollutants and Evaluation of Mobile Source Air Toxics

EPA has assessed the 188 HAPs and identified a group of MSATs, as described in EPA's 2007 final rule, Control of Hazardous Air Pollutants from Mobile Sources (72 Federal Register [FR] 8428). In 2001, EPA indicated that the majority of adverse health risk came from a subset of six MSATs, which FHWA labels as the priority MSATs. These are benzene, formaldehyde, acetaldehyde, diesel particulate matter/diesel exhaust organic gases, acrolein, and 1,3-butadiene. While these MSATs are considered the priority transportation toxics, the EPA stresses that the lists are subject to change and may be adjusted in future rules.

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 impacts from MSATs are limited. These limitations

FHWA has several research projects underway to more clearly define potential risks from MSAT emissions associated with transportation projects, which are available at:

http://www.fhwa.dot.gov/environment/airtoxic/index.htm

and more importantly the lack of approved concentration/exposure limits for these MSATs, impede CDOT's and FHWA's ability to evaluate how mobile source health risks should factor into project-level decision-making under NEPA. At this time, the emphasis is on evaluating relative emission levels and seeking to reduce those emissions as part of alternative evaluation.

In addition, EPA has not established regulatory concentration targets for the six relevant MSAT pollutants appropriate for use in the project development process.

Nonetheless, air toxics concerns are being raised more frequently on transportation projects during the NEPA process throughout the nation. As the science emerges, CDOT and FHWA are increasingly expected by the public and other agencies to address MSAT impacts in their environmental documents. FHWA has several research projects underway to more clearly define potential risks from MSAT emissions associated with transportation projects. While this research is ongoing, FHWA has issued a memorandum regarding interim guidance on air toxic analysis in NEPA Documents (FHWA, 2006b). FHWA has standard language that should be used in CDOT NEPA documents and it is included as Attachment 2 of this chapter.

Conditions Requiring Quantitative MSAT Analysis

The project creates or significantly alters a major inter-modal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location.

OR

The project creates new or adds significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the annual average daily traffic is projected to be in the range of 140,000 to 150,000 or greater by the design year.

AND

The project is proposed to be located in proximity to populated areas or in rural areas and/or in proximity to concentrations of vulnerable populations (e.g., schools, nursing homes, hospitals).

A qualitative analysis is always required (except for projects exempted under FHWA's interim guidance); the guidance also provides specific text to be included in NEPA documents, depending upon the type of analysis conducted.

9.2.1.4 Other Issues to Consider

CDOT has entered into a MOA with the APCD regarding procedures for determining project-level conformity. The purpose of the MOA is to identify procedures for CO that ensure compliance of federally funded transportation projects with the federal transportation conformity requirements and NEPA. The consultation process results in an Air Quality Concurrence Letter, signed by APCD. The procedures for obtaining the concurrence letter for an EA/EIS or a CatEx, as well as a description of projects exempt from the project-specific conformity requirements, are described in the MOA (Appendix C).

Project air quality clearances are documented according to one of the procedures discussed below. The results of the 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 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.

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 a conforming RTP and STIP 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 air quality standards. An air quality clearance cannot be issued if the hot spot analysis shows that there would be an exceedance of the 8-hour CO standard. The project must be included in a conforming RTP and STIP. A copy of the memo should be sent to the CDOT Project Manager. Coordination/concurrence with APCD is not required.

EA/EIS projects that pass the LOS screening test - All EA/EIS projects in non-attainment and attainment/maintenance areas require coordination with APCD. If the project passes the LOS screening test, 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 a conforming RTP and STIP.

Modeled EA/EIS projects - For EA/EIS projects in non-attainment and attainment/maintenance areas having intersections that do not pass the LOS screening test (LOS D or worse), 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 report describing the project and summarizing the results of the hot spot modeling and other analyses. The report and a letter requesting concurrence are sent to APCD. The project must be included in a conforming RTP and STIP.

9.2.3 NEPA Document Sections

The content of the sections on air quality in the Affected Environment and Environmental Consequences chapters is discussed below.

9.2.2.1 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 general 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 analyzed in order to determine how air quality will be impacted by the project actions.

Status of the Air Quality Region – Determine whether the project is located in a non-attainment or attainment/maintenance area. Identify whether the attainment is for CO, PM_{10}, and/or O_3 and how the project will affect those limits. Describe the regional air quality trends and outlook. Determine whether the project is in a conforming RTP and STIP.

9.2.2.2 Environmental Consequences

Documentation needs for the Environmental Consequences chapter of EAs and EISs are discussed in this section. The level of detail will vary with the scope of the project, the non-attainment or maintenance area it is located in (if any), and the number of pollutants for which analysis is required. At a minimum, the Environmental Consequences chapter should compare the effects of each alternative carried forward for detailed analysis in the following categories:

- Summarize the impact analysis performed
- State whether or not the air quality concentrations will remain under the EPA limits
- Discuss predicted future trends in these concentrations for each of the project alternatives
- Summarize any MSAT emissions monitoring or modeling

Include the following documentation in the impact analysis section of NEPA documents:

- EA/EIS projects that pass the LOS screening test
- Modeled EA/EIS projects
- Project impacts on PM_{10} concentrations in the project vicinity - The EPB or Region Air Quality Specialist should refer to FHWA's *Transportation Conformity Guidance for Qualitative Project Level Hot Spot Analysis in $PM_{2.5}$ and PM_{10} Non-attainment and Maintenance Areas* (FHWA, 2006c). For large corridor projects, include a discussion and summary table of the corridor area (total burden) PM_{10} emissions for all project alternatives.
- Any impacts (or no impact) on regional ozone concentrations - For large corridor projects, include a discussion and summary table of the corridor area (total burden) emissions of VOCs and NO_X.
- Project impacts on MSATs - Include the results of the qualitative and/or quantitative MSAT analysis if required by FHWA guidance (FHWA, 2006b). For large corridor projects, include a discussion and summary table of the corridor area (total burden) emissions of the six priority MSATs. FHWA has developed a standardized discussion (Attachment 2) of project level MSATs impacts that can be adapted for a specific type of NEPA project (FHWA, 2006b).

The air quality mitigation discussion focuses on mitigation measures available during the construction and operation phases, such as:

- Dust suppression during construction
- Sand sweeping as part of winter maintenance practices
- Equipment typically installed to reduce emissions from construction vehicles and vehicles using a project roadway

Other types of mitigation that may be incorporated to improve air quality include 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 (HOV) 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 (signal coordination, access control, and intersection improvement), may be added as post-design mitigation or during project operation.

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.

9.3.1.1 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

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.

9.3.1.2 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.

9.3.1.3 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.

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 erodable 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.

9.3.2 NEPA Document Sections

The content of the sections on geologic resources in the Affected Environment and Environmental Consequences chapters is discussed below.

9.3.2.1 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 9.24 (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.

9.3.2.2 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

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

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:

- 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.

9.4 Water Quality

Evaluation of water quality includes consideration of surface water, groundwater, and drinking water. Because these components are interrelated, their consideration is best accomplished by evaluating the entire watershed. A watershed is the land area drained by a stream or set of streams. Although floodplains and wetlands are considered water resources, these important resources are discussed separately in 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. It is very important to include CDOT maintenance personnel into the discussion early 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).

CDOT evaluates water quality impacts for each alternative under detailed consideration, 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.

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

9.4.1.1 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 and included in Appendix C.

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 CDPHE helped create the Water Quality Control Commission (WQCC) to provide regulations that keep Colorado in compliance with the CWA.

Based on requirements promulgated under Section 402 of the CWA, the WQCC has implemented Regulation 61 to list CDOT as a regulated Municipal Separate Storm Sewer System (MS4). An MS4 is a municipal separate storm sewer system owned or operated by public agency, such as

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.

a city, town, county, special district, or state or federal agency. A separate storm sewer system is made up of ditches, gutters, storm sewers, and similar means of collecting and conveying runoff that do not connect with a wastewater collection system or wastewater treatment facility.

9.4.1.2 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 site runoff pollution during the construction and operation phases of 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's Phase I MS4 Permit was required for the roadways that were owned and operated by CDOT in the city's that served greater than 100,000 people (i.e Denver, Lakewood, Aurora and Colorado Springs). CDOT's Phase I permit required:

- Major revisions to the CDOT *Erosion Control and Storm Water Quality Guide* (2002a) and CDOT *Drainage Design Manual* (2004a)
- Identification of sensitive waters and evaluate any special requirements for these waters
- Preparation of Stormwater Management Plans (SWMP) for construction projects that disturb five or more acres
- Development of a "New Development/Redevelopment Program" that outlines a process to control water quality during the operation phase

The CDOT MS4 Permit *New Development and Redevelopment Program* (current version available on CDOT's website) provides direction, criteria, and procedures to ensure that permanent BMPs are incorporated, as appropriate, into CDOT projects. Projects that will fall under CDOT authority, but are initially constructed by others, such as private developers and local governmental entities, also must comply with BMP requirements, regardless of the funding mechanism. 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.

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.dot.state.co.us/environmental/envWaterQual/wqms4.asp

In 1999, MS4s serving less than 100,000 people 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 has a combination Phase I/Phase II permit. Phase II also reduced the minimum size of construction projects requiring a CDPS permit from five acres of disturbed area to one acre of disturbed area.

Every construction project within CDOT ROW that involves an earth disturbance requires a Stormwater Management Plan (SWMP) in CDOT format. 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 SWMP in CDOT format. The CDPS construction permit must be signed by the Resident Engineer. The SWMP is prepared in the final design phase of the project and the CDPS construction permit is 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 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 permits are discussed further in Appendix C.

9.4.2 NEPA Document Sections

Water quality modeling and documentation in the Affected Environment and Environmental Consequences chapters of EAs and EISs is discussed below. CatExs do not require modeling or extensive documentation. However, the need for permanent BMPs must be considered in Phase I/II areas for CatExs that disturb greater than one acre or are part of a larger common plan of development. October 23, 2007, CDPHE confirmed that shouldering material will not be counted as disturbance area. Also, SWMPs must be prepared for every CatEx, regardless of 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.

9.4.2.1 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 we analyze water quality 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 that they drain to. 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% 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, water quality modeling preferences, 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). All these regulations are contained on the WQCC webpage.

CDOT New Development and Redevelopment Program Requirements – The author needs to identify waters that meet the definition of sensitive waters in CDOT's Phase I/II MS4 Permit. 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 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 #94) 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 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 permit 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 Threatened and Endangered (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.h

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 (WQCC Regulation 93), monitoring and evaluation (WQCC Regulation 94), 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.

9.4.2.2 Environmental Consequences

Documentation needs for the Environmental Consequences 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. At a minimum, the Environmental Consequences chapter 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, total maximum daily loads (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.

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 the 128 form.

Design criteria relating to permanent BMPs are also addressed in the following documents:

- CDOT *Drainage Design Manual* (current version available on CDOT website)
- *Urban Storm Drainage Criteria Manual, Volume 1 & 2.* (Urban Drainage and Flood Control District, current version)
- *Urban Storm Drainage Criteria Manual, Volume 3.* (Urban Drainage and Flood Control District, current version)

Construction BMPs

Construction BMPs and a SWMP to address erosion and sedimentation on construction sites are needed for every project in CDOT ROW (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.

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.

9.5.1.1 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 Federal Emergency Management Agency (FEMA). These regulations are also summarized in Appendix C.

In addition to federal and state laws and regulations, local jurisdictions may have ordinances and regulations that must be followed. The CDOT Project

Significant Impacts:
If a preferred alternative includes a significant impact of floodplain encroachment refer to Executive Order 11988 *Floodplain Management* (Executive Order 11988, 1977).

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.

9.5.1.2 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

Bridge piers are considered as a floodway encroachment

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.

For information regarding the USACE's role in floodplain management, please refer to the USACE Water Resources Management website at:

http://www.vtn.iwr.usace.army.mil/floodcontrol/default.htm

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

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 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 chapters is discussed below.

9.5.2.1 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.

Environmental Consequences Chapter 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

If no impacts were identified in relationship to the CDOT project, state this in the NEPA document and conduct no further analysis.

9.5.2.2 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 Consequences chapter 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

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

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

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.

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

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 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.

9.6.1.1 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. More detail on the 404 permit process and coordination with USACE is provided in Appendix C.

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

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 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. Wetlands legislation is provided later in this section and described in more detail in Appendix C.

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

9.6.1.2 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. Wetland functions should be determined by applying the Functional Assessment of Colorado Wetlands (FACWet), a CDOT- and USACE-approved wetland functional assessment method. Additionally, the best current sources of wetland information and mapping include:

- National Wetlands Inventory
- Colorado Natural Heritage Program

- 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 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 no possible.

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/nwi/

Colorado Natural Heritage Program website at: http://www.cnhp.colostate.edu/gis.html

USGS National Wetlands Research Center website at: http://www.nwrc.usgs.gov/

These data are best determined by overlaying project alternatives with the wetland locations. These data are best 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):

- 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:

Knowing the importance of the wetlands involved 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

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/

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 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)
- Establishment of wetlands within the project area or vicinity or the more preferable purchase of credits in established wetland 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. There is a preference for banking over site restoration in transportation projects.
- Prescribed monitoring requirements to ensure that wetland mitigation commitments are installed and continue to function properly. A monitoring plan should be completed that requires

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

thorough documentation of compensatory mitigation and establishes success criteria and the duration and frequency of monitoring. CDOT has a database that tracks wetland impacts, mitigation measures, and monitoring activities.

9.6.1.3 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 (CDOT, 2008a) and must be approved by CDOT or FHWA as appropriate based on their current MOA (Appendix C). 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 chapters is discussed below.

9.6.2.1 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 couple of 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?

9.6.2.2 Environmental Consequences

The Environmental Consequences chapter 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

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

should be included in a separate subsection entitled 'Only Practicable Alternative Finding' and should be supported by the following information:

- 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, 2008a) to enable compliance with the above requirement.

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 ROW 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.

9.7.1.1 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% of 1% of the landscaping budget) during reclamation is required on federal-aid projects as noted in FHWA's *Landscape and Roadside Development* (FHWA, 23 CFR 752) 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.

The Colorado Department of Agriculture Noxious Weed Management Program is available at:

http://www.colorado.gov/cs/Satellite/Agriculture-Main/CDAG/1174084048733

9.7.1.2 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:

- 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% accuracy was the goal of GAP mapping, the 52 land cover types in Colorado were initially mapped at an accuracy of 31%. 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.

CDOW'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.

Sources of vegetation spatial include:

Colorado Gap Analysis Project at http://ndis1.nrel.colostate.edu/cogap/

CDOW'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/

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 Colorado Natural Heritage Program. The Colorado Natural Heritage Program 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 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.

Colorado Natural Heritage Program's website at:

http://www.cnhp.colostate.edu/gis.html

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.

- 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 9.27. 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.

9.7.1.3 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 Colorado Division of Wildlife (CDOW), 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 chapters 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.

9.7.2.1 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

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

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)
- 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

9.7.2.2 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 ROW
  - Elevating a portion of the ROW
  - 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 ROW 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

9.7.3.1 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

9.7.3.2 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

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.

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.

9.7.3.3 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
- 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.

9.7.3.4 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 ROW 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.

9.7.3.5 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 can not 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.

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.

CDOT has a Black-tailed Prairie Dog Policy, which can be found at:

http://www.dot.state.co.us/environmental/Wildlife/pdpolicy0605.pdf

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.

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).

9.8.1.1 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

The primary legal mandates that protect fish and wildlife species are listed at the beginning of this section and explained in more detail in Appendix C.

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 CDOW when the agency plans construction in "any stream or its bank or tributaries."

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.

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 disruption. In addition, CDOW has recommendations on buffer zones and seasonal restrictions for Colorado raptors that are viewed as guidance rather than official policy.

9.8.1.2 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 CDOW in the 1980s and available in some libraries, indicate the presence/absence of

Sources of fish and wildlife data include:

Colorado Gap Analysis Project at http://ndis1.nrel.colostate.edu/cogap/

CDOW's Natural Diversity Information Source http://ndis.nrel.colostate.edu/exploring.asp

Colorado Herpetological Society http://coloherp.org/geo/

Colorado Natural Heritage Program http://www.cnhp.colostate.edu/gis.html

FHWA Critter Crossing http://www.fhwa.dot.gov/environment/wildlifecrossings/index.htm

FHWA Invasive Species http://www.fhwa.dot.gov/environment/vegmgt/invasive.htm

USFWS Invasive Species http://www.fws.gov/invasives/

NatureServ http://www.natureserve.org/getData/plantData.jsp

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 (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 CDOW personnel, who should always be consulted
- CDOW'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 ROW, 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, CDOW 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

An important source of GIS information is provided in the data being developed for the Wildland Project and the Southern Rockies Wildlands project that cover much of western Colorado.

http://www.twp.org/files/pdf/spine_map.pdf

http://www.restoretherockies.org/linkages.htm

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 importance, and the degree to which impacts from the transportation project considered in the current NEPA document would contribute to the cumulative impacts.

9.8.1.3 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

Shortgrass Prairie Initiative

http://www.dot.state.co.us/environmental/Wildlife/SGPIBO.pdf

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 Colorado Division of Wildlife (CDOW) 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 SB 40, CDOT must obtain a Senate Bill 40 Wildlife Certification from the Colorado Division of Natural Resources (CDNR) or CDOW before construction begins. Under a MOA (Appendix C) 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 CDOW 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 CDOW 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.

9.8.2 NEPA Document Sections

The content of the sections on fish and wildlife in the affected environment and environmental consequences chapters is discussed below.

9.8.2.1 Affected Environment

The Affected Environment chapter of the NEPA document should:

- Briefly characterize the important fish and wildlife species in the project vicinity
- Note whether any of them are expected to be impacted by 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 contaminates 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

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

- Removal or depletion of water from either the Upper Colorado, San Juan, or Platte River basins, which will affect species hundreds of miles downstream
- 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:

- A description of how the species being considered were selected and the basis for any species groups that have been 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

9.8.2.2 Environmental Consequences

In the Environmental Consequences chapter 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 are 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. Prepare the fish and wildlife input for a tabular summary of impacts by alternative.

Senate Bill 40 Certification

Mitigation for Senate Bill 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 CDOW before the RPEM can sign Form 128. However, EAs and EISs usually provide a conceptual mitigation plan and commit to completing the Senate Bill 40 application during final design. Wetland and T&E mitigation usually applies to Senate Bill 40 and it is helpful to cross-reference the wetland and/or T&E sections of the NEPA document when this is the case.

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.

9.9.1.1 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).

9.9.1.2 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 propsed project may affect one or more federally listed species. If the project is likely to adversely affect one one 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 (CDOW)
- County-specific species lists from the Natural Diversity Information Source (CDOW)

Additional information and GIS data on listed species can be found on the following web sites:

- USFWS website

T&E Online Resources

USFWS Colorado Listed Species
http://ecos.fws.gov/tess_public/StateListing.do?status=listed&state=CO

CDOW Species of Concern
http://wildlife.state.co.us/WildlifeSpecies/SpeciesOfConcern/

CDOW's Natural Diversity Information Source
http://ndis.nrel.colostate.edu/exploring.asp

USFWS's website at:
http://www.fws.gov/Endangered/wildlife.html

CDOW's website at:
http://wildlife.state.co.us/

CNHP's website at:
http://www.cnhp.colostate.edu/

- CDOW (additional data may be obtained through area biologists)
- Colorado Natural Heritage Program (additional data may be requested via a prescribed process)

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

9.9.1.3 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 chapters is discussed below.

9.9.2.1 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 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.

9.9.2.2 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.

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.

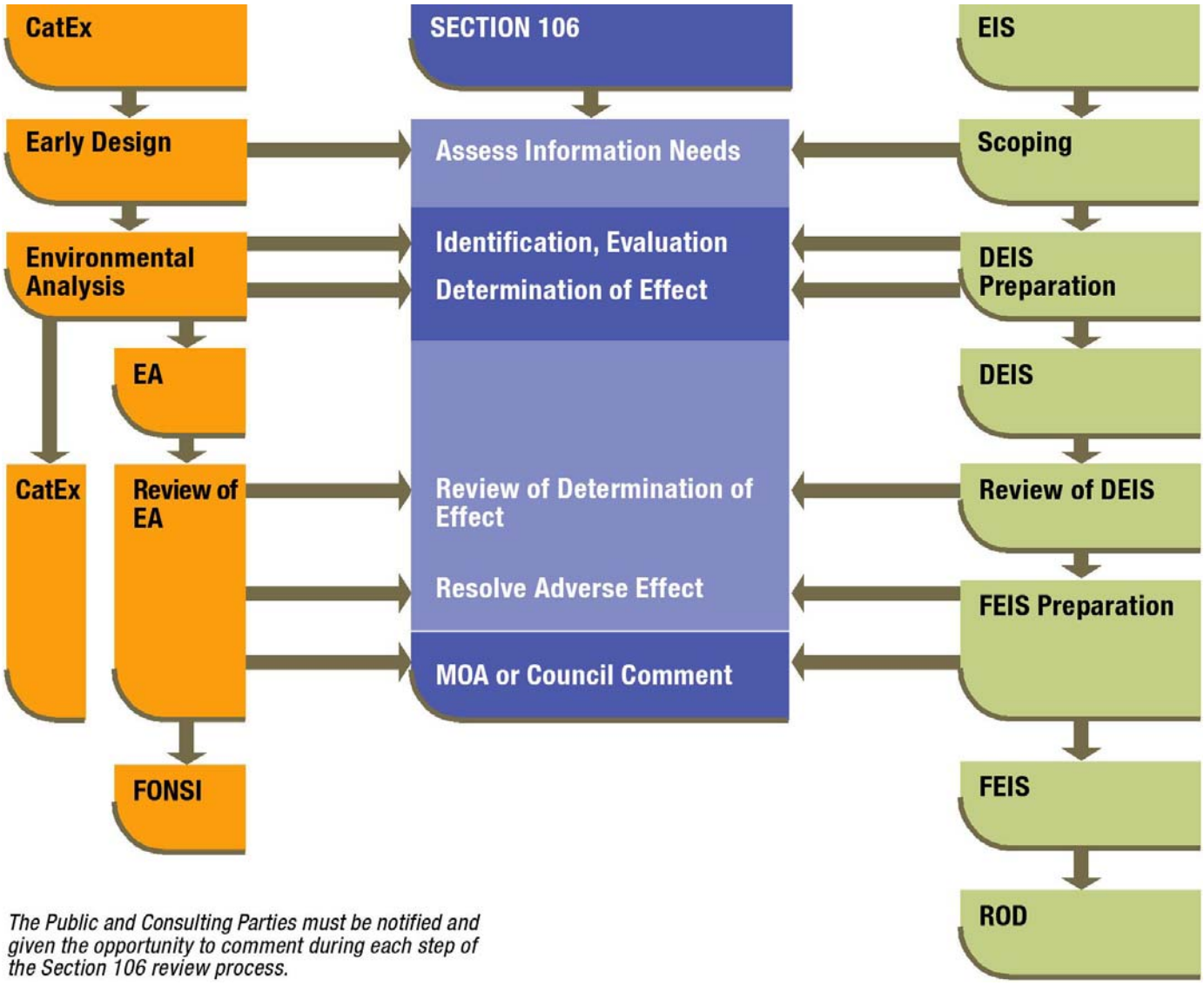
CDOT identifies potential historic properties, recommends determinations of eligibility and effect, and consults with the State Historic Preservation Officer (SHPO) on behalf of FHWA. FHWA has authorized CDOT to make these evaluations; however FHWA is legally responsible for the findings and determinations made during the Section 106 process (Figure 9-1) 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.coloradohistory-oahp.org/crforms/crforms_man.htm) 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 9-1 Coordination Between NEPA and Section 106



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. Some of the more important regulations are summarized in Appendix C.

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 9-1) so that the acquired information

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 9.20**.

can provide the historic properties baseline information required for NEPA analysis.

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 ROW 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.

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.

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 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. If so, it must be considered under the Colorado Register of Historic Places Act. 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

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 http://www.coloradohistory-oahp.org/publications/pubindex.htm

- A rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents
- 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 ROW 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.

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)].

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 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, settling, 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 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.

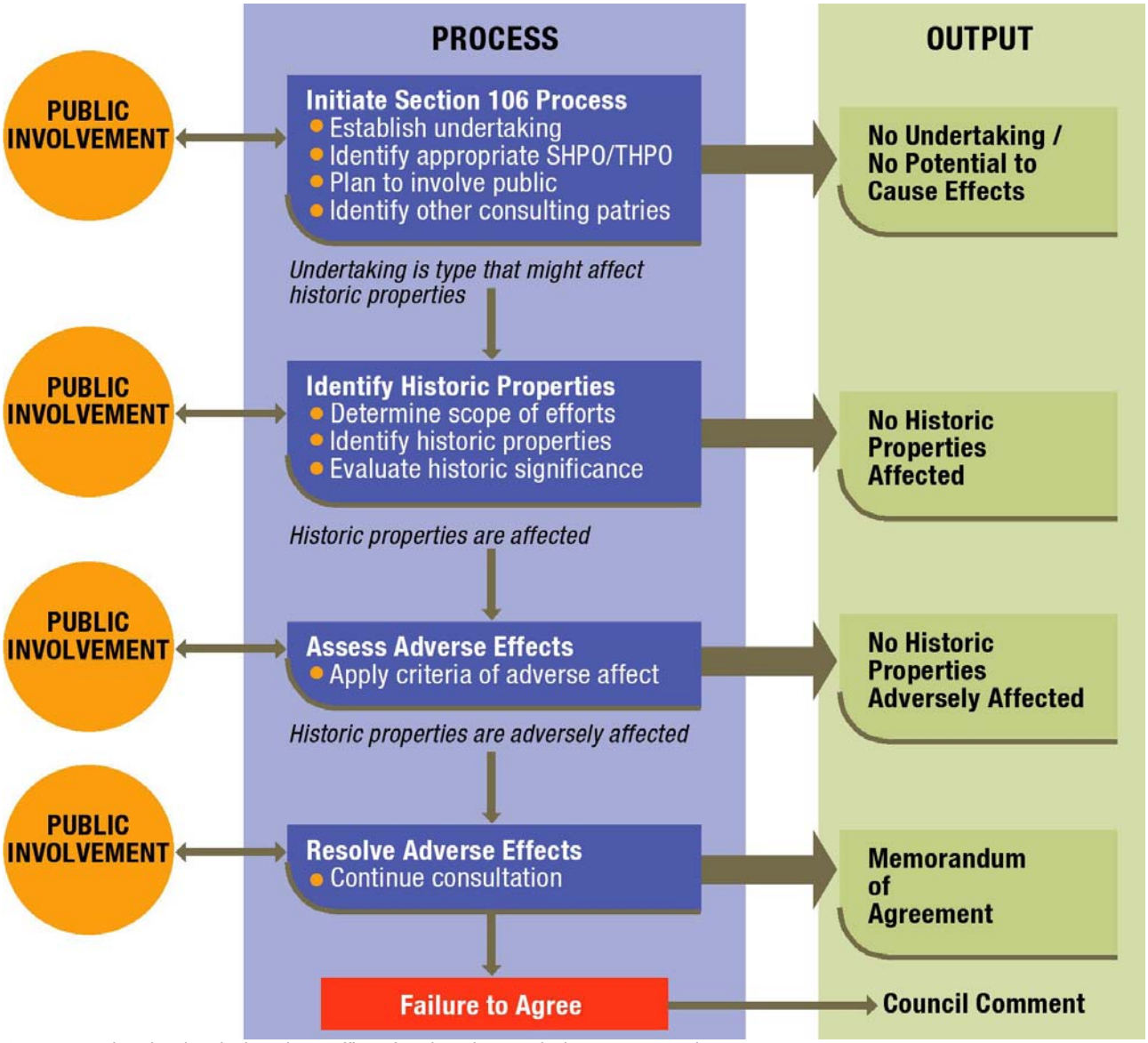
The execution and implementation of the stipulations in a MOA provide evidence of FHWA's compliance with Section 106. The MOA is submitted to the ACHP for filing, and CDOT, on behalf of FHWA, ensures the mitigation stipulations are carried out in accordance with the MOA. Unless project circumstances 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 9-2) 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 9-2 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 9-3), 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
- 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 ROW 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

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 AD 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.

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 ROW 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)* (US DOI 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 9-3):

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

Figure 9-3 Cultural Resource Survey Forms – Which Forms to Use When

RESOURCE TYPES \ CULTURAL RESOURCE FORMS	Architectural Inventory Form (1403)	Management Date Form (1400)	Historic Architectural Component Form (1404)	Historic Archeological Component Form (1402)	Prehistoric Archeological Component Form (1401)	Rock Art Component Form (1407)	Linear Component Form (1418)	Paleontological Component Form (1409)	Vandalism Report Form (1406)	Cultural Resource Reevaluation Form (1405)	Isolated Find Record (1408)
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											●

explanation of the APE boundaries and why these boundaries were chosen must be provided, taking into account direct and (for historic resources) indirect impacts.

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.

9.10.4 NEPA Document Sections

The content of the sections on historic properties in the Affected Environment and Environmental Consequences chapters is discussed below. For projects having complex historic properties issues, these sections shall contain subsections on "Historic Resources," "Archaeological Resources," and "Native American Consultation."

9.10.4.1 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.

9.10.4.2 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.

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 Statue 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.

Land Uses, Prohibitions, Paleontological Resources

- 36 CFR 261.9(i)
- Regulates fossil collection on US forest lands.

9.11.1.1 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. Further discussion of the permits, laws, and regulations relevant to paleontological resources is provided in Appendix C.

For highway projects that cross BLM-administered lands, BLM utilizes the Federal Land Policy and Management Act (FLPMA) of 1976 to regulate the collection of fossils in lieu of 16 USC Section 421–433 (the Antiquities Act of 1906). 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 by 36 CFR 261.9(i), which prohibits "excavating, damaging, or removing any vertebrate fossil or removing any paleontological resource for commercial purposes without a special use authorization." 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.

9.11.1.2 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

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 often 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.

minimum:

- Project name and number
- For a linear highway project, its beginning and ending mileposts
- 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 ROW 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 ROW 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-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.

9.11.1.3 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 chapters is discussed below.

9.11.2.1 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.

9.11.2.2 Environmental Consequences

The Environmental Consequences chapter 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.

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 consult 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.

9.12.1.1 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.

9.12.1.2 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 9.23). 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.

9.12.1.3 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 chapters is discussed below.

9.12.2.1 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 Long Range Transportation Plan 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.

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.

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.

9.12.2.2 Environmental Consequences

The land use section of the Environmental Consequences chapter 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 9.27. 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.

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, TOD

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.

Public scoping input should help guide the topics and level of detail presented under Social Resources.

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.

9.13.1.1 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 regulations are provided in the sidebar and discussed in detail in Appendix C.

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.

9.13.1.2 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

Community Resource Regulations and Guidance

- National Environmental Policy Act of 1969
- 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
- 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

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 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.

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://factfinder.census.gov/servlet/DatasetMainPageServlet

US Census Bureau Maps and Cartographic Resources
http://www.census.gov/geo/www/maps/

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.

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.

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.

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.).

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

9.13.1.3 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 chapters is discussed below.

9.13.2.1 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

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

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.

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, 1996a).

9.13.2.2 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, 1996a).

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.

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.

Public scoping input should help guide the topics and level of detail presented under Economic Resources.

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.

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.

9.14.1.1 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 regulations are provided in the sidebar and discussed in detail in Appendix C.

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.

9.14.1.2 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

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

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.

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

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

US Census Bureau's Decennial Census Summary File 1 and Summary File 3 http://factfinder.census.gov/servlet/DatasetMainPageServlet

US Census Bureau Maps and Cartographic Resources http://www.census.gov/geo/www/maps/

Bureau of Economics Regional Publications http://bea.gov/regional/

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.

9.14.1.3 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 are 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 chapters is discussed below.

9.14.2.1 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

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

9.14.2.2 Environmental Consequences

The Environmental Consequences chapter of the NEPA document should identify and discuss the impacts from each alternative on the economic 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 9.27.

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, 1996a).

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. There are three fundamental principles at the core of EJ, as expressed in FHWA's EJ website:

- 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

Minority and low-income populations, as they apply to EJ, are defined as:

- Black
- Hispanic or Latino
- Asian American
- American Indian and Alaskan Native
- Native Hawaiian or Pacific Islander
- Low-income

The two sections below provide guidance on the treatment of EJ for CDOT's NEPA projects. The first section discusses the process for evaluating EJ. The second section discusses EJ information that should be in each NEPA document.

9.15.1 EJ Evaluation Process

The CDOT Project Manager and EJ analyst (either in-house EJ analysts or consultants) are responsible for early identification of the minority and low-income populations and their quality of life. 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.

Environmental Justice Regulation and Guidance

- Title VI of the Civil Rights Act of 1964, as amended
- 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)
- ADA of 1990
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, amended 1987
- Title VI Regulations, 49 CFR 21 and 23 CFR 200
- Environmental Impact and Related Procedures, 23 CFR 771
- USDOT Order 5610.2 on Environmental Justice
- FHWA Order 6640.23 on Environmental Justice
- ISTEA of 1991
- 23 USC 109(h), Federal-Aid Highway Act of 1970
- FHWA Environmental Policy Statements 1990 and 1994

Minority and low-income populations should be identified early and throughout the project. The EJ 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 study area needs to be expanded to include these other communities.

Proactive community involvement may be necessary to include all segments of society, and could include separate meetings with identified populations and bilingual newsletters. 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. By identifying and alerting decision-makers to civil rights issues, the potential for disproportionately high and adverse effects on protected populations can be addressed and resolved early in the transportation development process.

9.15.1.1 Reasons for Evaluation of EJ Under NEPA

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. These regulations are provided in the previous sidebar and discussed in detail in Appendix C.

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 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.

9.15.1.2 Collection and Evaluation of Baseline Information Under NEPA

Collection of Baseline Information

Information to establish the baseline for a population's racial and economic makeup is most readily available from the US Census. Depending on the project's size, complexity, and variability across the study area, use county level to block level census data on demographics and earnings within the study area to establish the baseline. The level of detail in the data should also be commensurate with the importance of the anticipated impacts of the project on low income and minority populations. US Census publications for demographics and earnings are easily accessible from both the US Census Bureau Decennial Census Summary File 1 and File 3 – Quick Tables or the American Community Survey – Selected Data Profiles Select either the Decennial Census or American Community Survey based on which one provides the more recent data.

US Census Bureau's Decennial Census Summary File 1 and Summary File 3
http://factfinder.census.gov/servlet/DatasetMainPageServlet

American Community Survey – Selected Data Profiles
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=%20ACS&_submenuId=datasets_1&_lang=en&_ts=

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.

For further information, please refer to CDOT's *Title VI and Environmental Justice Guidelines for NEPA Projects* (CDOT, 2004c). Appendix A of the Guidelines (Determining Minority and/or Low-income Thresholds During Environmental Development and Project Design) (CDOT, 2004c) provides particularly relevant information for the collection of baseline information for EJ.

Evaluation of Baseline Information

To evaluate baseline information, first finalize the EJ study area, as it could vary from multiple counties to specific Census Block data depending on the geography of potential EJ impacts and the existing community base. Next, determine if minority populations exist in the study area. If there is more than

one minority population in the study area, then the percentage of the minority is the aggregate of all minority persons. Then, determine if low-income populations exist in the study area using the following guidance:

- To determine whether there are low-income populations in a [study] area, two things must be established:
  - The low-income threshold dollar amount, number, and percentages for a particular county
  - The number and percentage of low-income populations in the [study] area that will be compared to the county percentage (CDOT, 2004c)

Address the following information to determine any disproportionate effect on any EJ populations that are identified:

- Demographic breakdown of the community by race, color, and national origin
- Population in the study area
- Bodily impairment, infirmity, illness, or death
- Destruction or disruption of man-made or natural resources that benefit community character or ambience
- Destruction or diminution of aesthetic values that disproportionately affect the EJ population
- Destruction or disruption of community cohesion or a community's economic vitality
- Destruction or disruption of the availability of public and private facilities
- Relationship of the proposed action to other federal actions that may serve or affect the EJ population
- Any proposed mitigation measures to reduce or avoid impacts on the EJ population.
- Apply mitigation early in the process
- Reduce pollutant loadings through changes in processes or technologies
- Plan and address indirect impacts prior to project initiation
- Assist 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.)

- Establish a community oversight committee to monitor progress and identify potential community concerns
- Consider enhancement measures that will improve the affected area consistent with CDOT's *Environmental Stewardship Guide*, resolving an impact by repairing or rehabilitating the affected environment, or compensating for the impact by replacing or providing substitute resources or environments
- Relocate 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 or FHWA ROW programs.
- Develop a list of past, present, and foreseeable future projects that could have similar impacts on these populations. Locate these projects on a map with EJ populations delineated to see what segments of the populations they would collectively impact. Consider cumulative impacts to EJ in relatively general terms, noting which EJ components would be most impacted, their relative importance, and the degree to which impacts from the transportation project considered in the current NEPA document would contribute to the cumulative impacts.

9.15.1.3 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 local minority and low-income populations include local planning agencies (e.g., county, city, and community planning offices), social services agencies, and community groups, as well as the USFS, BLM, and NPS when they manage lands that are traversed by a transportation project.

9.15.2 NEPA Document Sections

The content of the sections on EJ in the Affected Environment and Environmental Consequences chapters is discussed below.

9.15.2.1 Affected Environment

Minority and low-income populations that may be impacted as the result of proposed transportation improvements must be documented in the affected environment section. Describe their race, color, religion, sex, familial status, national origin, and income level in the study area as a whole. Also describe how these characteristics vary by geography within the study area and features of the community that are important to these people.

For further information, please refer to CDOT's *Title VI and Environmental Justice Guidelines for NEPA Projects* (CDOT, 2004c).

9.15.2.2 Environmental Consequences

To adequately address EJ impacts to minority and low-income populations within the study area, the NEPA document must attend to the following:

- Describe the environmental effects on all communities, including human health, economic, and social effects on all citizens, with special consideration for minority and low-income populations
- Identify any disproportionately high and adverse environmental effects that exist

Document the opportunities provided for community input throughout the project development process, including 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.

For example, the NEPA document must verify that the selection of an alternative or preferred roadway alignment did not intentionally follow the path of the lowest property values—which could take principally minority neighborhoods or low-income housing—or provide adequate and reasonable economic, social, and engineering justification for its having done so. Similarly, it must show that the proposed improvement does not discriminate by providing access and egress to adjacent neighborhoods that vary with race, color, religion, sex, disability, familial status, national origin, or income level. In short, reasonable assurance must be provided and documented in the files that the selection of a project alternative was not a discriminatory act. Coordination with the FHWA and the Environmental Management Office in highly controversial situations will aid in ensuring that such assurance is adequate.

The NEPA document must present the potential for disproportionately high or adverse impacts from the project alternatives to more severely affect low-income or minority populations than other populations in the study area.

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. For further information, please refer to CDOT's *Title VI and Environmental Justice Guidelines for NEPA Projects* (CDOT, 2004c).

9.16 Bicycle and Pedestrian Facilities

CDOT encourages and promotes the development and implementation of alternatives to the single-occupant vehicle as a method to improve air quality and increase mobility, capacity, and safety within the transportation system. Users of these alternatives—riders in HOVs or on public transit, bicyclists, and pedestrians—are considered multimodal users.

This section focuses primarily on facilities for bicyclists and pedestrians. The importance of bicycle and pedestrian facilities for commuting and recreation purposes continues to grow nationally. Bicycle and pedestrian facilities are any portions of a road or pathway specifically designated as open to bicycle and/or pedestrian travel, regardless of whether such facilities are designed for their exclusive use. Transit is typically discussed in the transportation resources section (Section 9.18 of this Manual) and so it is not addressed in this section.

HOVs use existing road capacity, require special signage, and may influence traffic projection data and the resource analyses that use them. However, they do not require construction of specific facilities and are therefore not addressed in detail in this section.

The two sections below provide guidance on the treatment of multimodal users for CDOT's NEPA projects. The first section discusses the process for evaluating impacts to multimodal users. The second section discusses multimodal user information that should be included in each NEPA document.

9.16.1 Bicycle and Pedestrian Use Evaluation Process

The CDOT Project Manager is responsible for evaluating and incorporating bicycle and pedestrian facilities in the design of any new construction or reconstruction work.

Planning for transportation choices occurs at the regional level as part of the state's regional transportation planning process; therefore, bicycle and pedestrian uses for the project area should already be outlined in the STIP. Assess the adequacy of available ROW and the potential for connectivity for bicycle and pedestrian features along the entire project route.

Bicycle and pedestrian facilities must be considered during the design phase to ensure that there is adequate space along the project to accommodate them.

Bicycle and Pedestrian Regulations and Guidance

- FHWA Technical Advisory T6640.8a—Provides guidance to FHWA field offices and state DOTs on the preparation and processing of environmental and Section 4(f) documents
- Transportation Equity Act for the 21st Century (TEA-21) (Bicycle Transportation and Pedestrian Walkways, 23 USC §217)—Requires that bicyclists and pedestrians be given consideration in comprehensive transportation plans developed by MPOs and states. Bicycle facilities and pedestrian walkways should be considered in conjunction with all new construction, reconstruction, or transportation facilities, except where not permitted
- Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA-LU) (Public Law 109-59, Sec. 1404)—Safe Routes to School Program enables and encourages children to walk and bicycle to school, make bicycling and walking safer and more appealing, and to facilitate the planning, development, and implementation of projects and activities in the vicinity of schools

9.16.1.1 Reasons for Evaluation of Bicycle and Pedestrian Uses under NEPA

CDOT evaluates bicycle and pedestrian uses for several reasons:

- To improve air quality and increase mobility, capacity, and safety within the transportation system
- 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 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 a project level
- To comply with federal and state transportation regulations and advisories

Federal regulations require that bicycle and pedestrian facilities be incorporated into most new construction and reconstruction transportation projects. Consideration for bicycle and pedestrian design is especially important in areas close to schools and parks. CDOT's *Rules and Regulations for the Statewide Transportation Planning Process and Transportation Planning Regions* (CDOT, 2006b) include the requirement that statewide and regional transportation plans consider multimodal transportation. The regulations, advisories, and other guidance applicable to bicycle and pedestrian uses on transportation projects are summarized in the previous sidebar. These regulations are also discussed in detail in Appendix C.

9.16.1.2 Collection and Evaluation of Baseline Information under NEPA

Collection of Baseline Information

Information for the bicycle and pedestrian facilities section of the NEPA document can be found in the following sources:

- Project design documents - Design documents identify the types of bicycle and pedestrian facilities planned and considered for the project
- Community transportation plans - Transportation plans for the communities through which the project will cross describe the

existing and planned types of bicycle and pedestrian facilities, as well as projected future use of these facilities

- Local governmental agencies or community interest groups - Groups supporting the development of bicycle and pedestrian facilities on the project typically have information regarding existing and future needs for bicycle and pedestrian facilities in the project area.

Evaluation of Baseline Information

CDOT's policy on impacts to bicycle and pedestrian uses is to avoid impacts whenever possible, minimize impacts if they cannot be avoided, and mitigate the impacts if they cannot be avoided or minimized. CDOT also tries to incorporate bicycle and pedestrian facilities (e.g., multi-purpose trails) into projects whenever they enhance the development of an existing or planned multimodal network. To identify the potential impacts and benefits to bicycle and pedestrian uses under each alternative:

- Prepare maps showing the alignment of the project alternatives overlain with existing and planned bicycle and pedestrian features
- Using the maps and project design documents, compare 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
- Evaluate whether the proposed project features will have negative or positive impacts on the existing and planned bicycle and pedestrian facilities outlined in community transportation plans and information provided by local interest groups
- Compare and contrast the bicycle and pedestrian features of the alternatives to highlight the similarities and differences among the alternatives
- Identify any mitigation measures that are available to reduce or eliminate any negative impacts identified
- Evaluate where modifications in the design of project bicycle and pedestrian facilities might improve the overall bicycle and pedestrian network

OTHER ISSUES TO CONSIDER

When agencies such as RTD and FTA that are responsible for some types of multimodal facilities (e.g., public transit) are co-lead agencies on CDOT

NEPA projects that include such facilities, extensive coordination is required. Such coordination should be initiated early and should address all aspects of project planning and NEPA analysis to minimize the pitfalls from varied agency perspectives and processes.

9.16.2 NEPA Document Sections

Bicycle and pedestrian uses in the Affected Environment and Environmental Consequences chapters of NEPA documents is discussed below.

9.16.2.1 Affected Environment

Documentation needs for the Affected Environment chapter of EAs and EISs are discussed in this section. At a minimum, the Affected Environment chapter should contain a discussion of the following five elements:

- Existing Multimodal Facilities – Describe the existing bicycle and pedestrian facility networks in the vicinity of the project
- Multimodal Facility Needs – Identify and discuss the need for bicycle and pedestrian facilities in the project area
- Community Transportation Plans – Identify community transportation plans that outline bicycle and pedestrian facilities or discuss the need for such facilities if the plan does not address bicycle and pedestrian facilities
- Local Government or Community Interest Groups – Identify local governmental agencies or community interest groups supporting the development of bicycle and pedestrian facilities on the project
- Graphics – Include maps of existing bicycle and pedestrian systems

9.16.2.2 Environmental Consequences

Documentation needs for the Environmental Consequences chapter of EAs and EISs are discussed in this section. At a minimum, the Environmental Consequences chapter should compare the effects in the following four 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, identified community needs. The information contained in this section should provide a firm understanding of how the local needs and

Affected Environment Chapter of NEPA Document

- Describe the need for bicycle and pedestrian facilities in project area
- Identify community transportation plans that outline bicycle and pedestrian facilities or discuss the need for such facilities if the plan does not address multimodal facilities
- Identify local governmental agencies or community interest groups supporting the development of bicycle and pedestrian facilities on the project
- Describe existing bicycle/pedestrian facilities or systems within the project area

movements of community bicyclists and pedestrians will be met by the proposed facilities.

- Address the accommodation of non-motorized modes of transportation planned by the community as a part of the overall transportation network and documented in the local transportation plan
- Discuss accommodation of non-motorized modes of transportation within the project area where bicycle and pedestrian facilities have not previously been considered

- Public Law – The impact analysis section must cite 23 USC 109(m), documenting CDOT's full consideration of bicycle and pedestrian alternatives and the provision of reasonable alternatives for the bicycling and walking public
- Expanded Picture – 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 ROW for later construction.
- Conclusion of Effects – The conclusion should restate the biggest bicycle and pedestrian use concerns associated with each alternative and identify the alternative with the least expected effect on bicycle and pedestrian uses

In the discussion of mitigation measures:

- Discuss the manner in which negative impacts on bicycle and pedestrian uses resulting from the alternatives can be mitigated
- Describe how any facilities of the proposed alternatives that will sever existing bicycle and pedestrian pathways will be dealt with to remove or minimize such impacts

Environmental Consequences Chapter of NEPA Document

- Cite 23 USC 109(m) and discuss bicycle and pedestrian alternatives considered
- Describe types of facilities included in alternatives, their logical termini, and interface with other bicycle and pedestrian routes
- Specify that the facilities will be designed in accordance with CDOT directives, manuals, and design guides, as well as AASHTO standards
- Discuss the coordination conducted with local governments and public interest groups concerning the bicycle and pedestrian facilities proposed in the alternatives
- Discuss how the proposed bicycle and pedestrian facilities are consistent with local bicycle and pedestrian facility planning

9.17 Residential/Business/Right-of-Way (ROW) 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 ROW staff should be involved in all projects where ROW 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 ROW 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.

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)

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,

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 ROW 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 ROW acquisitions.

9.17.1.1 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 ROW acquisitions

CDOT must comply with federal relocation regulations when implementing transportation projects in Colorado. These regulations are provided in the previous sidebar and discussed in detail in Appendix C. 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.

9.17.1.2 Collection and Evaluation of Baseline Information Under NEPA

To comply with the FHWA Technical Advisory 6640.8A (FHWA, 1987) information on ROW requirements are to be included in the description of project alternatives. The CDOT *ROW Manual* (CDOT, 2008b) addresses the preparation of ROW 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 ROW plans are prescribed in the CDOT *ROW Manual* and include information that could enable evaluation of relocation/acquisition impacts. However, NEPA analysis occurs between the processes of describing ROW requirements for project alternatives and preparing ROW 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 ROW staff.

Evaluation of Baseline Information

To enable identification of relocation and acquisition impacts, the baseline information must be limited to the ROW 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

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.

- 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 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 ROW 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.

9.17.1.3 Other Issues to Consider

Other agencies may have information or guidance that will affect a particular CDOT project. Coordinate with the CDOT ROW 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. ROW 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 chapters is discussed below.

9.17.2.1 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 *ROW Manual* (CDOT, 2008b).

9.17.2.2 Environmental Consequences

It is essential that the relocation and acquisition section in the Environmental Consequences chapter 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 ROW acquisitions involved

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

- 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

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.

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 ROW Specialist (CDOT, 2008b).

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

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 ROW specialist will be assigned to each property owner to assist them with this process (CDOT, 2008b).

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.

9.18 Transportation Resources

Transportation resources include the entire transportation network within the project area, including transit, bicycle and pedestrian facilities, and traffic conditions. Evaluation of these transportation resources provides a framework within which the new transportation project can be considered and evaluated.

The two sections below provide guidance on the treatment of transportation resources for CDOT's NEPA projects. The first section discusses the process for evaluating transportation resources. The second section discusses transportation resources information that should be in each NEPA document.

9.18.1 Transportation Evaluation Process

The CDOT Traffic Engineer, or their designee, is responsible for preparing traffic studies, determining effects of alternatives on the transportation network, and reviewing the applicability of SAFETEA-LU (23 USC 134) and other USDOT regulations and guidance. Evaluation of the transportation network within the project area should include transit, pedestrian/bicycle facilities, and traffic conditions. The transportation evaluation should be ongoing as alternatives are being designed and developed.

9.18.1.1 Reasons for Evaluation of Transportation Under NEPA

CDOT evaluates transportation for several reasons:

- Traffic congestion contributes to air quality emissions, and degrades the LOS
- 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 23 USC 134 and to evaluate compliance with air quality laws and regulations

9.18.1.2 Collection and Evaluation of Baseline Information Under NEPA

Methods documented in the Transportation Research Board's Highway Capacity Manual, latest edition, should be used in the traffic analysis. The result of such an analysis is a LOS rating, which is a qualitative assessment of the traffic flow for a given roadway facility. LOS is described by a letter designation ranging from "A" to "F" with LOS A representing essentially

uninterrupted flow, and LOS F representing a breakdown of traffic flow with excessive congestion and delay. LOS can be calculated using highway capacity software.

The Transportation Equity Act for the 21st Century requires explicit consideration of safety in the 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 corridor. 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 accident reduction. Level IV indicates an accident history significantly greater than expected for a given roadway type, thus possessing a high potential for accident reduction. Detail the existing LOS in the project area.

To assess transportation resource impacts, there are several techniques for travel demand forecasting from which to choose, depending on the requirements of the analysis. These techniques, discussed below, differ in complexity, cost, level of effort, sophistication, and accuracy, but each has its place in travel forecasting.

Sketch Tools - Sketch planning is the preliminary screening of possible configurations or concepts. It is the least costly approach to assessing transportation resource impacts and is used to compare a large number of proposed policies in enough analytical detail to support broad policy decisions. Useful in both long- and short-range regional planning and in preliminary corridor analysis, sketch planning yields aggregate estimates of capital and operating costs, patronage, corridor traffic flows, LOS, energy consumption, and air quality.

Traditional Tools - Traditional tools apply the kind of detail appropriate to tactical planning; they deal with many fewer alternatives than sketch tools, but in much greater detail. Inputs include the location of principal highway facilities and delineated transit routes. At this level of analysis the outputs are detailed estimates of transit fleet size and operating requirements for specific service areas, refined cost and patronage forecasts, and LOS measures for specific geographical areas.

The cost of examining an alternative at the traditional level is 10 to 20 times the cost in sketch planning. However, default models, which dispense with many data requirements, can be used for a less expensive first look. Plans can be analyzed in detail and problems uncovered at this stage will suggest a return to sketch planning to accommodate new constraints.

Travel Demand Forecasting

- Determine the technique depending on the requirements of the analysis and availability of information. Some projects can use a simple spreadsheet, others will need a complex computer model.
- Require preparation of a Travel Demand Forecasting technical report, which details the specific data, assumptions and process (type of analysis) used in the forecasting.

Micro-analysis Tools - Micro-analysis tools provide the most detailed analysis, and are most applicable when nearing project implementation. For example, a detailed evaluation of the extension, rescheduling, or repricing of existing bus service can be performed to analyze passenger and vehicle flows through a transportation terminal or activity center. This tool can also compare possible routing and shuttling strategies for a demand-activated system. Final analysis at this level is prohibitively expensive except for subsystems where implementation is very likely, and design refinements would bring substantial increases in service or significant reductions of cost. It is most effective in near-term planning when a great many outside variables can be accurately observed or estimated. It is sometimes necessary, however, to use micro-analysis tools to supplement the output of traditional longer-range planning.

Since the goal of most transportation projects is to resolve transportation problems, engineers are unlikely to inadvertently trade one transportation problem for another. Therefore, many projected transportation impacts are resolved during project design. However, not all transportation impacts can be resolved in this manner. Once the latter impacts have been identified, measures to mitigate them must be addressed, especially for traffic congestion. Mitigation is typically performed through Transportation Systems Management (TSM) and Transportation Demand Management (TDM), including demand-side strategies, such as the following:

- TSM strategies focus on changing transportation system operation, typically by improving traffic flow and reducing traveler delay. Such programs can also reduce emissions by changing vehicle speeds, reducing rapid vehicle accelerations and decelerations, and reducing vehicle idling. The strategies used may be under the umbrella of Intelligent Transportation Systems (ITS) (e.g., signal synchronization/intersection improvements, speed control, shifting/separating freight movements), or focus on encouraging changes in driving behavior (e.g., educational information, incentives, or restrictions on driving speeds, operating patterns, and idling).
- TDM is changing or reducing demand for car use by encouraging the behavioral change of household choices of travel. The objective is to reduce the number of vehicles using highway facilities while providing a wide variety of mobility options for those who wish to travel. Examples of TDM measures are:

- Including or improving pedestrian-oriented design elements, such as short pedestrian crossings, wide sidewalks, and street trees
- Requiring users of parking to pay the costs of it directly, as opposed to sharing the costs indirectly with others through increased rents, tax subsidies
- Including and improving transit infrastructure, such as subway entrances, bus stops
- Subsidizing transit costs for employees or residents
- Bicycle-friendly facilities, including secure bike storage areas and showers

Demand-side strategies are designed to better balance people's need to travel a particular route at a particular time with the capacity of available facilities to efficiently handle this demand. The focus of demand-side strategies is to provide people with enhanced travel choices—from choices in travel mode (such as driving, using transit or bicycling), to choices in travel route and trip departure-time—and to provide incentives and information for people to make informed travel choices. For example, many sports and concert venues provide incentives for people to arrive a little early or stay a little late, essentially spreading the "peak" of the demand to travel to/from the building, reducing traffic congestion, and improving the visitor's overall experience. Incentives for businesses to adopt flex time or telecommuting strategies are also a demand-side strategy that results in spreading the demand peak.

Affected Environment Chapter of NEPA Document

- Existing transportation system, its various modes, and how the modes are connected and interrelate to form the transportation network
- Information on existing traffic volumes
- Analysis of traffic operations in the project area using the Transportation Research Board's Highway Capacity Manual, latest Edition. Explore other performance measures such as "fee-to-use" for comparison to transit alternatives
- Detail the LOS and LOSS in the project area

9.18.2 NEPA Document Sections

Transportation resources in the Affected Environment and Environmental Consequences chapters of NEPA documents is discussed below.

9.18.2.1 Affected Environment

Documentation needs for the Affected Environment chapter of EAs and EISs are discussed in this section. At a minimum, the Affected Environment section should contain a discussion of the following six elements:

Existing Transportation System – Existing transportation system, its various modes, and how the modes are connected and interrelate to form the transportation network

Traffic Volume – Include information on existing traffic volumes based on counts either obtained by a contractor or CDOT

Roadway Network – Discuss the roadway network by regional planning categories (freeway, major regional arterial, principal arterial, and minor arterials) for ease of use in travel-demand modeling

Traffic Studies and Models – Information from traffic studies and models, if developed, should be of sufficient detail to establish a baseline that enables impacts to the transportation network in the study area to be identified

LOS and LOSS – Detail the LOS and LOSS in the project area. Provide detailed traffic safety, transit service, surface street, and freeway circulation, freight and rail service, and bicycle and pedestrian facilities as needed in relation to potential impacts

Graphics – Include maps of the existing transportation network

9.18.2.2 Environmental Consequences

Documentation needs for the Environmental Consequences chapter of EAs and EISs are discussed in this section. At a minimum, the Environmental Consequences chapter should compare the effects of each alternative carried forward for detailed analysis in the following three categories and all analysis should be for existing and horizon year conditions:

- Traffic Studies and Models – Discuss outputs from the travel demand model including:
  - LOS
  - AM/PM Peak Hour peak hour traffic volumes
  - Hours of congestion at intersections and along freeway intersections
  - Turning movement volumes at intersections and interchange ramps
  - Additional travel time during peak hours (Travel Rate Index)
  - Detail the existing level(s) of LOSS in the project area for each alternative
  - Evaluate transit/HOV access associated with each alternative as well as the mobility of pedestrians and bicycles relative to access, connectivity with other facilities (north/south versus east/west), and horizontal and vertical clearance
- Cumulative Impacts – Develop a list of past, present, and foreseeable future projects that may impact similar transportation components. Discuss cumulative impacts to transportation in more

general terms, noting which transportation 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.

- Conclusion of Effects – The conclusion should restate the biggest transportation concerns associated with each alternative and identify the alternative with the least expected effect on transportation resources.

The mitigation section should describe project design elements that avoid 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.

9.19 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.

9.19.1 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

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***

proposed/revised roadway section, drainage facilities (storm sewer facilities, retention/detention ponds, etc.), landscaping, and any other proposed improvement with potential for subsurface disturbance.

9.19.1.1 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 43-1-225, Transportation Act; and other state laws and constitutional provisions. These mandates give utilities the right to construct their lines within highway ROW, 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 PS&E 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 9.27. A utilities and railroad map should be

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)

consulted to identify what utility and railroad components will be impacted by projects. For input to this section, evaluate cumulative impacts to utilities and 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.

9.19.2 NEPA Document Sections

The content of the sections on utilities and railroads in the affected environment and environmental consequences chapters is discussed below.

9.19.2.1 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.

9.19.2.2 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.

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

9.20 Section 4(f) Evaluation

9.20.1 Legislative Background

Section 4(f) has been part of federal law since 1966 when it was enacted as Section 4(f) of the USDOT Act. In January 1983, when the USDOT Act was recoded, Section 4(f) was amended and codified in 49 USC Section 303. The substantive provisions of Section 4(f) apply only to agencies within the USDOT.

On August 10, 2005, Section 6009(a) of the SAFETEA-LU, Public Law 109-59, amended existing Section 4(f) legislation at Section 138 of Title 23 and Section 303 of Title 49, USC. 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.

On March 12, 2008, FHWA issued a Final Rule, which clarifies specific elements of the Section 4(f) approval process and simplifies the regulatory requirements. The Final Rule also moved the Section 4(f) regulation from 23 CFR 771 to 23 CFR 774 and reorganized the regulation to improve navigability.

A Section 4(f) resource is a property that functions or is designated as a significant publicly-owned public park, recreation area, wildlife or waterfowl refuge, or historic site (regardless of ownership). 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."

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.

9.20.2 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.

9.20.2.1 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

9.20.2.2 Collection and Evaluation of Baseline Information

Collection of Baseline Information

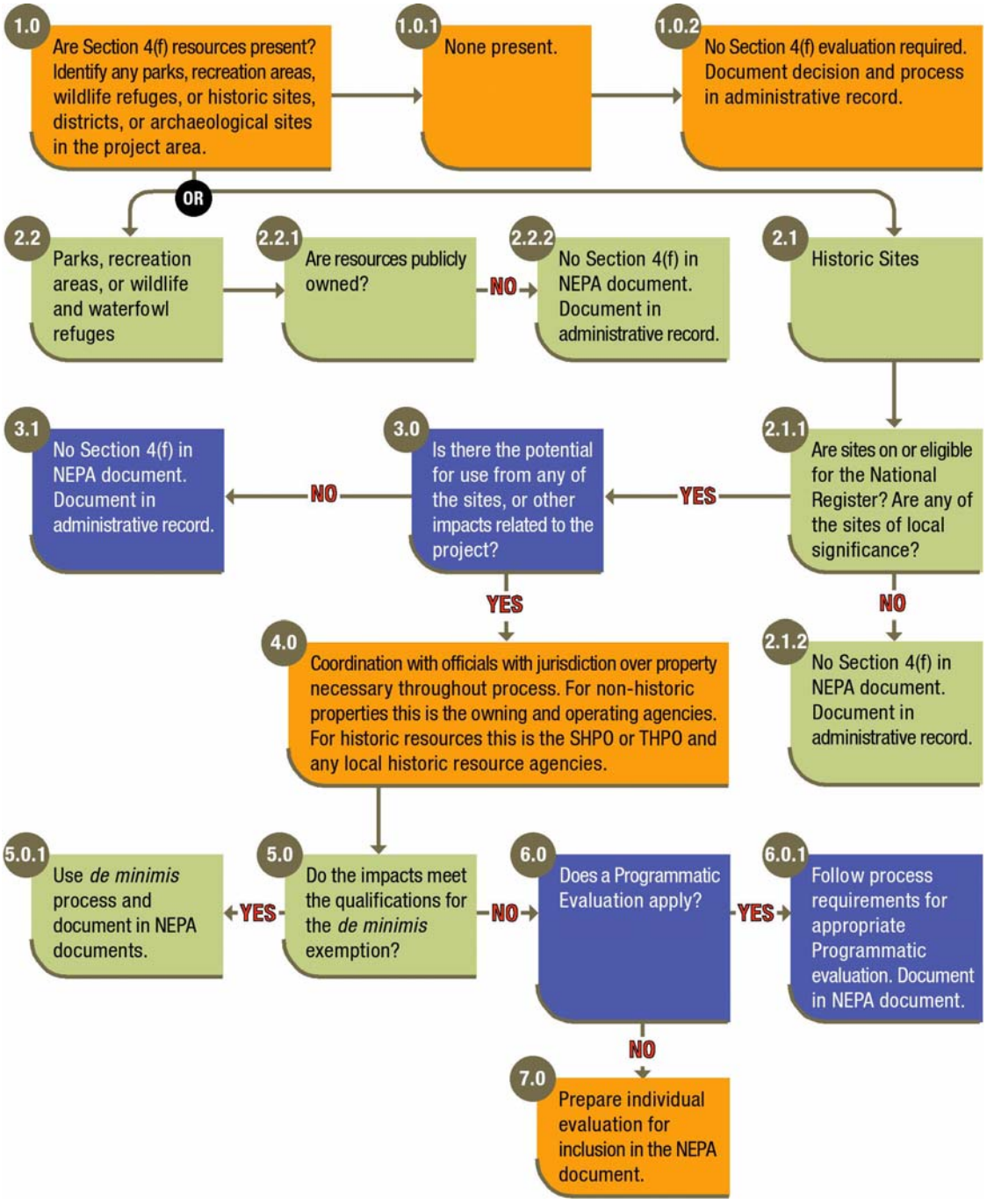
The first step in the Section 4(f) evaluation process is to identify existing and planned Section 4(f) properties, which include the following:

- Historic sites on or eligible for the NRHP, and other sites as determined by FHWA.

- 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), 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.
- 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, the project or undertaking must entail 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 9-4.

Figure 9-4 Section 4(f) Evaluation Diagram



Evaluation of Baseline Information

Compliance with Section 4(f) can be established through: (1) the *de minimis* impact determination, (2) a Nationwide Section 4(f) Programmatic Evaluation that is approved at the FHWA Division Office level, or (3) 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.

Determining de minimis *Impacts to Section 4(f) Resources*

SAFETEA-LU Section 6009(a) amended existing Section 4(f) legislation so that the process and approval of projects is simplified when the USDOT determines that certain uses of Section 4(f) properties are minor (*de minimis*) in nature. The requirements for *de minimis* are included in the new regulation in 23 CFR 774. 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.

When there are multiple Section 4(f) resources present on a project, *de minimis* impact findings must be made for each individual Section 4(f) resource. *De minimis* impact criteria and associated determination requirements are different for historic sites than for parks, recreation areas, and wildlife and waterfowl refuges.

Historic Properties

According to SAFETEA-LU Section 6009, the December 2005 Guidance for *Determining De Minimis Impacts to Section 4(f) Resources*, and 23 CFR 774.5(b)(i)(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 reviews of the Section 106 consulting parties have been considered.

Publicly Owned Parks, Recreation Areas, and Wildlife or Waterfowl Refuges

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 official(s) with jurisdiction over the property must provide written concurrence

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

that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f), and 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). 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 "used" 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 4(f) resources is located in Attachment 3.

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 already meet FHWA's temporary occupancy exception criteria.

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 and FTA's Guidance for Determining De Minimis Impacts to Section 4(f) Resources (FHWA and FTA, 2005) and 23 CFR 774.

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 impacts 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. They may only be used for projects designed to improve operational characteristics, safety, and/or the physical condition of an existing highway on essentially the same alignment (i.e., the Section 4(f) lands must be located adjacent to the existing highway). 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
  This programmatic can be used on any project regardless of the NEPA processing option. The key to the net benefit programmatic is that there is a benefit to the resource by it being used.

For historic and archaeological properties there are specified project conditions.

For historic properties, the project must not require the major alteration of the characteristics that qualify the Section 4(f) property for the NRHP. For archaeological properties, the project must not

require the disturbance or removal of resources determined to be important for preservation in place.

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 agreement. The advantage of using a programmatic evaluation 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 that 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 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.

Full Section 4(f) Evaluation

The Section 4(f) alternatives analysis is incorporated into an EIS or EA as an appendix. A description of the process and the findings of the Section 4(f) evaluation are still included in the body of the NEPA document.

Follow the procedures described in 23 CFR 774 when there is Section 4(f) applicability. The FHWA Western Resource Center's Section 4(f) Checklist (Appendix 5.19-A) provides additional information regarding constructive use and how to approach discussing certain resources not protected by Section 4(f). 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 neither the *de minimis* exemption or a programmatic evaluation is 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 suggested outline for the Section 4(f) Evaluation is shown in the sidebar.

9.20.3 NEPA Document Sections

The information and results of the Section 4(f) evaluation are included in the Affected Environment and Environmental Consequences chapters of the NEPA document. The majority of information related to the Section 4(f0 evaluations related to *de minimis* or full Section 4(f) evaluations will be included in a separate Section 4(f) chapter. Information that should be included in each of the chapters is discussed below.

9.20.3.1 Affected Environment

Separate identification and review of Section 4(f) resources is not necessary in the Affected Environment chapter of the NEPA document. Affected Environment information for the following resources will be used as part of the Section 4(f) evaluation:

- Historic Properties (Section 9.10.4)
- Social Resources (Section 9.13.2) for parks and other public recreational properties
- Bicycle and Pedestrian Facilities (Section 9.16.2)
- Fish and Wildlife (Section 9.8.2) for Wildlife or Waterfowl Refuges
- Other sections as appropriate (Land Use Section 9.12.2 for example)

9.20.3.1 Environmental Consequences

Separate identification and review of Section 4(f) resources is not necessary in the Environmental Consequences chapter of the NEPA document. Environmental Consequences information for the following resources will be used as part of the Section 4(f) evaluation:

- Historic Properties (Section 9.10.4)
- Social Resources (Section 9.13.2) for parks and other public recreational properties
- Bicycle and Pedestrian Facilities (Section 9.16.2)
- Fish and Wildlife (Section 9.8.2) for Wildlife or Waterfowl Refuges
- Other sections as appropriate (Land Use Section 9.12.2 for example)

Suggested Outline for Section 4(f) Evaluation

Introduction and Summary
A. Project Purpose and Need
B. Proposed Action
C. *De minimis* use (as needed)
D. Resources used
  1. Historic Resources
  2. Parks
  3. Recreational Resources
  4. Wildlife and Waterfowl Refuges
E. Alternatives Considered
  1. Prudent and Feasible analysis
  2. Least Harm analysis
F. All possible Planning to Minimize Harm
G. Consultation and Coordination. . . . . .

9.20.3.3 Section 4(f) Compliance and Approvals

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.

Final NEPA Documents

The following information should be presented in the final NEPA document 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

If FHWA headquarters has determined there is "constructive use," include documentation to that effect, as well as the following information:

- Documentation that the authority having jurisdiction over the Section 4(f) property agrees with conversion and acceptability of any replacement property
- Documentation that the 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

Tiered NEPA Documents

When the first-tier, broad-scale EIS is prepared, the detailed information necessary to complete the Section 4(f) approval may not be available at that stage in the development of the action. In such cases, the documentation should address the potential impacts that a proposed action will have on Section 4(f) property and whether those impacts could have a bearing on the decision to be made. A preliminary Section 4(f) approval may be made at this time as to whether the impacts resulting from the use of a Section 4(f)

property are *de minimis* or whether there are feasible and prudent avoidance alternatives. This preliminary approval shall include all possible planning to minimize harm to the extent that the level of detail available at the first-tier EIS stage allows. It is recognized that such planning at this stage may be limited to ensuring that opportunities to minimize harm at subsequent stages in the development process have not been precluded by decisions made at the first-tier stage. This preliminary Section 4(f) approval is then incorporated into the first-tier EIS

The Section 4(f) approval will be finalized in the second-tier study. If no new Section 4(f) use, other than a *de minimis* impact, is identified in the second-tier study and if all possible planning to minimize harm has occurred, then the second-tier Section 4(f) approval may finalize the preliminary approval by reference to the first-tier documentation. Re-evaluation of the preliminary Section 4(f) approval is only needed to the extent that new or more detailed information available at the second-tier stage raises new Section 4(f) concerns not already considered.

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(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 should be provided and supported by factual information.

- Where Section 6(f) land is involved, the NPS's position on the land transfer 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." (23 CFR 774)

9.20.4 Section 4(f) Evaluation Processing, Review, and Approval

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 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 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 and any entities with jurisdiction over a Section 4(f) resource included in the evaluation. 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 Section 4(f) evaluation. For 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.

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. This may occur under the following conditions, as outlined in the Section 4(f) regulations:

- A proposed modification of the alignment or design would require the use of Section 4(f) property after the CatEx, FONSI, Draft EIS, or Final EIS has been processed.
- The FHWA determines, after processing the CatEx, FONSI, Draft EIS, or Final EIS 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.
- If it is determined that a Section 4(f) evaluation is required after the CatEx, FONSI, or Final EIS 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 with CatExs, 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 prior to circulation of the draft NEPA document. CDOT EPB or Regional staff will forward the document to the FHWA operations engineer, who forwards it to Washington, D.C. If FHWA headquarters approves the determination of constructive use, the draft NEPA document is processed normally.

Final Section 4(f) Approval

There is no permit associated with Section 4(f). 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.

Final Section 4(f) Approval can take up to a year or more to process. It is important to start the process early.

9.21 Section 6(f) Evaluation

Section 6(f) properties are those purchased 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). The coordination and agreements entered into as part of completing CDOT's Section 6(f) responsibilities, therefore, should be reflected in the Section 4(f) evaluation. Regardless of the mitigation proposed, the Section 4(f) Evaluation should document the National Park Service's tentative position relative to Section 6(f) conversion.

The Section 6(f) evaluation should be completed when alternatives for the proposed action are first being designed and developed.

9.21.1 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, 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 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 Land and Water Conservation Fund 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 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.

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).

9.21.2 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 Land and Water Conservation Act funding was used in improving the public outdoor recreational resource. The Region will develop the plan in cooperation with the Section 6(f) property owner and coordinate the Land Replacement Plan with CDPHE for concurrence. In some cases, it may be advisable to obtain a binding agreement concerning the Land Replacement Plan. Once the CDPHE concurs with the plan, the Region will submit the plan to the NPS for their concurrence. The Region will then work with the NPS, CDPHE, and the Section 6(f) land owners to resolve any comments. Upon concurrence in the plan by the NPS, the Region will incorporate it into the environmental document.

As a part of the Section 4(f) Evaluation for federal-aid transportation improvements, the Region 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 Land and Water Conservation Act funds. Once it is determined that Land and Water Conservation Act funds were used to purchase the property, then Section 6(f) of the act applies.

The CDOT Region, 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), the Region and the local government must develop a written plan as part of the Section 4(f) mitigation, 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 NPS will occur during the process of the draft and final Section 4(f) Evaluations
- Upon agreement with the plan by the region and the local government, the Region will submit the Section 6(f) Land Replacement Plan to the CDPHE for concurrence. The CDPHE may comment on the plan to resolve any issues.
- Upon acceptance of the plan by the CDPHE, a letter concurring in the Section 6(f) Land Replacement Plan will be sent by the CDPHE to the Region with a copy to the local government.
- The Region will then discuss the Section 6(f) property and the plan, as mitigation, in the Section 4(f) Evaluation.
- The plan and the CDPHE concurrence letter should be incorporated into the appendix of the Section 4(f) Evaluation.

For Programmatic 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, the region, 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 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 ROW and the acquisition of the replacement land occur during the ROW 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 CDPHE and the NPS must occur to assure their cooperation in the land conversion transaction. The CDPHE 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 ROW Office and inform them of the

requirements of Section 6(f) land for the project. The ROW 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.

9.21.3 NEPA Document Sections

The content of the sections on Section 6(f) evaluation in the Affected Environment and Environmental Consequences chapters is discussed below.

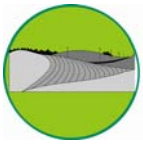
9.21.3.1 Affected Environment

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.

9.21.3.2 Environmental Consequences

In the Environmental Consequences chapter, identify Section 6(f) lands that would be impacted by any of the project alternatives as well as any lands that 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.

9.22 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.

9.22.1 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 9-5 is a representation of the steps involved in the completion of a Farmland Protection Policy Act Analysis.

9.22.1.1 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

Farmland Regulations and Guidance

- 7 CFR Part 658 – Farmland Protection Act
- 23 CFR Part 771 – Environmental Impact and Related Procedures
- FHWA Technical Advisory T6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents (http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm)

adverse effects, and ensure that their programs are compatible with private, local, and state programs and policies to protect farmland.

9.22.1.2 Collection and Evaluation of Baseline Information Under NEPA

The Farmland Protection Policy Act defines farmlands as follows:

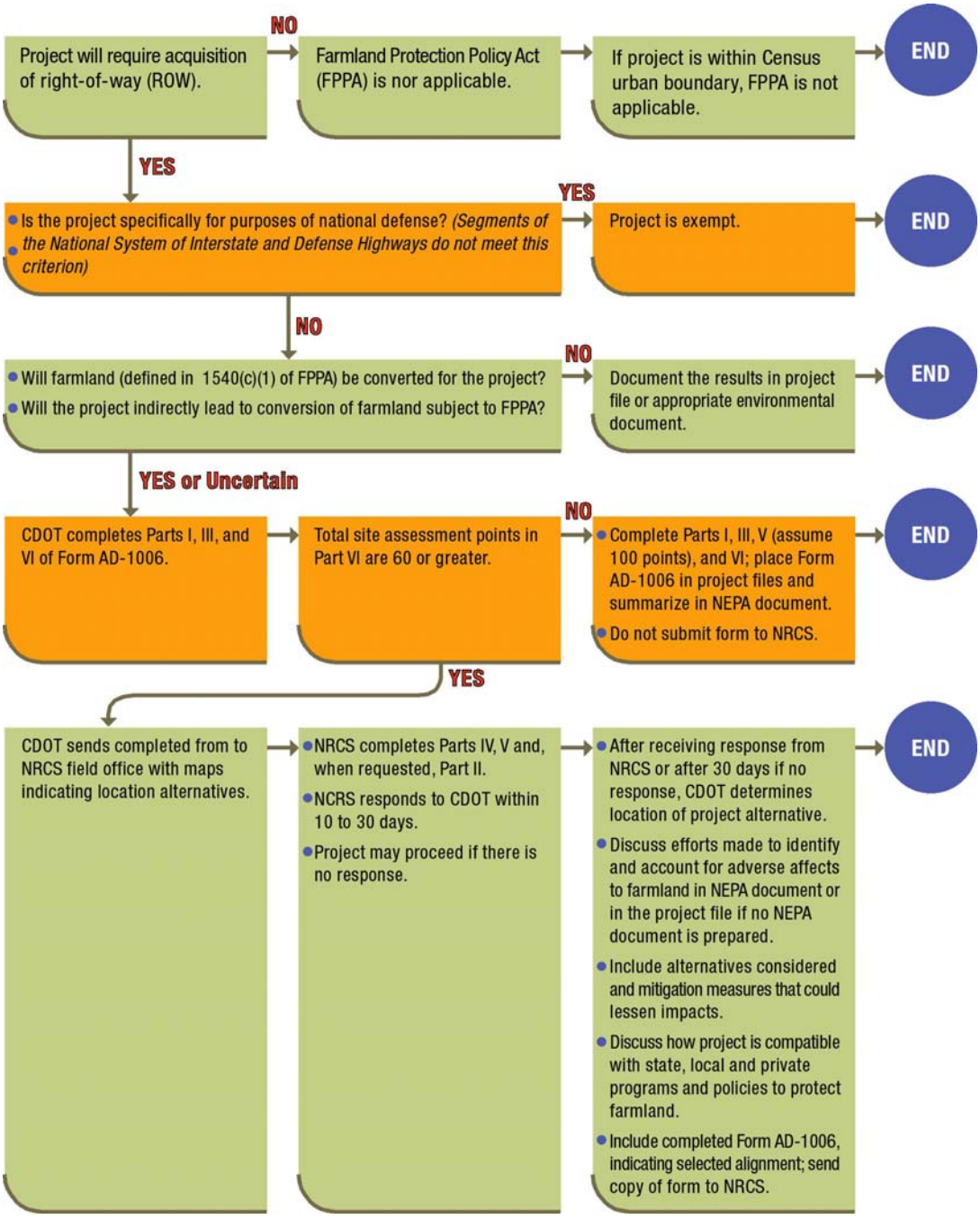
- Prime farmland is land that has the best combination of physical and chemical characteristics for production of food, feed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Prime farmland includes land that possesses 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 ROW. Once the alternative ROW 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. Instructions for completing the NRCS form AD-1006 are included in Appendix G. Figure 9-5 is a flow diagram for completing the Farmland Protection Policy Act analysis. Note: for corridor projects, Form NRCS-CPA-106 should be used (Appendix G).

Farmlands Clearance Documentation

- Identify whether conversion of farmland may occur
- If so, follow process outlined in **Appendix G** for 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 9-5 Completing the Farmland Protection Act Analysis



9.22.1.3 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 and other environmental considerations. 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.

9.22.2 NEPA Document Sections

The content of the sections on farmlands in the Affected Environment and Environmental Consequences chapters is discussed below. 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).

9.22.2.1 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
- Its economic and cultural importance to the region

9.22.2.2 Environmental Consequences

This chapter of the NEPA document summarizes the efforts taken during the farmland clearance process. In addition, 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

9.23 Noise

Noise, defined as unwanted or excessive sound, 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 and 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. Noise associated with a project is thus an impact on the existing 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 setting and the noise level are important in determining the impacts of noise, which may affect people, structures, and wildlife adversely. Noise may also affect land use or economics and should be discussed as appropriate.

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.

Noise Regulations and Guidance

- Federal-Aid Highway Act Of 1970
- Noise Control Act Of 1972
- FHWA Highway Traffic Noise Analysis and Abatement Policy and Guidance
- CDOT Noise Analysis and Abatement Guidelines
- 23 CFR 772, FHWA Noise Regulations

9.23.1 Noise Evaluation Process

The CDOT Project Manager in coordination with the RPEM and the EPB or Regional Noise Specialist are responsible for ensuring that appropriate noise analyses and mitigation measures are performed. Typically, a consultant is hired to perform the noise analyses, prepare the noise technical report, and recommend mitigation measures as part of these studies.

Noise analyses must be performed on all Type I projects if: "noise sensitive receivers are present within the project study zone. This study zone is defined as a 500-foot distance in all directions from the edge of proposed improvements throughout the extent of the project. This 500-foot 'halo'

defines the extents for the noise analysis and shall include receivers on all sides of the highway" (CDOT, 2002c).

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 contain specific information on conducting noise studies. If it is determined that noise barriers or other mitigation measures will be required, 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.

9.23.1.1 Reasons for Evaluation of Noise Under NEPA

CDOT evaluates noise for several reasons:

- Noise could adversely affect people, structures, and wildlife
- 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 measurement and control of noise, particularly in specified settings`

Regulations and guidance on noise are provided in the sidebars and discussed further in Appendix C

Both FHWA and CDOT now have well-developed guidance and protocols for evaluating noise. This guidance focuses on the analysis of noise impacts on people. It does not address the impacts of related vibration or the impacts of noise and vibration on structures or wildlife.

The two key working documents used by these agencies are FHWA's *Highway Traffic Noise Analysis and Abatement: Policy and Guidance* (FHWA, 1995) and CDOT's *Noise Analysis and Abatement Guidelines* (CDOT, 2002c). The latter document provides the primary foundation for the protocols discussed below.

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 2002). Type II projects are proposed federal-aid projects for noise abatement on an existing highway and are not mandatory according to FHWA guidelines. CDOT does not currently fund a Type II program.

Noise Guidance

FHWA Highway Traffic Noise Regulations and Guidance
http://www.fhwa.dot.gov/environment/noise/mem_nois.htm

CDOT Environmental Noise Guideline and Policies
http://www.dot.state.co.us/environmental/CulturalResources/NoiseGuidelines.asp

9.23.1.2 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, 2002c). Please refer to those guidelines for further detail before implementing a noise analysis under NEPA.

The baseline information needed to perform a noise analysis is dictated by the requirements of the prescribed process. There are five steps that should be completed to analyze noise for each project alternative (CDOT, 2002c):

- Identification of land uses
- Determination of existing noise levels
- Prediction of traffic noise levels
- Determination of traffic noise impacts
- Identification and evaluation of noise abatement measures for reducing or eliminating the traffic noise impacts, including construction noise

Step 1: Identification of Land Uses - Land uses adjacent to a highway project should be assigned to one of five categories on the basis of the use described in Table 9-4. Most land uses along highway corridors will fall under Categories B, C, or D Pursuant to 23 CFR 772.9(B)1. The use of Category A should be extremely rare and only considered for special facilities. Exterior areas having frequent human use are the primary locations where mitigation of traffic noise impacts is considered. The Noise Abatement Criteria (NAC) are provided in Hourly Equivalent Sound Level (Leq(h)) units (Table 9-4).

To complete Step 1, information on land uses must be obtained within a noise study area defined by a 500-foot distance in all directions from the proposed edge of the proposed improvements throughout the project extent of the project. This information is used to characterize the affected environment and to determine the noise level at which noise abatement must be considered. They are not to be used as a noise design goal, or as a federal standard. As will be explained below, traffic noise impacts can also occur at levels below these values.

Step 2: Determination of Existing Noise Levels - Existing noise levels should be determined by field monitoring and use of a Traffic Noise Model (TNM) version 2.5 or "latest approved version" noise prediction model for all

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. The STAMINA 2.0 noise model, with Colorado-specific reference emission levels, may still be used for projects that began before May 2, 2005.

noise analyses that began after May 2, 2005. This FHWA model was evaluated for use in Colorado (Hankard et al, 2006).

Table 9-3 CDOT Noise Abatement Criteria (NAC)

Category	Leq(h)[a]	Description of Activity Category Use
A	56 (Exterior)	Lands where serenity and quiet are of extraordinary significance and serve an important public need and where preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	66 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	71 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E[b]	51 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: CDOT Noise Analysis and Abatement Guidelines, December 2002.
a Hourly A-Weighted Sound Level in Decibels (dBA)
b Please refer to discussion of special noise abatement considerations on pp. 6–7 of the CDOT Noise Analysis and Abatement Guidelines, December 2002.

In general, changes in noise levels less than 3 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, to an observer, the sound at a level of 70 dBA would seem twice as loud as a sound level of 60 dBA. Estimates of sound levels are 30 to 40 dBA in a quiet residential area at night, 40 to 50 dBA during the day, while >140 dBA results in physical pain.

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 the model. Such validation can be done when a project consists of an existing highway, but not when it consists of a new highway in a new location. It is desirable to monitor noise when noise levels are greatest, but this is not entirely 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 event will be when both the traffic volume and speed are the highest.

To complete Step 2, noise measurements, together with data on traffic conditions (e.g., volume and speed by vehicle type), meteorology (e.g.,

temperature, relative humidity, average wind speed, relative wind direction), and terrain (e.g., ground type, heavy trucks and barriers, flow control devices, berms, and parallel barriers), must be collected from as many locations as necessary to characterize noise environment, which could be one in some cases. The data on traffic and terrain are to be used in the TNM 2.5 model to predict noise at each location. The predicted noise is compared with the measured values and the model adjusted accordingly for the location.

Step 3: Prediction of Traffic Noise Levels - During Step 3 (prediction of traffic noise levels), noise levels of the proposed project are predicted using the model that was validated by comparing its predictions of existing noise against measured values. Future traffic noise levels should be predicted with the TNM 2.5 model for all potential project alternatives, including the No-Action Alternative. Specific noise inputs for the model 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. Modeling should focus on all receivers of noise that are in the front row and on the first floor adjacent to the noise source because these are the locations most likely to be impacted by project noise. Receivers in the second and third row and on the second and third floor should be included as warranted. In addition, FHWA requires noise analysis for undeveloped lands where development is "planned, designed, and programmed." In other words, if building permits have been issued for a development, the noise analysis must be performed on that area as if the development already existed.

To complete Step 3, data on traffic entry type, relative humidity, temperature, default ground type, user-defined vehicles, pavement type, and receiver height above the ground must be assigned for the locations where noise is to be predicted. Common assumptions may be used for all locations. Additionally, specific assumptions regarding the future situation at modeled locations can be input to the model.

Step 4: Determination of Traffic Noise Impacts - In Step 4 (determination of traffic noise impacts), the noise levels predicted for each alternative are compared to the measured noise levels and to the NAC levels in Table 9-4 to quantify noise impacts. The existing and predicted noise levels for each project alternative should be compared to the NAC levels in Table 9-4 to determine traffic noise impacts. Based on these procedures, a traffic noise impact occurs when projected traffic noise levels meet or exceed the NAC, *or* when projected traffic noise levels substantially exceed existing noise levels. Thus, for a category B (residential) receiver, the noise level that

would trigger identification of an impact would be 66 dBA; 71 dBA is the impact criterion for a category C receptor. CDOT defines noise levels that "substantially exceed the existing noise levels" as those resulting in a predicted increase of 10 dBA or more over the existing levels, even if the highest predicted levels are below the NAC. Thus, if the existing noise level for a category B receiver was 46 dBA, a predicted noise level of 59 dBA would result in identification of an impact, despite the fact that the 66 dBA NAC had not been surpassed.

Step 5: Identification and Evaluation of Feasibility and Reasonableness of Noise Abatement Measures - In Step 5 (identification/evaluation of alternative noise abatement measures to reduce/eliminate traffic noise impacts, including construction noise) mitigation measures are considered as appropriate for the impacts identified. Noise abatement measures should be identified and evaluated whenever traffic noise levels meet or exceed the NAC or when there is a substantial increase above existing noise levels. FHWA guidance directs that noise abatement be designed to provide a substantial noise reduction, rather than to achieve a certain noise level, such as the NAC. The 5 dBA value is important in that, in general, a reduction of this magnitude is considered to be "readily perceptible" to the average human ear, whereas a 3 dBA change is barely perceptible. CDOT has set a noise reduction goal of 10 dBA. CDOT has defined a reduction of at least 5 dBA to be a substantial reduction, a reduction of less than 3 dBA to be unacceptable, and a reduction between 3 and 5 dBA to be marginal at best.

CDOT's guidelines identify two main elements in the consideration of noise abatement: feasibility and reasonableness. FHWA guidelines direct that any noise abatement measure found to be both reasonable and feasible be considered.

Feasibility - Feasibility deals with the engineering considerations that would provide a substantial noise reduction, such as whether or not, given the topography, a continuous noise barrier could actually be built. Other considerations include drainage requirements, other noise sources in the area such as aircraft or trains, and access issues such as driveways, sidewalks, and alleys. Feasibility also includes any "fatal flaw" safety or maintenance issues associated with a proposed noise barrier:

A fatal flaw is a problem with the design of a barrier 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.

Reasonableness - Determining the reasonableness of a noise abatement measure is much more subjective in its approach than determination of feasibility.

Reasonableness requires common sense and judgment by the decision-maker and is based on a number of factors, such as the following:

- Number and type of receivers
- Future traffic noise levels
- Increase in future noise levels from existing levels
- Cost of the proposed abatement measures (calculated and expressed in terms of barrier cost per impacted receiver per decibel reduction, using a base cost value)
- Desires of impacted receivers
- Existence of development
- Type of development
- CDOT Form 1209 used to determine and document reasonable and feasible

A four-tiered scale is used to classify each of the above points for reasonableness. Each category is classified as very reasonable, reasonable, marginally reasonable, and unreasonable. All receptors that are predicted to receive at least a 3 dBA reduction in noise levels are included in a cost analysis. Final determination of overall reasonableness is made after consideration of all factors on a case-by-case basis. However, regardless of all factors, noise barriers will generally not be built if most of the affected receivers do not want them.

Usually, the construction of noise barriers is the only practical noise abatement solution. Other measures (e.g., planting of vegetation, acquisition of a buffer zone, traffic management, and alterations of pavement type or texture) are often not possible or too complex to routinely consider. While noise barriers are the most common form of noise abatement, all five types of noise abatement listed at 23 CFR 772.13 must be considered.

Under CDOT guidelines, extraordinary abatement measures (e.g., insulation of structures) are allowed only if normal noise abatement measures are not feasible or reasonable and only for public or non-profit buildings (not interior portions of private residences). The only exception to this is when a noise impact is severe (i.e., where current or predicted noise levels are 75 dBA or

more, or when predicted noise levels would be at least 30 dBA over existing noise levels).

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 noise analysis procedure can be found in CDOT's Environmental Noise Guidelines and Policies website and websites addressing the TNM model (McTrans Traffic Noise Model 2.5 website; FHWA Traffic Noise Model website). The EPB or Regional Noise Specialist should be consulted prior to completion or submission of a final noise analysis.

TNM Model

McTrans TNM website
http://mctrans.ce.ufl.edu/featured/trafficNoise/

FHWA TNM website
http://www.fhwa.dot.gov/environment/noise/tnm/index.htm

9.23.2 NEPA Document Sections

Noise in the Affected Environment and Environmental Consequences chapters of NEPA documents is discussed below.

Analysis of noise is typically documented in a noise technical report as well as in a NEPA document. A few CatExs and most EA noise studies will include a stand-alone noise analysis report that will be summarized in the EA or CatEx, although a brief and less technical noise analysis can be placed directly into the noise section of the EA document. Due to the nature of most EIS projects, a separate noise technical report is mandatory, and may be included in an EIS technical appendix or incorporated by reference and maintained in the project administrative record. Noise studies for Tier 1 NEPA documents are very general in nature and cannot be used to make detailed impact determinations and mitigation commitments.

Prior to preparation of a NEPA document, the noise technical report is prepared for most projects. In some cases, a full noise analysis report may not be needed and a memorandum to the project file may suffice. However, a full noise technical report will likely be needed if mitigation measures are to be recommended based on the analysis, so that these recommendations are documented thoroughly.

In the noise technical report, a short section should be included addressing construction noise. In general, this will contain no more than an explanation of what can be done during project construction to minimize the noise generated by actual construction events. This section should address such measures as utilizing well-maintained equipment and limiting work to certain hours. Although there are computer models that can predict levels of construction noise, these are of very limited use and are not required by CDOT.

The noise technical report must include discussion of each of the five steps of the noise analysis. It must also include a completed version of CDOT Form 1209 (Appendix G). This is basically a checklist for the analysis steps and determination of feasibility and reasonableness, with sections provided for narrative descriptions of the overall decision.

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.

9.23.2.1 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 tabulation of the measured and modeled noise levels, and briefly discuss how and where these were calculated plus any relevant points regarding how they differ.

9.23.2.2 Environmental Consequences

Documentation for the Environmental Consequences chapter of EAs and EISs is discussed in this section. The process of noise impact analysis is discussed above in describing the noise technical report. The information presented in the NEPA document on noise impacts and their analysis is typically a summary of the information in the noise technical report.

Summary of the Noise Technical Report – The summary must be sufficiently detailed to support the identification of noise impacts at specific locations based on NAC exceedance or substantial increases in noise (as discussed above). It must provide a foundation for and justify any need for mitigation measures as follows:

- Document location-specific noise impacts and their basis
- The conclusion should restate the biggest noise concerns associated with each alternative and identify the alternative with the least expected effect on the different categories of receivers

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 anticipated need for measures to mitigate noise impacts is an important factor in determining the complexity of noise analysis. The noise barriers that are typically used to mitigate noise are costly. Therefore, it is important to thoroughly describe mitigation measures for the specific locations where they are recommended. Note whether residual noise impacts will remain after the suggested mitigation measures are applied, and quantify them if possible.

There is some flexibility regarding the level of analysis required in Draft and Final EISs. Normally, both impact determinations and mitigation recommendations are made in the Draft EIS. However, for some projects (e.g., projects having numerous alternatives under consideration in the Draft EIS), it may be appropriate to identify mitigation measures after the Draft EIS has been released and document them in the Final EIS.

Noise barriers are solid structures placed between noise receptors and roadways and typically are either earth berms or noise walls. Earth berms are large earthen mounds placed between the roadway and the receptor. They require a lot of land and typically display a natural, attractive appearance. Noise walls require much less space and can be constructed out of concrete, masonry, or other materials. Combination barriers, which place a wall on top of a berm, have also been constructed.

9.24 Visual Resources/Aesthetics

Visual resources include those features that define the visual character of an area. These can be important natural features, vistas, or viewsheds, but can also include urban or community visual characteristics, including architecture, skylines, or other characteristics that create a visual definition for an area.

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.

9.24.1 Visual Resource/Aesthetic Evaluation Process

The CDOT Project Manager, together with the EPB Visual Resource Specialist, 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 and aesthetics 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

9.24.1.1 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 16 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).

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 http://www.fhwa.dot.gov/environment/flex/index.htm

Context Sensitive Solutions Organization http://www.contextsensitivesolutions.org/

9.24.1.2 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 viewshed. A viewshed 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." Creating visual models that use topography to determine viewsheds from specified vantage points can also be used.

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 viewsheds 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, 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, middleground, 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 viewsheds 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

9.24.1.3 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.

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

9.24.2 NEPA Document Sections

Visual resources and aesthetics in the Affected Environment and Environmental Consequences chapters of NEPA documents is discussed below.

9.24.2.1 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

9.24.2.2 Environmental Consequences

Documentation needs for the Environmental Consequences chapter of EAs and EISs are discussed in this section. At a minimum, the Environmental

Consequences chapter should compare the effects of each alternative carried forward for detailed analysis in the following four categories:

Visual Analysis – Identify desirable viewsheds and seek 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 in the design templates. For example, above ground utilities intersecting a viewshed 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 viewshed visible from each viewpoint
- Perform this analysis for key viewpoints of/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 viewsheds 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.

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 shape, texture, and color to help it blend in with the surrounding landscape
- Construction on the backside of hillsides included in important viewsheds
- 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

9.25 Energy

Energy resources typically include liquid or gaseous fuels, petroleum products, or electricity. The term "energy" is used in a 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.

9.25.1 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.

9.25.1.1 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.

9.25.1.2 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.

9.25.1.3 Other Issues to Consider

Beyond regulations and guidance directed specifically at energy policy, energy conservation is woven throughout the fabric of CDOT activities. For example, EPB is developing an Environmental Management System (EMS) for CDOT's Division of Transportation Development operations that includes among its goals the conservation of energy. CDOT's *Lighting Design Guide* (CDOT, 2002d) 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.

9.25.2 NEPA Document Sections

The content of the sections on energy in the Affected Environment and Environmental Consequences chapters is discussed below.

9.25.2.1 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.

9.25.2.2 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:

- 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 selected the energy conservation measures to be implemented for that alternative should be highlighted. Measures to conserve energy 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

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

Environmental Consequences Chapter of NEPA Document

- Variations in construction and operational energy requirements and impacts among alternatives
- Conservation opportunities
- General mitigation approaches to conserve energy for all alternatives
- Focus on detailed energy conservation measures for the preferred alternative

9.26 Hazardous Materials

The term hazardous materials is an all-inclusive term for materials that are regulated as a solid waste, hazardous waste, and other wastes contaminated with hazardous materials, radioactive materials, petroleum fuels, 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 are discussed below:

- RCRA (40 CFR Parts 260–299) is the primary law governing the disposal of solid and hazardous waste. Subtitle C regulates hazardous waste and Subtitle I regulates underground storage tanks containing hazardous materials and petroleum products.
- 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 waste at these sites; and established a trust fund to provide for cleanup when no responsible party could be identified.
- Standards and Practices for AAI (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.
- UST Remediation Colorado Department of Labor and Employment-Division of Oil and Public Safety (7CCR 1101-14)
- Colorado Hazardous Waste Regulations (6 CCR 1007-3, Part 260)

The discovery of hazardous materials within the proposed project area may have an adverse impact on timely completion of the project; therefore, an assessment of potential areas of contamination should be conducted as early in the project development process as possible. This assessment will:

- Supply information for property evaluation during the acquisition process
- Assess project alternatives for feasibility based on impacts from hazardous materials
- Limit or avoid CDOT liability during ROW acquisition
- Allow estimation of the cost of any required remediation
- Prevent delay claims during construction

- Identify worker 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.

Petroleum contamination from adjacent properties is the most likely hazardous material that will be encountered. Non-petroleum contamination is found less often, but may be more costly and time consuming to address. All projects must consider the potential to encounter contamination within the project limits; therefore, an investigation of the proposed project area for all alternatives must be evaluated.

The two sections below provide guidance on the treatment of hazardous materials for CDOT's NEPA projects. The first section discusses the process for evaluating hazardous materials. The second section discusses information on hazardous materials that should be included in each NEPA document.

9.26.1 Hazardous Material Evaluation Process

The RPEM or designee should be responsible for completing hazardous material studies and for determining the potential for encountering hazardous materials on a CDOT project.

The goal of a hazardous material study is to provide information needed for planning efforts related to hazardous materials and contaminated sites. They should be conducted wherever information on past and present uses indicates that hazardous materials might be present.

Although sites containing hazardous materials affect relatively few projects, their discovery late in the project development process or during construction can lead to unexpected and costly delays or unexpected remedial costs. Hazardous material issues should be resolved prior to construction of the project and prior to ROW acquisition.

9.26.1.1 Reasons for Evaluation of Hazardous Materials Under NEPA

Site assessments to evaluate hazardous materials at proposed project areas are conducted for several reasons:

- To identify potential soil and groundwater contamination issues during the planning process so they do not affect a project in terms of mitigation, cost, schedule, and project personnel health and safety issues

- 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 state and federal regulations and laws

EPA has delegated enforcement of the federal hazardous waste regulations to CDPHE. These regulations are further discussed in Appendix C.

9.26.2 Collection and Evaluation of Baseline Information

The first step in collecting baseline information regarding the presence of hazardous materials in a project area is conducting a Modified Phase I Environmental Site Assessment (MESA). The MESA is prepared during the project development phase and will be a supporting technical report for the EA or EIS. This report evaluates the corridor or project area for the potential presence of soil and groundwater contamination, asbestos-containing materials, and heavy metal–based paint.

The information gathered during the MESA (see Table 9-5) is obtained from readily available sources and provides a low to moderate level of detail about each individual property. Due to the large number of sites involved in corridor or other large projects, it is not practical to obtain site access and interview individual property owners.

The MESA should be conducted according to the following guidance and regulations:

- American Society for Testing of Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process
- EPA, Standards and Practices for All Appropriate Inquiries, 40 CFR Part 312

CDOT requires the ASTM minimum search radius be extended by 0.25–1 mile or a distance that the environmental professional determines is sufficient when the project footprint is uncertain. When a site is known or suspected to contain hazardous materials, CDOT's first preference is to realign the project to avoid this area. If this site must be acquired for ROW, a site-specific Phase I Environmental Site Assessment may be performed. The same procedures are used to gather information for a site-specific Phase I Environmental Site Assessment as for a MESA, except that a site reconnaissance, not a windshield survey, is required. The MESA also must discuss the area to be acquired by CDOT and how excavation, dewatering, and other construction

ASTM and AAI Guidance

The guidance will be modified because of access issues and a modified methodology followed for the MESA.

practices may affect the hazardous materials. The MESA may be conducted after the NEPA document is completed.

Table 9-4 Information to be Included in a MESA

Information	How Obtained
Overall impression of project area and adjacent properties	Site reconnaissance or "windshield survey" of properties
Historical uses of sites in or adjacent to project area	Review of readily available documents
Identified hazardous waste or spill sites within 1 mile of project areas	Review of readily available local, state, and federal databases
Indication of any clandestine drug lab enforcement actions that may have occurred at any of the sites	Review of local police and state law enforcement records
Map and addresses of sites that may impact the project area due to presence of hazardous materials/wastes	Screening of sites identified in above process by distance and groundwater flow Review of previous investigations at these sites Interviews with relevant agency and regulatory staff regarding potential historic releases from identified sites
A map and general project description, including the project footprint and any ROW to be acquired	Project footprint and features obtained from CDOT
Brief description of the environmental setting (topography, geology, and groundwater hydrology, including estimated depth to groundwater and shallow groundwater flow direction)	USGS, Colorado Geological Survey, State Engineers Office, and CDPHE Water Quality Control Division reports
Sites requiring additional evaluation or investigation before right-of way acquisition, alternative feasibility assessment, project design, or construction	Assessment of all information gathered during MESA
Note: Items shaded in grey are required by CDOT, but not required by ASTM standards or EPA guidance.	

For CatEx projects, an Initial Site Assessment (ISA) and ISA Checklist (CDOT Form 881, Appendix G) are prepared during the project development phase. The ISA can also be used during ROW acquisition for properties where there is little reason to expect hazardous materials to be present. The ISA requires a site reconnaissance and a search of local records for clandestine drug lab enforcement activities. Procedures for the ISA are provided in the CDOT *ROW Manual* (2003) and the ASTM Standard Practice for Environmental Site Assessments: Transaction Screening Process. The conclusions of the ISA for CatEx projects must be documented on CDOT Form 128, CatEx Determination (Appendix G).

9.26.2.1 Other Issues to Consider

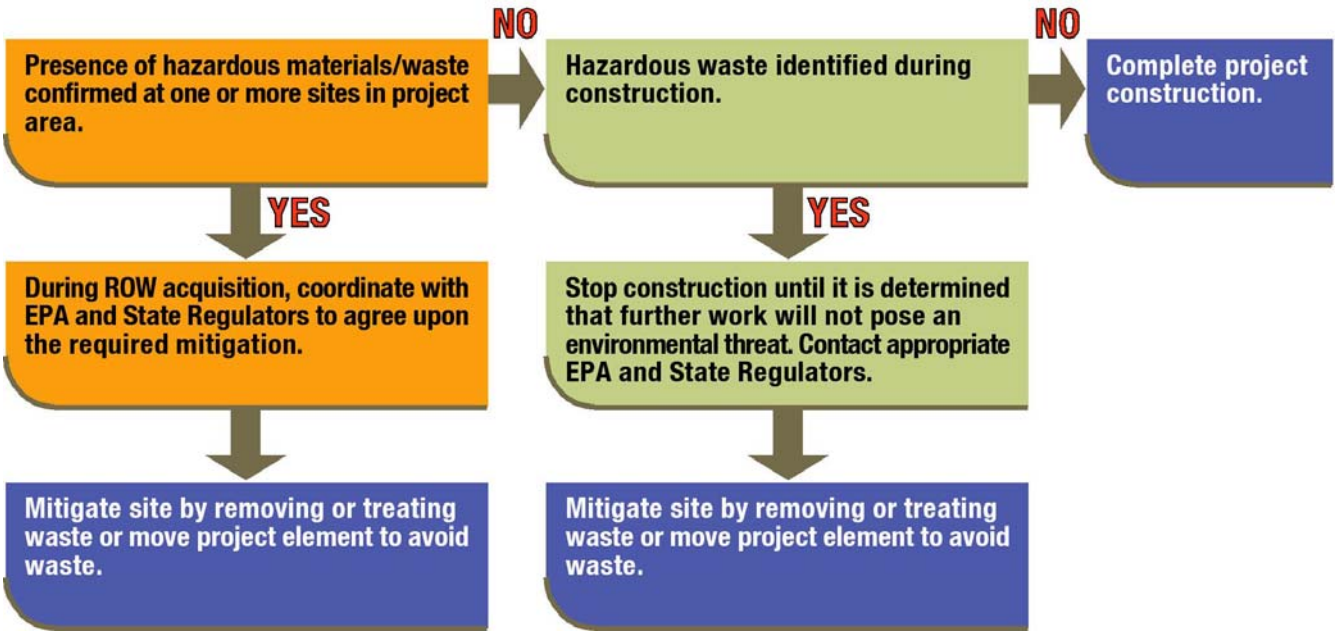
Investigators conducting assessments of sites containing hazardous materials must also evaluate sites that are known to have been used or suspected of having been used as laboratories for production of methamphetamine according the procedures in CDOT's *What is the Meth Lab ISA Checklist?* (CDOT, 2006d).

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 CDPHE's Hazardous Materials and Waste Management Division and/or EPA to determine the required mitigation.

9.26.3 NEPA Document Sections

The content of the sections on hazardous materials in the Affected Environment and Environmental Consequences chapters is discussed below. A flowchart summarizing the process for evaluating the presence of hazardous materials at a project site and mitigation for these sites shown in Figure 9-6.

Figure 9-6 Mitigation Process for CDOT Projects



9.26.3.1 Affected Environment

The hazardous materials section of the Affected Environment chapter in the NEPA document should be based on the results of the MESA and include the following information, at a minimum:

- Text description of work performed during the MESA
- Summary of reports and databases compiled during the 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

9.26.3.2 Environmental Consequences

The discussion of hazardous materials in the Environmental Consequences chapter should do the following:

- Identify the types and locations of any hazardous materials that may affect the project, using the conclusions of the site-specific Phase I Environmental Site Assessment, MESA, or ISA
- 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, for example, hazardous materials are located in soil at the site and excavation for a storm sewer will cross the site, and how these materials may impact the proposed project elements for each alternative
- 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

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

- Note whether any hazardous materials will be used during project construction or operation and, if so, how these will be handled to avoid impacts

If the site-specific Phase I Environmental Site Assessment , MESA, or ISA identifies one or more sites within the project area that are known or suspected to contain hazardous materials (e.g., a former sanitary landfill, public dump, gasoline station, manufacturing site, etc.), there are several methods to mitigate the impact of the hazardous material on the project. The three primary mitigation methods are altering the alignment to avoid the contamination, modifying the project construction procedures, or re-mediating the site to remove the contamination. All of these actions associated with potential hazardous materials sites should be considered during the alternatives screening process.

9.27 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:

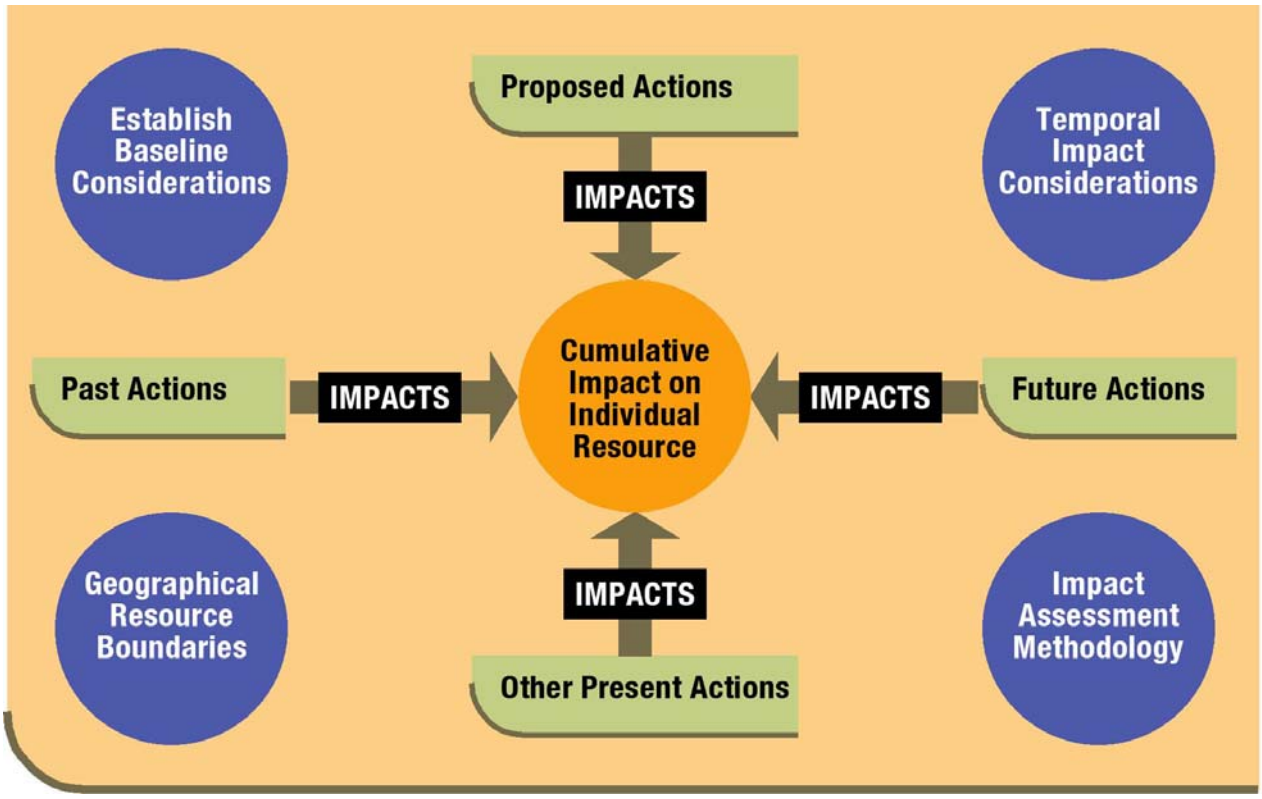
- Whether a resource(s) is important and especially vulnerable to incremental impacts
- If the proposed action is one of several actions within the same resource study area with common impacts
- Whether other proposed activities in the area will have similar impacts
- If these impacts have been historically 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://www.environment.fhwa.dot.gov/projdev/impTA6640.asp
- FHWA Secondary and Cumulative Impact Assessment in the Highway Project Development Process http://www.environment.fhwa.dot.gov/guidebook/content/Secondary_Cumulative_Impact_Assessmt.asp
- CDOT Environmental Stewardship Guide http://www.dot.state.co.us/US50E/pdf/ESGuide5-12-05e-book.pdf
- Guidance On The Consideration Of Past Actions In Cumulative Effects Analysis http://ceq.hss.doe.gov/NEPA/regs/Guidance_on_CE.pdf

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 9-7 depicts the process for determining cumulative impacts.

Figure 9-7 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.

CEQ's Considering Cumulative Effects Under NEPA (1997) and EPA's Consideration of Cumulative Impacts in EPA Review of NEPA Documents (1999)

http://ceq.hss.doe.gov/nepa/ccenepa/ccenepa.htm

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.

9.27.1 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 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.

9.27.1.1 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.

9.27.1.2 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.

9.27.1.3 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).

9.27.2 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 how the cumulative impacts would vary by alternative

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 that should be incorporated in the cumulative impacts section of CDOT NEPA documents. This language is provided as Attachment 4 of this chapter.

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ATTACHMENT 1 - RESOURCE METHODOLOGIES

Air Quality

Methodology

EPB/HEADQUARTERS CONTACT

Zac Graves, Air Quality Specialist
(303) 757-9016
zac.graves@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

The purpose of the air quality resource methodology is to:

- Provide a detailed discussion of all air quality analyses prepared to complete the air quality clearances required as part of the overall environmental documentation and clearance process for a project (CatEx, EA, or EIS).
- In the case of a technical report, it should include a brief discussion of existing air quality conditions in the air quality region or basin where the project is located (e.g., the Denver metropolitan area), including the air quality attainment/non-attainment status of the region. A discussion of the air quality conformity requirements should be included. An air quality analysis and project conformity determination is only required in non-attainment or attainment/maintenance areas. An air quality resource methodology is not required for projects outside of these areas.
- The report should include a summary of all project air quality coordination meetings with the Colorado Air Pollution Control Division (APCD), the US Environmental Protection Agency, the Federal Highway Administration, and other agencies.
- Provide an explanation of all air quality modeling. The appendix to the report should include: copies of all hot spot modeling input and output files; copies of mobile source emission factor model runs completed by APCD (MOBILE6.2 or MOVES models); copies of modeling grids and roadway network. If these files are prohibitively large they should be copied to a CD, but hard copies will suffice.

RESPONSIBILITY

Depending on the scope of the project and staff workloads, the air quality analysis and report can be prepared by the EPB air quality specialist, Region air quality specialist (if one exists in the Region), or project consultant. In order to determine the scope of an air quality analysis needed for a project, the Region coordinates with the EPB air quality specialist before beginning an analysis or hiring a consultant to do the analysis. The EPB air quality specialist reviews all air quality analyses prepared by the Regions or consultants.

DEVELOPMENT/REVIEW SCHEDULE:

The air quality resource methodology and related reports is needed to complete the air quality clearance as part of the project environmental clearance (CatEx, EA/FONSI, or EIS/ROD). For a Cat Ex project, a summary of the air quality analysis must be submitted to the EPB air quality specialist. The EPB air quality specialist will review the analysis and send an air quality clearance memo to the regions so that the Form 128 can be signed. For EAs/EISs,

the report should be submitted to the EPB air quality specialist before the first draft of the EA or EIS is submitted to EPB for review. Eleven working days are required for review.

WHO REVIEWS IT:

Air quality resource methodologies (usually in the form of technical reports) prepared by the Regions or consultants must be submitted to the EPB air quality specialist for review. For projects which are categorical exclusions, the EPB air quality specialist is responsible for approving all air quality analyses prepared by the Regions or consultants and for submitting the air quality clearance memo to the Regions.

Depending on the complexity of the project and number of model runs, the EPB air quality specialist should be given a minimum of 11 working days to complete the review. For complex projects, review schedules should be negotiated with the regions. For EA/EIS projects, the EPB air quality specialist will review the resource methodology and resolve all questions on the analysis and report before submitting the resource methodology to the APCD for review and approval. APCD will have 20 working days to review the report and send a concurrence letter to CDOT.

WHO APPROVES IT:

The EPB air quality specialist must approve all air quality analyses for Cat Ex projects. The director of the Air Pollution Control Division must approve all air quality analyses and reports for EA/EIS projects.

Water Quality

Methodology – Water Quality

EPB/HEADQUARTERS CONTACT:

Rick Willard, Water Quality Program Manager
(303) 757-9343
richard.willard@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

Water quality resource methodologies are prepared to document CDOT's MS4 permit compliance, as well to determine potential impacts to Water Quality. Currently the Water Quality program is in a state of flux due to the issuance of a new MS4 permit. All program documents need to be reviewed and updated. Current program documents are in effect until new documents are approved

RESPONSIBILITY

A qualified consultant or Regional staff prepares the report.

WHO REVIEWS IT

The document is reviewed by Regional and HQ personnel.

WHO APPROVES IT

All approvals for project specific water quality resource methodologies come from the Region. Region personnel determine when permit compliance is achieved with advice from HQ. There isn't a formal HQ approval on a project by project basis.

Methodology - Stormwater Management

EPB/HEADQUARTERS CONTACT:

For Regions 1, 4, 6
Cathy Curtis, Landscape Architect
(303) 757-9174
cathy.curtis@dot.state.co.us

For Regions 2, 3, 5:
Mike Banovich, Landscape Architect
(303) 757-9542
michael.banovich@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

A Stormwater Management Plan (SWMP) is required on all projects involving earth disturbance. The SWMP is prepared during the design phase of the projects and is developed using good engineering, hydrologic and pollution control practices. Projects with 1 acre or more of earth disturbance require the Colorado Discharge Permit System (CDPS) Stormwater Construction Permit (SCP) (for Stormwater Discharges Associated with Construction Activities).

RESPONSIBILITY

The SWMP is prepared by EPB Landscape Architect, Region water quality specialist (if one exists in the Region) or qualified project consultant. For work to completed by EPB Landscape Architect the following is required:

- After each Region Plan Status meeting Region Environmental staff will update the Landscape Architect on projects and their schedules so that work loads/priorities can be determined.
- Region Environmental shall provide sufficient notice of projects (minimum of one month) so that site visits to determine present conditions (vegetation, erosion, soils, etc.) can be made.
- Plan/specifications are provided by the Engineer at the time of FIR and FOR. Also, a final set of plans is provided prior to AD to ensure all specifications and plans are up to date.
- Engineer shall provide any MicroStation plans to do the work. Plans shall include all information needed to do work including all hydraulic information, existing and proposed contours (when available), ROW limits, easements, etc. When contours are not available cross-sections shall be provided (on overlays when neither are available the typical sections shall be provided). It is beneficial to provide an up to date set of plans so that SWMP can be as complete as possible at time of FOR (bridge, utilities, typical sections, etc.).
- Engineer shall provide project description, project sequencing, and size/type/location of outfalls (culverts/boxes) as required by the permit. Limits of disturbance will be defined by the Engineer in coordination with the Landscape Architect.
- Environmental staff will keep Landscape Architect up to date on any issues of concern (wetlands, T&E, etc).
- The Engineer(s) and Landscape Architect shall coordinate/discuss the project directly with each other.

DEVELOPMENT/REVIEW SCHEDULE

SWMP and associated specifications cannot be fully developed until the hydraulic sheets are complete. Sufficient time shall be given to the Landscape Architect to complete a SWMP after all data is given to them. Typically a SWMP will not be completed until the FOR.

WHO REVIEWS IT

CDOT Engineers and Environmental personnel qualified to access stormwater management plans and specifications. The Landscape Architect will incorporate any changes required. The design and any changes would be based on good engineering, hydraulic and pollution control practices. Landscape Architects are licensed and although CDOT at this time does not require a stamp, the Landscape Architect reputation is reflected in what they produce. By law they are personally and professionally responsible and accountable for the work produced. The Landscape Architecture license is based on knowledge of core areas including project and construction administration; inventory analysis and program development; site design; design and construction documentation; and grading, drainage and stormwater management. Revisions in the form of additions, deletions, or other modifications to the SWMP by someone other than the licensed Landscape Architect prior to AD will not be allowed unless revisions are completed under the direct supervision of the Landscape Architect. During construction, changes would be required to the SWMP in accordance to CDOT specifications and the CDPS-SCP. At this time the SWMP shall clearly identify a specific individual(s), position or title of who is responsible for developing, implementing, maintaining and revising the SWMP.

WHO APPROVES IT

CDOT Region Planning and Environmental Manager (with a signature on the 128 form).

Wetlands

Methodology – Wetland Delineation

EPB/HEADQUARTERS CONTACT

Rebecca Pierce, Wetlands Program Manager
(303) 512-4051
rebecca.pierce@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

To determine where wetlands exist within the project area, acreage, and what wetland types and functions.

RESPONSIBILITY

A wetlands consultant or the regional or HQ personnel.

DEVELOPMENT/REVIEW SCHEDULE

Wetland delineations should be done during the growing season. Depending upon the project scale they can be done after the DEIS but before the FEIS. If a delineation is not completed before the draft document, a credible wetland mapping procedure must be used. Environmental Assessments should always have a wetland delineation completed prior to the draft document release. The Army Corps approves the field delineation work when making an approved jurisdictional determination. Therefore, a 404 permit can not be acquired without the wetland delineation work being complete. Similarly, the project can not be given a non-jurisdictional status by the Corps until delineation has been completed.

WHO REVIEWS IT

If a consultant does the wetland delineation field work and reporting, the Regional wetlands personnel should review the report. Since this report is only a description of what is onsite, the Region should only need a week to comment. HQ does not need to review the wetland delineation report as long as pertinent information from it is contained in the wetland finding. If the region does not have a wetlands biologist on staff, the wetland delineation report completed by a consultant should be sent to HQ EPB wetlands specialist. EPB should only need a week to review the report.

WHO APPROVES IT

CDOT Region Planning and Environmental Manager (with a signature on the 128 form)

USACE Project Manager

Methodology – Wetland Finding

EPB/HEADQUARTERS CONTACT

Rebecca Pierce, Wetlands Program Manager
(303) 512-4051
rebecca.pierce@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

- To determine type and amount of impact caused to wetlands and aquatic habitat
- To determine whether avoidance and minimization efforts were made
- To justify mitigation type and site location (onsite, offsite, or banking) and outline mitigation details for impacts.
- To coordinate with the US Army Corps of Engineers on permitting and mitigation requirements

RESPONSIBILITY

A wetlands consultant or the regional or HQ personnel

DEVELOPMENT/REVIEW SCHEDULE

Develop the wetlands finding--the earlier the better. The wetland finding must be included in the NEPA document in an appendix or as a chapter. If it is in the document as an appendix, the wetlands information should be summarized in the text. EPB prefers to review the wetland finding prior to receiving the NEPA document for review in case scheduling is an issue.

WHO REVIEWS IT

Consultant writes wetland finding: If a consultant does the wetland finding report, the regional wetlands personnel should review the report. He/she would need at least 2 weeks most likely. EPB can review it simultaneously or after the region reviews it. EPB needs at least 2 weeks to submit comments to the region. If significant comments were made, a second review must be allowed. All final reports should be reviewed by the region and EPB before the wetland finding is included in a NEPA document.

Region writes wetland finding: If a regional biologist writes the wetland finding, the same process should be followed with EPB reviewing it.

WHO APPROVES IT

- CDOT Headquarters wetlands specialist (verbal approval with Region)
- CDOT Headquarters Natural Resource Unit Manager (signature on cover sheet for wetland finding)
- FHWA Project Manager (approved with signature of the NEPA document)
- Following EPB and FHWA signatures: Region Planning and Environmental Manager (signature on the 128 form assures that wetland finding was completed and signed)

Vegetation and Noxious Weeds

Methodology

EPB/HEADQUARTERS CONTACT

Bryan Roeder, Biologist
(303) 512-4420
bryan.roeder@dot.state.co.us (Primary Contact)
Mike Banovich, Landscape Architect
(303) 757-9542
michael.banovich@dot.state.co.us
Cathy Curtis, Landscape Architect
(303) 757-9174
cathy.curtis@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY:

The Noxious Weed Management Plan (NWMP) provides a determination of the likelihood of introducing and/or spreading invasive species and a description of the measures being taken to minimize their potential harm to the project area. The NWMP should include:

- Identification, inventory and mapping of existing noxious weeds. The survey should combine, if possible, the weed mapping with an existing vegetation survey. Surveys must be conducted during the growing season to ensure accurate identification.
- Potential impacts from invasive species. The impact of the disturbance caused by construction should be addressed. Analysis of impacts should include the area disturbed by construction and the area adjacent to the project. Specifically, impacts to the following areas should be considered:
  - Public lands
  - T&E species
  - Wetlands
  - Riparian or other sensitive areas
  - Open water
  - Agriculture
- Preventative control measures. The NEPA analysis should reference potential noxious weed preventative control measures that will be incorporated into the scope, design and construction process. These activities include:
  - Topsoil management
  - Equipment cleaning, management and inspection,
  - Use of native plants and seeding,

- The Weed Free Forage Act
- Eradication and control measures to employ, should an invasion occur

The document should also address the potential impacts of chemical, biological and/or mechanical control methods to the surrounding environment.

RESPONSIBILITY:

Generally, a consultant to CDOT prepares the NWMP.

DEVELOPMENT/REVIEW SCHEDULE:

Currently there is no agency review, external signature or permit requirement for the NWMP. The NWMP is not needed early in the NEPA process, however, surveys must be conducted during the growing season so plan accordingly. Also, early scoping coordination with stakeholders, particularly the County Weed Supervisor is helpful to identify county weed lists, local invasive species issues and proven control techniques

WHO REVIEWS IT:

The CDOT landscape architect, noxious weed specialist or regional project manager reviews the NWMP. The review process generally takes 10 to 30 days.

WHO APPROVES IT:

There is no signature requirement. The Noxious Weed Specialist or Landscape Architect approves it.

Threatened/Endangered Species

Methodology

EPB/HEADQUARTERS CONTACT

Jeff Peterson, T&E/Wildlife Program Manager
(303) 512-4959
jeff.peterson@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

- To determine type and amount of impact caused to T&E species
- To outline mitigation for impacts
- To request an Incidental Take Permit (if applicable) from the US Fish and Wildlife Service (USFWS)

RESPONSIBILITY

This is usually prepared by a consultant, but could be prepared by region or HQ personnel. The Region needs to make sure that the HQ Program Manager is provided copies of letters concerning the effects projects have on T&E species. This information is needed to ensure statewide consistency and provide information needed for Migratory Bird Treaty Act (MBTA), SB 40 and Shortgrass Prairie Initiative (SGPI) requirements. In addition, this information is used to provide FHWA with quarterly updates on the number of clearances.

DEVELOPMENT/REVIEW SCHEDULE:

Early. Many required surveys are seasonal with some taking years. Mitigation requirements from the USFWS may affect timing, alignment, cost, and construction techniques all of which may affect the scope of the project. Various agencies may also be involved and their comments considered depending upon the location of the project.

In order to more fully utilize the expertise CDOT has as its disposal, Regions may participate in the "Expanded Regional Control of Biological Documents Procedure." If the region wishes to participate in this procedure, the RPEM of that region should submit, in writing, their biologist's qualifications, including experience and relevant education, to EPB at Headquarters. EPB staff will review the information and the past performance of the individual while at CDOT. Upon receiving a letter from the Natural Resources Unit Manager agreeing the biologist's qualifications are acceptable, (s)he would then be free to participate.

If participating, the biologist can make effects determination and submit the required documents in the following manner:

- All "no effect" determination letters and project descriptions will be copied to Headquarters. This is required for tracking purposes.
- All "not likely to adversely affect" determination letters (BEs) requesting concurrence from the USFWS, the corresponding project description, and the concurrence or nonoccurrence letter from the USFWS be copied to Headquarters.
- "Likely to adversely affect" determinations requiring a Biological Opinion (BO) should have a draft Biological Assessment (BA) written by the Region and forwarded to Headquarters and the USFWS for review.

Headquarters will then forward a copy of the final BA, signed by the Natural Resources Unit Manager to the appropriate lead federal agency for submittal to the USFWS. The BO that results from the BA will be distributed to the lead federal agency, Headquarters and the Region.

- BEs and BAs will use a standardized format provided by the USFWS and found on the CDOT website. Consultants hired to prepare these documents will be instructed by the Region to use this format.
- Quarterly reports will be prepared by the Region outlining the name of each project requiring a T&E clearance, the effect determination, type of document prepared, the due date, if that due date had been met, the species involved, measures taken to avoid or minimize impacts, costs associated with T&E issues, and any monitoring requirements.
- Each Region will designate one person as the primary contact in the event that additional information is needed for any given project (as opposed to each project having a different contact person).
- If the biological personnel in a Region change, qualifications would be needed before the new biologist could participate.

If a Region does not choose to participate in this procedure:

- The Region can evaluate and prepare "no effect" determination clearances but those clearances must be reviewed and accepted by HQ before a Form 128 can be signed on for T&E species.
- BEs may be prepared by a qualified consultant but must be reviewed by a HQ biologist. If a consultant is used, the consultant will submit the BE to HQ. HQ will then submit the document to the USFWS and cc the region. The T&E clearance will not be complete until a concurrence from the USFWS is received.
- BAs may also be prepared by a qualified consultant, but must be coordinated with and reviewed by a HQ biologist. If a consultant is used, the final BA will be submitted to HQ for review and signature by the Natural Resources Section Manager before being submitted to the lead federal agency for review and further submittal to the USFWS. The region will be copied on all documents submitted. The T&E clearance will not be complete until a BO from the USFWS is received.
- If these steps are followed, no quarterly report will be required.

WHO REVIEWS IT

At a minimum, allow for the following time frames for an average-sized BA for a project that will have an adverse effect on the federally listed species; after the consultant writes a BA, it goes to the Region for review (1-2 months), HQ reviews and signs it (1 month), FHWA reviews and signs it (2 months), USFWS reviews it and prepares a BO (3 months) (7-8 months total).

WHO APPROVES IT

- Region Planning and Environmental Manager (BA)
- HQ Branch Manager (BA)
- FHWA Project Manager (BA)
- USFWS Field Supervisor (BO)

Historic Properties

Methodology – Historical Resources

EPB/HEADQUARTERS CONTACT

Lisa Schoch, Senior Staff Historian
303-512-4258
lisa.schoch@dot.state.co.us

[Note: Regions 4 and 6 have Senior Historians on staff. For the processes outlined herein, the term Senior Historian includes EPB and Region 4 and 6 personnel. Regions 1, 2, 3 and 5 will submit to EPB]

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

The historic resources survey report for each undertaking must adhere to the guidelines established by the Colorado Office of Archaeology and Historic Preservation (OAHP) (OAHP Publication 1527, available on-line at http://www.coloradohistory-oahp.org/publications/mostreq.htm), and must include the following:

- Establishment of a reasonable and justifiable Area of Potential Effect (APE), which accounts for proposed direct and indirect or secondary impacts. The consultant should consult with the EPB or Region Senior Historian to complete this task.
- A comprehensive literature search of the OAHP database and any others that may be appropriate (i.e., CDOT files, other agencies/entities) to determine the presence of known historic properties within an APE.
- Results of an intensive (Class III) pedestrian survey of the APE.
- Thorough and complete National Register of Historic Places eligibility recommendations for each historic resource present in the APE.
- Effects to National Register-eligible historic properties often have not been accurately determined at the time a survey report is prepared. In most cases, an independent effects determination will be completed by the agency, with the assistance of the consultant, and submitted separately to SHPO. Depending on the scale of the project, the effects determinations will be part of the cover letter for the survey report, or may be detailed in a separate effects report drafted by the consultant and reviewed by the EPB or Region Senior Historian prior to submittal to the SHPO and appropriate consulting parties.

RESPONSIBILITY

Unless prearranged otherwise, the historical resources consultant will prepare the survey report and submit it to the CDOT Region Environmental project manager, who will then facilitate its transmittal to the EPB or Region Senior Historian. A draft survey report must be submitted to the EPB or Region Senior Historian for review prior to finalizing text, tables, site eligibility determinations, etc. The historical consultant must meet minimum professional qualifications as outlined in the US Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (found on-line at http://www.nps.gov/history/local-law/arch_stnds_0.htm).

DEVELOPMENT/REVIEW SCHEDULE

- The survey report should be completed and forwarded to CDOT for review as early in the NEPA process as practicable, i.e., once the APE has been established, right-of-entry issues have been resolved (as necessary), etc.
- In all cases, the Section 106 compliance process—beginning with the survey report--should be completed prior to submittal of a draft NEPA document to EPB for review.

WHO REVIEWS IT

- The Region environmental project manager should complete his/her review within 1-2 weeks. The Region, at its discretion, may elect not to review a document, in which case this step is skipped.
- EPB review of draft reports will normally be completed within 2 to 4 weeks. Review of final reports will usually be completed within 1 to 2 weeks of receipt.
- FHWA generally does not review Section 106 survey reports, as this task has been delegated to CDOT. However, if other federal agencies are involved in a given project (i.e., US Forest Service, Bureau of Land Management), they have 30 calendar days to review technical documents and respond.
- Once a report is transmitted to the State Historic Preservation Officer (SHPO) and the consulting parties, both the SHPO technical staff and consulting parties have 30 calendar days to review and respond to CDOT with comments regarding site eligibility and effects.

WHO APPROVES IT

- The SHPO concurs with CDOT/FHWA's eligibility and effect determinations, which serves as the oversight agency "approval."
- If the SHPO does not concur with some or all of the agency's eligibility and effect determinations, additional work tasks by the consultant may be necessary, at the direction of CDOT EPB and/or Region staff.

Methodology – Archaeological Resources

EPB/HEADQUARTERS CONTACT

Dan Jepson, Senior Staff Archaeologist and Cultural Resource Section Manager
(303) 757-9631
daniel.jepson@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

The archaeological resources survey report for each undertaking must adhere to the guidelines established by the Colorado Office of Archaeology and Historic Preservation (OAHP) (OAHP Publication 1527, available on-line at http://www.coloradohistory-oahp.org/publications/mostreq.htm), and must include the following:

- Establishment of a reasonable and justifiable Area of Potential Effect (APE), which is often simply the extent of proposed direct impacts. However, the consultant should consult with the CDOT Senior Archaeologist to complete this task.
- A comprehensive literature search of the OAHP database and any others that may be appropriate (i.e., CDOT files, other agencies/entities) to determine the presence of known archaeological properties within the APE.
- Results of an intensive (Class III) pedestrian survey of the APE.
- Thorough and complete National Register of Historic Places eligibility assessments for each archaeological resource present in the study area, as well as locality-specific management recommendations.

Effects to National Register-eligible archaeological properties often have not been accurately determined at the time a survey report is prepared. However, even if effects are known, this information should **not** be included in the survey report. In most cases, an independent effects determination will be completed by the agency, with the assistance of the consultant, and submitted separately to SHPO.

RESPONSIBILITY

- Unless prearranged otherwise, the archaeology/cultural resources consultant will prepare the survey report and submit it to the CDOT Region environmental project manager, who will then facilitate its transmittal to the Senior Archaeologist in EPB.
- A **draft** survey report must be submitted for review prior to finalizing text, tables, site eligibility recommendations, etc.
- The archaeological consultant must meet minimum professional qualifications as outlined in the US Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (found on-line at http://www.nps.gov/history/local-law/arch_stnds_0.htm).
- Archaeological site location data are considered sensitive and therefore are exempt from the provisions of the Freedom of Information Act (FOIA). No part of a survey report should appear in a NEPA document, especially mapping that contains exact site locations. However, all interagency correspondence related to archaeology Section 106 actions should appear in the appropriate Agency Correspondence appendix of each EA and EIS.

DEVELOPMENT/REVIEW SCHEDULE

The survey report should be completed and forwarded to CDOT for review as early in the NEPA process as practicable, i.e., once the APE has been established, right-of-entry issues have been resolved (as necessary), etc. In all cases, the Section 106 compliance process—beginning with the survey report—should be completed prior to submittal of a draft NEPA document to EPB for review. Eleven working days are required for review.

WHO REVIEWS IT

- The Region environmental project manager should complete his/her review within 1-2 weeks. The Region, at its discretion, may elect not to review a document, in which case this step is skipped.
- EPB review of draft reports will normally be completed within 1-2 weeks. Review of final reports will generally be completed within 1 week of receipt.
- FHWA generally does not review Section 106 survey reports, as this task has been delegated to CDOT. However, if other federal agencies are involved in a project (i.e., US Forest Service, Bureau of Land Management), they have 30 calendar days to review technical documents and respond.
- Once a report is transmitted to the State Historic Preservation Officer (SHPO), SHPO technical staff has 30 calendar days to review and respond to CDOT with comments about and/or concurrence with site eligibility determinations.

WHO APPROVES IT

The SHPO concurs with CDOT/FHWA's site eligibility evaluations, which serves as the oversight agency "approval." If the SHPO does not concur with some or all of the agency's eligibility determinations, additional work tasks by the consultant may be necessary, at the direction of CDOT EPB and/or Region staff.

Methodology – Native American Consultation

EPB/HEADQUARTERS CONTACT

Dan Jepson, Senior Staff Archaeologist and Cultural Resource Section Manager
(303) 757-9631
daniel.jepson@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

A formal report is generally unnecessary. All tribal consultation coordination activities completed for each NEPA document are presented in the narrative subsection prepared by Dan Jepson.

RESPONSIBILITY

CDOT EPB – Dan Jepson will coordinate all aspects of the tribal consultation process on behalf of FHWA and prepare the appropriate NEPA document section. All correspondence related to consultation will be forwarded to the Region and consultant, and these documents should be placed in the appropriate Agency Correspondence appendix of each EA and EIS.

DEVELOPMENT/REVIEW SCHEDULE

Tribal consultation should be initiated as early in the NEPA process as practicable, generally within 2 to 4 weeks after the project scoping meeting involving EPB staff has occurred.

WHO REVIEWS IT

Not applicable. Tribal consultation is a requirement of the federal agency, and as such FHWA is kept apprised of each step in the consultation process by CDOT.

WHO APPROVES IT

No formal "approval" is necessary. CDOT prepares the initial letter to the appropriate tribes for each NEPA undertaking, which FHWA subsequently sends out on its letterhead with the Division Administrator's signature. In effect this serves as tacit FHWA "approval" of the consultation process, and serves to keep FHWA informed from the beginning.

Paleontological Resources

Methodology

EPB/HEADQUARTERS CONTACT

Steve Wallace, Staff Paleontologist
(303) 757-9632
steven.wallace@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

To establish paleontological resource methodology, conduct analysis, and document results in a technical report. At a minimum, the report should include:

- The linear highway project location, with milepost limits and legal location of the endpoints of the linear survey to the quarter-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;
- A recommendation either for further paleontological investigation prior to project clearance, or clearance to proceed to project construction, commence proposed maintenance work, or initiate materials excavation. If appropriate, the clearance to proceed to construction, to commence maintenance work, or to initiate materials excavation will include stipulations for mitigation of impacts to paleontological resources during construction, maintenance, or materials excavation.

See also: http://www.dot.state.co.us/environmental/CulturalResources/Paleontology.asp

RESPONSIBILITY

The following are the responsibility of the EPB specialist or paleontological consultant:

- State and/or Federal fossil survey and collecting permits for paleontological survey on State and/or Federal lands. The CDOT paleontologist holds the necessary permits; consulting paleontologists need to hold the necessary permits for their resource methodologies to be accepted.
- A recommendation either for further paleontological investigation prior to project clearance, or clearance to proceed (See Purpose and Scope above).
- Fossil locality location data are considered sensitive and therefore are exempt from the provisions of the Freedom of Information Act (FOIA). No part of a survey report including such data, especially mapping that contains exact locality locations, may appear in a NEPA document. However, all interagency

correspondence related to paleontology actions should appear in the appropriate Agency Correspondence appendix of each EA and EIS.

DEVELOPMENT/REVIEW SCHEDULE

No external agency review or external agency signature is required for projects on state-owned lands. CDOT requires 11 working days for review from receipt of the Paleontological Report. Projects on US Bureau of Land Management (BLM) and US Forest Service (USFS) managed lands may require review of the report by the relevant agency paleontologist. There is no set review period for reports that must be submitted to the BLM or the Forest Service.

WHO REVIEWS IT

For projects on State-owned lands, the only review required is by the CDOT staff paleontologist. For projects on BLM or USFS land, review is by the relevant agency paleontologist is also required.

WHO APPROVES IT

For projects on State-owned lands, the CDOT staff paleontologist. For resource methodologies that must be submitted to the BLM or the USFS, approval is made by the relevant agency paleontologist.

Environmental Justice

Methodology

EPB/HEADQUARTERS CONTACT

Vanessa Henderson, NEPA Program Manager
(303) 757-9794
vanessa.henderson@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

The Environmental Justice (EJ) report (when required) explains the methodology used by the project team to evaluate populations within (and/or affected by) the project study area. An Environmental Justice report should clearly delineate how the project team approached evaluation of low-income and/or minority populations, including

- the use of up-to-date Census data at the track and/or block level,
- the type of low-income formula (HUD, HSS, etc.) used,
- the methodology used to "drill down" to the street level to determine actual persons or populations living within the study area,
- the methodologies used for public outreach (surveys, questionnaires, types of meetings, newsletters or other media outlets, use of alternative languages, etc.),
- the response from the public (this can be cross-referenced with the Public Involvement section of the NEPA document),
- a clear report of how the public input was used to make design and other decisions on the project,
- a clear indication of whether the project team evaluated alternatives that would minimize or avoid impacts to low-income and/or minority populations,
- a determination of whether the project would result in disproportionate impacts to a low-income and/or minority population, and
- specifically how the determination of disproportionality was reached.

RESPONSIBILITY

It is the responsibility of the CDOT Regional project staff to oversee the EJ work of the consultant. It is the responsibility of the CDOT EPB EJ specialist to be available for meetings to discuss methodology and approach, and to review written reports (technical reports and NEPA documents) before they are released to the public. It is the responsibility of all CDOT parties to continue to question the design of a project where impacts to a low-income and/or minority population may occur, and to determine whether further mitigation can be implemented within the project to minimize or avoid these impacts. It is the responsibility of the Title VI coordinator for the Equal Opportunity office of CDOT to follow-up with the public on any complaints officially filed under the guise of EJ. It is the

responsibility of any and all CDOT staff to assure that these complaints are forwarded to the Title VI coordinator immediately in order to process such official complaints within the law.

DEVELOPMENT/REVIEW SCHEDULE

The EJ methodology and/or report is typically developed by the consultant, reviewed by the Region, and then reviewed by EPB prior to review of the EA or EIS. It may be reviewed concurrently with the region allowing 11 working days for review.

WHO REVIEWS IT

In addition to the Regional project staff and the EPB staff, the EJ methodology may be reviewed by FHWA and/or EPA at some point in the NEPA process, depending on the issues at hand, and depending on the level of NEPA documentation and who is the lead agency.

WHO APPROVES IT

The EJ report, when prepared, does not require a formal approval or signature, other than review and agreement with the discussion included in the NEPA document. The EJ report and/or section in the NEPA document must be prepared according to CDOT guidelines on EJ and all federal guidance, executive orders, and federal orders.

Residential/Business/ROW Relocation

Methodology

EPB/HEADQUARTERS CONTACT

Janice Leaverton, Real Estate Specialist
(303) 757-9857
janice.leaverton@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

[Note: This documentation is summarized in the Right-of-Way Section of the EA or EIS.]

- General discussion of number of parcels to be acquired
- General discussion of numbers of residences or businesses to be acquired
- Mitigation Analysis, if necessary
- Relevant maps, figures

RESPONSIBILITY

This document is typically prepared by the consultant who performs the acquisition and/or relocation analysis (interviews). In certain instances, this analysis could be completed by a Region real estate specialist.

DEVELOPMENT/REVIEW SCHEDULE

Each alternative should identify possible impacts for acquisition and/or relocation. This information is necessary for the EA or EIS.

WHO REVIEWS IT

The resource methodology should be reviewed by ROW Services and the Region ROW Manager.

WHO APPROVES IT

The acquisition and/or relocation report does not require a formal signature.

Relocation and displacement analysis is a process used to evaluate and address the effects of a transportation action on individual property owners and tenants directly and indirectly impacted by right-of-way acquisition requirements and associated business and residential disruption. Information gathered through the relocation and displacement analysis process is used as a basis for decision-making during the development, refinement, and selection of project alternatives processes (i.e., planning [concept], design, construction, and maintenance). Determinations of significance may influence the NEPA class of action determination. Although the steps in this relocation and displacement analysis process are logically sequential, communities are dynamic; therefore, the analyst must be prepared to reevaluate findings and make adjustments if necessary as the project evolves.

Section 4(f) Evaluation

Methodology – Section 4(f) (Historic Resources)

EPB/HEADQUARTERS CONTACT

Lisa Schoch, Senior Staff Historian
(303) 512-4258
lisa.schoch@dot.state.co.us

[Note: Regions 4 and 6 have Senior Historians on staff. For the processes outlined herein, the term Senior Historian includes EPB and Region 4 and 6 personnel. Regions 1, 2, 3 and 5 will submit to EPB]

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

The level of documentation for Section 4(f) is determined in consultation with the FHWA and results in a Section 4(f) Evaluation, a Programmatic Section 4(f) Evaluation, or the application of Section 4(f) *de minimis*. The guidelines for full and programmatic evaluations can be found at the following web site: http://environment.fhwa.dot.gov/projdev/4fregs.asp.

Both the full and programmatic Section 4(f) evaluations generally include the following elements:

- Description of the proposed action
- Description of Section 4(f) properties; a brief description of the National Register of Historic Places eligibility is included for historic resources eligible for Section 4(f) protection.
- Detailed description of use of Section 4(f) properties
- Discussion of the project alternatives
- Detailed description of avoidance alternatives (e.g., No-Action Alternative, Improve highway without using Section 4(f) resource; build on new location) and why they are not considered feasible and prudent
- Least Harm Analysis (if necessary)
- Measures to minimize harm
- Coordination with officials having jurisdiction
- Final determination (for final Section 4(f) evaluations only)

Guidance regarding the application of Section 4(f) *de minimis* can be found at: http://www.fhwa.dot.gov/hep/guidedeminimis.htm.

SAFETEA-LU requires that the following must be met in order for the use of historic properties to be considered *de minimis*:

1. The Section 106 process results in a *no adverse effect* or *no historic properties affected* determination for the historic property.

2. The SHPO and Advisory Council on Historic Preservation (ACHP) (if participating) are informed of the FHWA's intent to make a *de minimis* impact finding based on their written concurrence in the Section 106 determination.

3. FHWA has considered the views of any Section 106 consulting parties participating in the Section 106 process.

When appropriate, a notification of *de minimis* is included in the Section 106 eligibility and effects determination correspondence to SHPO and the consulting parties. Both SHPO and the consulting parties are asked to acknowledge the *de minimis* notification.

RESPONSIBILITY

Depending on the scope of the undertaking and the level of the Section 4(f) evaluation, the consultant, the Region, or EPB/DTD staff (e.g., Senior Historian) will draft the documentation. Project engineers are often asked to develop avoidance alternatives information that will be included in Section 4(f) evaluations.

Stand-alone *de minimis* findings that are part of categorical exclusions are prepared once the Section 106 consultation on eligibility and effects is complete. These *de minimis* findings are prepared and submitted by the EPB or Region Senior Historian to FHWA Division Staff for review and approval. *De Minimis* findings that are included in NEPA documents may be prepared by the consultant, the Region, or EPB staff.

DEVELOPMENT/REVIEW SCHEDULE

Depending on the scope of the NEPA documentation (e.g., Categorical Exclusion (CE), Environmental Assessment (EA), Finding of No Significant Impact (FONSI), Environmental Impact Statement (EIS)), the Section 4(f) Evaluation may be a chapter in the NEPA document or a stand-alone report in cases where the documentation is programmatic or part of a CE. If the Section 4(f) Evaluation is part of the NEPA document (e.g., EA, EIS), it should be included in the draft NEPA document submitted to EPB for review.

Section 4(f) *de minimis* notification is included in the Section 106 determinations to SHPO and consulting parties. Section 4(f) *de minimis* findings may be stand-alone documents or may be included as part of the NEPA documentation (e.g., EA, EIS). Depending on the nature of the project and impacts to historic properties, it is possible to have both *de minimis* findings and a full Section 4(f) evaluation in a NEPA document.

In instances where Section 4(f) use is anticipated, identification of resources and consultation with officials with jurisdiction should begin early in the NEPA process to avoid having to reevaluate alternatives.

WHO REVIEWS IT

Section 4(f) Evaluations in NEPA reviews

- EPB or qualified Region Senior Historian reviews the draft Section 4(f) Evaluation in 11 working days from receipt of the document.
- FHWA Division office staff reviews the NEPA document for 15 working days.
- FHWA Legal has 30 days to review the draft document.

- Various outside agencies (e.g., US Department of Interior and US Department of Housing and Urban Development) and entities with jurisdiction over Section 4(f) resources have a 45-day review of the draft documentation.
- FHWA Legal sufficiency review is completed in 30 days.

Programmatic Section 4(f) Evaluations

- The time frame for the EPB or qualified Region Senior Historian review of the draft programmatic Section 4(f) varies, but is usually within 2 to 4 weeks.
- FHWA review of draft programmatic Section 4(f) Evaluations varies but is usually within 2 to 4 weeks.
- FHWA review of final programmatic Section 4(f) Evaluations varies but is usually within 1 to 2 weeks.

Section 4(f) in Categorical Exclusions

- EPB or qualified Region Senior Staff Historian review preliminary evaluations.
- FHWA Division Staff review preliminary draft evaluations in 15 working days.
- FHWA Legal has 30-day review.
- Outside agencies have 45-day review.
- FHWA internal and official legal sufficiency review in 30 days.

Section 4(f) *De Minimis* Findings

- EPB or qualified Region Senior Staff Historian submits Section 4(f) *de minimis* notification to SHPO and consulting parties, who have a 30-day review period.
- Once the Section 106 consultation on eligibility and effects is complete, the history staff prepares the *de minimis* finding. Preparation of this finding generally takes 1 to 2 weeks, but can take less time.
- FHWA Division Staff generally reviews the *de minimis* finding in 1-2 weeks.

WHO APPROVES IT

- The final Section 4(f) Evaluation included as a chapter in an EA or EIS is part of the signature process for the NEPA document and requires the signatures of the CDOT Region Transportation Director, the CDOT Chief Engineer, and FHWA (the Division Administrator for EISs, the Program Delivery Engineer for EAs).
- The final Programmatic Section 4(f) Evaluation is signed by EPB Manager, the Region Planning and Environmental Manager, and FHWA Division Administrator.
- Final stand-alone *de minimis* findings are signed by the FHWA Division Administrator. The *De Minimis* findings included in a chapter of an EA or EIS are part of the signature process for the larger NEPA document.

Methodology - Section 4(f) (Non-Historic Resources)

EPB/HEADQUARTERS CONTACT:

Yates Oppermann, Environmental Planning Specialist
(303) 757-9497
francis.oppermann@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY:

The level of documentation for Section 4(f) is determined in consultation with the FHWA and results in a Section 4(f) Evaluation, a Programmatic Section 4(f) Evaluation, or the application of Section 4(f) *de minimis*. The guidelines for full and programmatic evaluations can be found at the following web site: http://environment.fhwa.dot.gov/projdev/4fregs.asp.

Both the full and programmatic Section 4(f) evaluations generally include the following elements:

- Description of the proposed action
- Description of Section 4(f) properties
- Detailed description of use of Section 4(f) properties
- Discussion of the project alternatives
- Detailed description of avoidance alternatives (e.g., No-Action Alternative, Improve highway without using Section 4(f) resource; build on new location) and why they are not considered feasible and prudent
- Least Harm Analysis (if necessary)
- Measures to minimize harm
- Coordination with officials having jurisdiction
- Final determination (for final Section 4(f) evaluations only)

Guidance regarding the application of Section 4(f) *de minimis* can be found at: http://www.fhwa.dot.gov/hep/guidedeminimis.htm.

SAFETEA-LU requires that the following must be met in order for the use of parks, recreational resources, or wildlife refuges to be considered *de minimis*:

1. The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f);
2. The official(s) with jurisdiction over the property are informed of FHWA's or FTA's intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and

3. The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource.

RESPONSIBILITY

Depending on the scope of the project, staff workloads and the level of Section 4(f) evaluation, the consultant, Region or EPB staff will draft the documentation. Project engineers are often asked to develop avoidance alternatives information that will be included in the Section 4(f) evaluations.

Stand-alone *de minimis* findings that are part of categorical exclusions are prepared and submitted by the EPB or Region staff to FHWA Division Staff for review and approval. *De minimis* findings that are included in NEPA documents may be prepared by the consultant, the Region, or EPB staff.

DEVELOPMENT/REVIEW SCHEDULE

Depending on the scope of the NEPA documentation (e.g., Categorical Exclusion (CE), Environmental Assessment (EA), Finding of No Significant Impact (FONSI), Environmental Impact Statement (EIS)), the Section 4(f) Evaluation may be a chapter in the NEPA document or a stand-alone report in cases where the documentation is programmatic or part of a CE. If the Section 4(f) Evaluation is part of the NEPA document (e.g., EA, EIS), it should be included in the draft NEPA document submitted to EPB for review.

Section 4(f) *de minimis* findings may be stand-alone documents or may be included as part of the NEPA documentation (e.g., EA, EIS). Depending on the nature of the project and impacts to Section 4(f) resources, it is possible to have both *de minimis* findings and a full Section 4(f) evaluation in a NEPA document. NOTE: for those projects that do not otherwise require public involvement, it will be necessary to provide the public notice and opportunity to comment on any proposed impacts, avoidance, minimization, mitigation, and enhancement activities related to a *de minimis* finding.

In instances where Section 4(f) use is anticipated, identification of resources and consultation with officials with jurisdiction should begin early in the NEPA process to avoid having to reevaluate alternatives.

WHO REVIEWS IT

Section 4(f) Evaluations in NEPA reviews

- EPB staff review of the draft Section 4(f) Evaluation takes place during the time frame provided for the review of the NEPA document—11 working days from receipt of the document from the Region.
- FHWA Division office staff reviews the NEPA document for 15 working days
- FHWA Legal has 30 days to review the draft document.
- Various outside agencies (e.g., US Department of Interior and US Department of Housing and Urban Development) and entities with jurisdiction over Section 4(f) resources have a 45-day review of the draft documentation.
- FHWA Legal sufficiency review is completed in 30 days.

Programmatic Section 4(f) Evaluations

- The time frame for EPB review of draft programmatic Section 4(f) prepared by the Region or consultant varies, but is usually within 2 to 4 weeks.
- FHWA review of draft programmatic Section 4(f) Evaluations prepared by EPB, Region, or consultant varies, but is usually within 2 to 4 weeks.
- FHWA review of final programmatic Section 4(f) Evaluations varies but is usually within 1 to 2 weeks.

Section 4(f) in Categorical Exclusions

- EPB staff review preliminary evaluations.
- FHWA Division Staff review preliminary draft evaluations in 15 working days.
- FHWA Legal has 30-day review.
- Outside agencies have 45-day review.
- FHWA internal and official legal sufficiency review in 30 days.

Section 4(f) *De Minimis* Findings

- EPB staff review of the draft Section 4(f) *de minimis* finding takes place during the time frame provided for the review of the NEPA document—typically 11 working days from receipt of the document from the Region.
- FHWA Division Staff generally reviews the *de minimis* finding in 1-2 weeks.

WHO APPROVES IT

- The final Section 4(f) Evaluation included as a chapter in an EA or EIS is part of the signature process for the NEPA document and requires the signatures of the CDOT Region Transportation Director, the CDOT Chief Engineer, and FHWA (the Division Administrator for EISs, the Program Delivery Engineer for EAs).
- The final Programmatic Section 4(f) Evaluation is signed by EPB Manager, the Region Planning and Environmental Manager, and FHWA Division Administrator.
- Final stand-alone *de minimis* findings are signed by the FHWA Division Administrator. The d*e minimis* findings included in a chapter of an EA or EIS are part of the signature process for the larger NEPA document.

Section 6(f) Evaluation

Methodology

EPB/HEADQUARTERS CONTACT:

Yates Oppermann, Environmental Planning Specialist
(303) 757-9497
francis.oppermann@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

Section 6(f) of the Land and Water Conservation Fund (L&WCF) Act applies whenever a publicly owned recreational resource that utilized L&WCF funds is needed for transportation purposes (conversion). See Title 36, Part 59 of the US Code of Federal Regulations which outlines post-completion compliance responsibilities. The conversion requires coordination with Colorado State Parks. In most cases, Section 6(f) will apply only if Section 4(f) is applicable. Documentation of Section 6(f) coordination is often prepared in conjunction with an individual Section 4(f) evaluation. If a *de minimis* or Programmatic Evaluation is utilized for Section 4(f), then a separate discussion would be included in the NEPA documentation. For more information about Section 6(f) and the L&WCF please refer to the following web site: http://www.nps.gov/ncrc/programs/lwcf/fed_state.html.

RESPONSIBILITY

Normally the Section 6(f) coordination and documentation can be prepared by the Region or consultant as part of a Section 4(f) analysis, EPB staff, the Region, or the consultant may draft the documentation.

DEVELOPMENT/REVIEW SCHEDULE

The Section 6(f) coordination and documentation should follow the schedule established in the NEPA documentation (e.g., EA, EIS) should be included in the draft NEPA document submitted to EPB for review.

WHO REVIEWS IT

EPB staff review of the Section 6(f) chapter takes place during the time frame provided for the review of the NEPA document—11 working days from receipt of the document from the Region.

If Section 6(f) is referenced in the context of the Section 4(f) Evaluation, then the time lines provided for Section 4(f) reviews apply.

WHO APPROVES IT

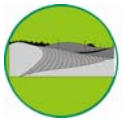
The Section 6(f) chapter included in an EA or EIS is part of the signature process for the NEPA document and requires those signatories, which includes the CDOT Regional Transportation Director, the Chief Engineer, and the FHWA Colorado Division Administrator). No Section 6(f) approval is necessary for the Section 6(f) documentation, but the description of the ongoing conversion procedures and requirements under the jurisdiction of the State Parks will be documented.

Section 6(f)(3) of the Land and Water Conservation Fund Act of 1965 as amended, is the cornerstone of federal compliance efforts to ensure that the federal investments in Land and Water Conservation Fund assistance are being maintained in public outdoor recreation use.

The two sections below provide guidance on the treatment of Section 6(f) evaluation for CDOT's NEPA projects. The first section discusses the process for evaluating Section 6(f). The second section discusses Section 6(f) evaluation information that should be in each NEPA document.

Farmlands

Methodology



EPB/HEADQUARTERS CONTACT:

Vanessa Henderson, NEPA Program Manager
(303) 757-9794
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PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

- The purpose is to determine if prime (land that has the best combination of physical and chemical characteristics for producing crops with minimum inputs of fertilizer, pesticides, and labor, and without intolerable soil erosion), unique (land other than prime farmland that is used for the production of high-value food and fiber crops such as fruits and vegetables), or statewide or locally important farmlands (land identified by state or local agencies for agricultural use, but not of national significance) are present in the project area and if they will be impacted by the proposed project (in accordance with the Farmland Protection Policy Act, 7 CFR 658).
- The Region or consultant contacts the Natural Resources Conservation Service (NRCS) for mapping and descriptions of prime, unique, or statewide or locally important farmland. Form AD-1006, Farmland Conversion Impact Rating is completed for projects that may impact important farmlands. Form NRCS-CPA-106 should be used for corridor projects.
- A farmland conversion impact rating score for the proposed project is established which is based on the severity of impacts on the farmland and other environmental considerations. If the site assessment criteria score is less than 60 points for each alternative, then Form AD-1006 need not be sent to the NRCS. If the score is 160 points or greater, an area qualifies as prime farmland and Form AD-1006 must be submitted to the NRCS. Alternatives to avoid farmland impacts should be discussed in the NEPA document. It is very important to avoid unique farmlands (e.g., orchards, vineyards, etc.) if at all possible because these farmlands are producing high-value foods.
- Prime farmland which is already in or committed to urban development is by definition not subject to the Farmland Protection Policy Act. Projects within the Census urban boundary are exempt from analysis.
- Measures to minimize and mitigate impacts to farmland should be included in the document if avoidance is not possible. Mitigation measures to consider include the replacement of any lost or damaged irrigation pipes and ditches and ensuring that all remaining farmland can be irrigated, as well as payment for any crops damaged during construction. If access to and from fields will be removed or impacted then provision of a way for the farmers to access all their fields is necessary.

REPONSIBILITY

The Region or consultant is responsible for working with the NRCS to ascertain if prime, unique, or statewide or locally important farmlands are in the area of the proposed project and evaluating impacts to farmlands.

DEVELOPMENT/REVIEW SCHEDULE

The Farmlands consultation/clearance must be completed during the development of the NEPA document and the results of this discussed in the document. In addition, a copy of the completed Farmland Conversion Impact Rating must be included in the document, as well as all correspondence to and from the NRCS.

WHO REVIEWS IT

There is no review. However, the results of the Farmlands consultation/clearance and the evaluation of alternatives to avoid and minimize impacts as well as any mitigation measures are discussed in the NEPA document which is reviewed by CDOT (Region and EPB) and FHWA.

WHO APPROVES IT

No approval is required for the Farmlands consultation/clearance other than review and agreement with the discussion included in the NEPA document. The NRCS of the US Department of Agriculture is involved in the determination of the presence of prime, unique, or statewide or locally important farmlands.

Noise

Methodology

EPB/HEADQUARTERS CONTACT:
Zac Graves, Noise Specialist
(303) 757-9016
zac.graves@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

A ***detailed*** documentation of the noise analysis performed for the project, to include:

- General discussion of noise characteristics
- Noise Regulation Summary
- Noise level predictions for existing and future conditions
- Impact Determination
- Mitigation Analysis, if necessary
- Conclusions and Recommendations
- Relevant maps, figures, and copies of data files used for modeling (TNM v2.5) preferably on a CD, but hard copies are acceptable.

This document is summarized for the corresponding chapter in the EA or EIS.

RESPONSIBILITY

This document is to be prepared by the technical personnel who performed the noise analysis. For 95% of our projects, a consultant performs the analysis, but in certain instances this could be either the Region or EPB specialist.

DEVELOPMENT/REVIEW SCHEDULE

It is best to have the noise report prepared prior to the NEPA document, so that it can be reviewed and comments resolved prior to the preparation of the NEPA document. Concurrent review of the noise study and EA/EIS is acceptable, although the noise report will have many of the same comments as the NEPA document itself. Ultimately, this document needs to be finalized and be ready for release with the EA/EIS. If the project is a CE, the noise report will be the clearance document, which will then be part of the CE file. Eleven working days are required for review.

WHO REVIEWS IT

The resource methodology—usually in the form of a technical report—is normally reviewed only by EPB or the Region. If it is a controversial project, FHWA may request to review the document at their discretion (FHWA review may take longer).

WHO APPROVES IT

The noise report does not require a formal signature, but needs to be reviewed by technical experts and does require evidence that all comments in all reviews be documented and addressed prior to final publication.

Visual Resources/Aesthetics

Methodology

EPB/HEADQUARTERS CONTACT:

For Regions 1, 4, and 6:
Cathy Curtis, Landscape Architect
(303) 757-9174
cathy.curtis@dot.state.co.us

For Regions 2, 3, and 5:
Mike Banovich, Landscape Architect
(303) 757-9542
michael.banovich@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

Visual Resource Analysis includes:

- Corridor limits
- Description of the characteristic landscape; survey of existing vegetation, climate, landforms, water features, visual geology and cultural modifications.
- Views from the study area and recreation areas.
- If in USFS lands than a detailed visual analysis utilizing FHWA's Visual Prioritization Process (VPP) is required documenting the landscape character and existing visual conditions as well as sensitive views within and adjacent to the proposed alternatives.
- Recommendation to prepare a Corridor Improvements Management Study and Design Guidelines: Colors and Finishes, Architectural Treatments-Sound Wall, Retaining Walls, Bridges, Lighting, Signage and Landscape Treatments.

RESPONSIBILITY

Study Corridor Landscape Architect

DEVELOPMENT/REVIEW SCHEDULE

- All studies should include a description of the characteristic landscape.
- FHWA's Visual Prioritization Process (VPP) may be required to select alternative with least visual impact and id mitigation measures. VPP is required within FS lands. (FS/CDOT MOU).
- Design Guidelines can be developed during the project design scoping phase.

WHO REVIEWS IT

- Match study schedule review times.

- USFS Landscape Architect if on US Forest Service lands.
- EPB and or Region Landscape Architect
- Local agencies' Landscape Architect or Engineers
- Maintenance/operation involved in maintenance of corridor

WHO APPROVES IT

No external agency review or external agency signature required if for projects not on FS lands.

Recommended to obtain region and local agency approval when within urban corridors.

US Forest Service Forest Landscape Architect approval if on US Forest Service lands.

BLM if on Bureau of Land Management lands.

Hazardous Materials

Methodology

EPB/HEADQUARTERS CONTACT

Theresa Santangelo, Supervisor, Hazardous Waste Unit
(303) 512-5524
theresa.santangelo@dot.state.co.us (Primary Contact)

Andy Flurkey, Hazardous Waste Specialist
(303) 512-5520
andy.flurkey@dot.state.co.us

PURPOSE AND SCOPE OF RESOURCE METHODOLOGY

The Modified Phase I Environmental Site Assessment (MESA) report is:

- Required when completed Initial Site Assessment (ISA) checklist defines potential hazardous waste impacts to a subject project
- Performed in accordance with American Standard for Testing Materials (ASTM) Standard E1527 for the Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.
- Modified at some locations to include additional CDOT-specific issues and an expanded search radius.
- Includes additional information including:
  - Brief description of CDOT's plans such as acquisition, partial acquisition, excavation, dewatering, and other issues which affect hazardous materials liability in acquisition and excavation
  - Brief description of topography, geology, and groundwater hydrology.

The site-specific Phase I Environmental Site Assessment involves:

- Environmental Database review and historical research of the subject property
- Site reconnaissance (windshield survey)
- Interviews with knowledgeable persons including owners and occupants and current and previous employees of subject property and government officials
- Report preparation by an environmental professional.

The report scope includes:

- Maps of the property area
- Copies of pertinent public file records
- Description of the site and information gathered

- Discussion of results including an assessment of the potential for hazardous waste issues at and around the subject property
- Recommendations for follow-up actions.

A Phase II Site Investigation (Phase II) is performed if the site-specific Phase I Environmental Site Assessment defines Recognized Environmental Concerns (RECs) which may impact the subject property. A Phase II includes intrusive activities to help define the REC impacts on the site such as:

- Subsurface drilling and soil, water and other media sampling
- Building and facility inspections
- Assessment of the natural conditions of the site which are affected by the RECs.

The report scope includes:

- Description of the work performed
- Results and conclusions including maps, analytical data, boring logs, and text descriptions
- Recommendations for follow-up actions to limit CDOT liabilities from the hazardous waste concerns.

RESPONSIBILITY

- ISA checklist is done by CDOT Regional staff.
- Site-specific Phase I Environmental Site Assessment typically done by consultants, occasionally by Region staff.
- Phase II work done by consultants under supervision of Region staff.

DEVELOPMENT/REVIEW SCHEDULE

- Site-specific Phase I Environmental Site Assessment needed on all projects where RECs are identified on the ISA Checklist
- MESA and Phase II performed typically prior to the CatEx, draft EA or EIS, and in all cases prior to site acquisition
- If hazardous waste issues are significant and may drive decisions in the EA or EIS, the MESA and Phase II should be completed well in advance of the draft EA/EIS. In these cases, the hazardous waste issues may exclude the project from being completed as a CatEx.

WHO REVIEWS IT

- Site-specific Phase I Environmental Site Assessments reviewed by Region and HQ Hazardous Materials staff, and at least a month is preferred for review time.
- Final MESAs and Phase IIs reviewed by external agencies, FHWA, legal, and other external entities during the draft EA/EIS/CatEx phase (?)
- Phase II Site Investigations need review by Region and HQ Hazardous Materials staff at draft and final Sampling and Analysis Plan preparation, and of both the draft and final reports.

WHO APPROVES IT

No formal signature approval. The hazardous materials reports are required to be signed by an environmental professional once approved by CDOT Regional staff.

ATTACHMENT 2 – FHWA STANDARD MSAT LANGUAGE

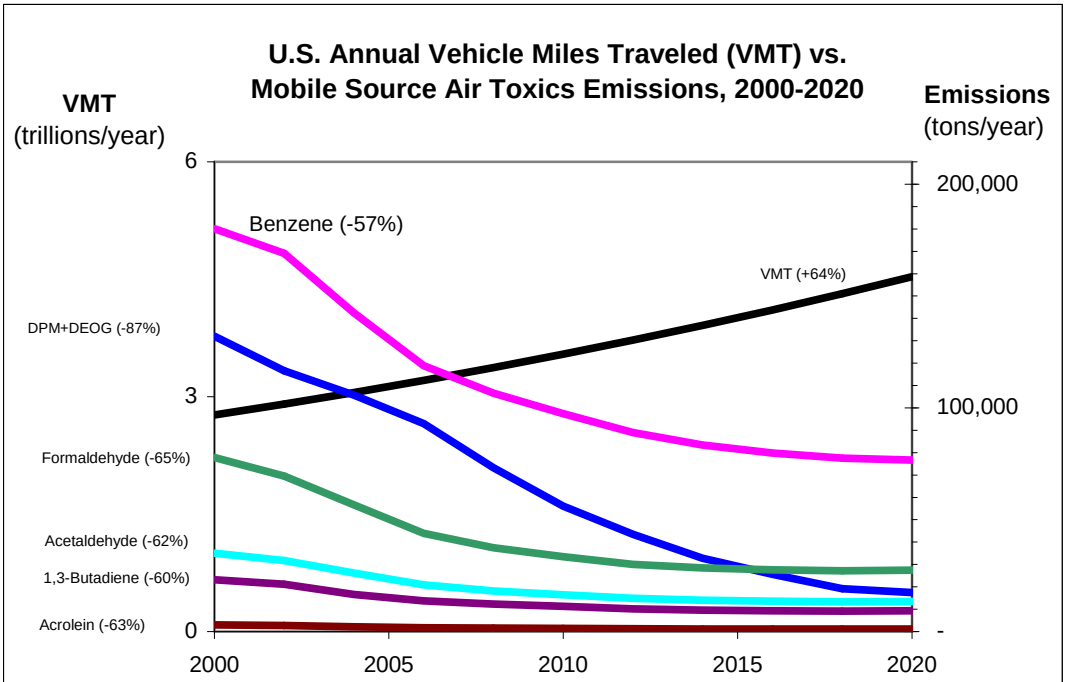
1.1.1 Mobile Source Air Toxics

On February 3, 2006, the FHWA released its interim guidance on when and how to analyze MSATs in the NEPA process for highways. The following discussion is in accordance with the interim guidance.

In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries). The FHWA has prepared guidance (dated February 3, 2006) on the analysis of mobile source air toxics for highway projects.

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. See document No. EPA420-R-00-023 (December 2000).

The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. 66 FR 17229 (March 29, 2001). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown in the following graph:



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: *Highway Statistics 2000*, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.

As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

Unavailable Information for Project Specific MSAT Impact Analysis

This [EA or EIS] includes a basic analysis of the likely MSAT emission impacts of this project. In FHWA's view, the lack of a national consensus on an acceptable level of risk and other air quality criteria assumed to protect the public health and welfare, as well as the reliability of available technical tools do not enable us to predict with confidence the project-specific health impacts of the emission changes associated with the alternatives evaluated in this [EIS or EA]. The outcome of such an assessment would be influenced more by the uncertainty introduced into the process by the assumptions made rather than any real insight into the actual health impacts from MSAT exposure directly attributable to the proposed action. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information.

Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements; chief among them is what constitutes an "acceptable level" of risk. Incremental risk levels from a new source which are projected to be less than 1 in 1 million are generally considered to be negligible; while, incremental risk levels greater than 100 in 1 million are generally considered to be unacceptable. Indeed, the EPA prevailed in a recent U.S. Court of Appeals for the District of Columbia decision (Natural Resources Defense Council v. Environmental Protection Agency, No. 07-1053, June 8, 2008) that its 2006 hazardous organic NESHAPs (National Emission Standards for Hazardous Air Pollutants) rule reduced emissions to levels that present "an acceptable level of risk and protect public health with an ample margin of safety" at risks less than 100 in 1 million. EPA's benzene NESHAPs is also based on reducing risks to less than 100 in 1 million.

There is also no national consensus on dose-response values for MSATs. For instance, the EPA provides ranges of air concentrations at specific risk levels for lifetime exposure to benzene, with uncertainty spanning perhaps an order of magnitude. The practical uncertainty is even greater, because the California Air Resources Board (CARB) puts the air concentration risk levels for benzene at an order of magnitude less than equivalent EPA values. In addition, most notably, CARB has implemented an air concentration risk level for diesel PM; whereas, the EPA has not. EPA states in their risk assessment of diesel PM entitled "Health Assessment Document for Diesel Exhaust" (Office of Research and Development, EPA/600/8-90/057F, May 2002, pp 8-15, http://www.epa.gov/risk/basicinformation.htm#g) that:

> "an exploratory risk analysis shows that environmental cancer risks possibly range from 10-5 to nearly 10-3, while a consideration of numerous uncertainties and assumptions also indicates that lower risk is possible and zero risk cannot be ruled out. These risk findings are only general indicators of the potential significance of the lung cancer hazard and should not be viewed as a definitive quantitative characterization of risk or be used to estimate an exposure-specific population impact".

In contrast to EPA's risk assessment for diesel PM, there is little-to-no documentation as to precisely how the CARB unit risk value for diesel PM was obtained, nor precisely on what it is based. The uncertainties in the unit risk value for diesel PM are exceptionally large, since epidemiological studies of diesel engine exhaust do not consistently find that exposure to diesel PM causes cancer (cohorts of underground miners exposed to the highest concentrations of diesel PM, for example, appear to have no excess risk of lung cancer). Thus, the EPA has found that the available epidemiological data do not support the development of any unit risk value for diesel PM.

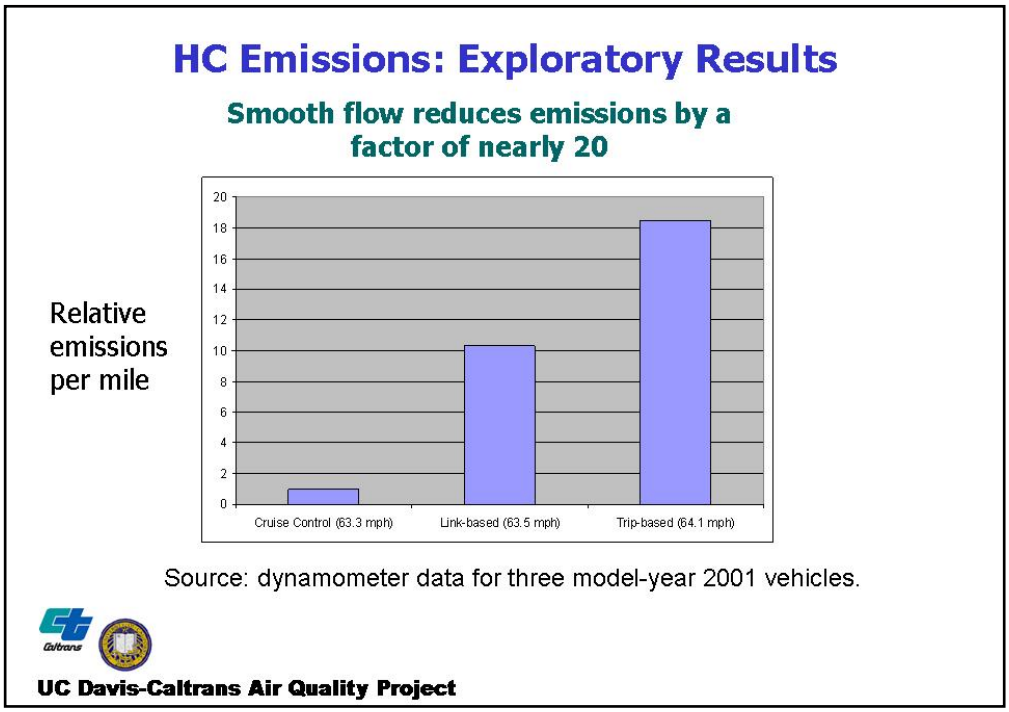
An association between an incremental increase in traffic volumes and the risk level generally considered unacceptable is implied in a screening-level risk analysis included in the National Cooperative Highway Research Program (NCHRP) report entitled "Analyzing, Documenting, and Communicating the Impacts of Mobile Source Air Toxic Emissions in the NEPA Process" (NCHRP 25-25 Task 18, March 2007). For freeways, an incremental increase in traffic volumes of 125,000 to 443,000 AADT is linked with an incremental 1 in 1 million risk level, based on EPA's range of unit risk values for benzene. The analysis was conducted for an overly simplified exposure condition, assuming that emission levels associated with a 2010 vehicle fleet would persist for 70 years, discounting the recognized significant mitigation associated with EPA's Tier 2 and heavy-duty truck emissions standards and the 2007 MSAT rule. By extension, based on the same over-simplification, an incremental increase in freeway traffic volumes of 1,250,000 to 4,430,000 AADT are associated with a 10 in 1 million risk level and an incremental increase in freeway traffic volumes of 12,500,000 to 44,300,000 AADT are associated with a 100 in 1 million risk level – the level above which is generally considered unacceptable. The inherent assumption is that EPA is correctly estimating

benzene and diesel PM air concentration risk levels and CARB's estimates are incorrect. Different results and conclusions would be obtained if the reverse is true or if neither EPA nor CARB is correct. Consequently, FHWA finds that there is considerable uncertainty associated with estimates of adverse residual risk after implementation of EPA's 2007 MSAT rule and other control programs.

According to EPA in their Air Toxics Risk Assessment Reference Library, risk and hazard estimates are typically reported as one significant figure. Based on the NCHRP screening-level risk analysis model, the ability to discern between a 1 in million risk level and a 2 in 1 million risk level is associated with a freeway traffic volume increase of 125,000 to 443,000 AADT. In FHWA's view, risk assessment methodologies applied to highway projects are a blunt instrument.

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 also encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

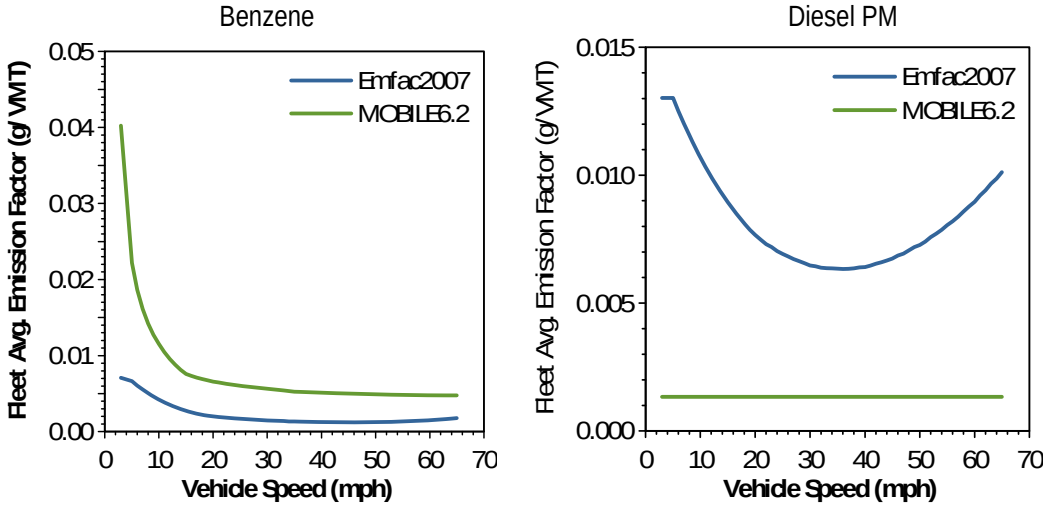
1. Emissions: EPA characterizes their MOBILE6.2 emission factor model as a regional model and not a project-level model. It is a trip-based model, where emission factors are projected based on a "typical" trip of 7.5 miles and vehicle speeds averaged over the trip. MOBILE6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this, it has limited applicability at the project level. EPA will be addressing this limitation in its MOVES model, a replacement to MOBILE6.2. The implication of this limitation is illustrated and noted by UC-Davis in Figure 1, i.e., "Smooth flow reduces emissions by a factor of nearly 20", which cannot be reflected in a trip-based or link-based model. Similar results have been found in analyses by UC Riverside (Barth, for CO2) and NC State (Frey, for multiple pollutants).



Even within the confines of regional emissions modeling, EPA and CARB have a different view of what MSAT emissions would look like from a future vehicle fleet required to meet identical vehicle emission standards. Although the same basic concepts were used in developing their respective mobile source emission factor models, widely disparate results are produced for MSATs. EPA's MOBILE6.2 model generally predicts higher emission factors for benzene compared to CARB's Emfac2007 model. Emfac2007 generally predicts higher emission factors for diesel PM compared to MOBILE6.2. Figure 2 provides a comparison of emission factors produced by the models for benzene and diesel particulate matter for the 2030 calendar year. Notice that diesel PM emission factors from MOBILE6.2 do not vary with speed; in Emfac2007 they do. In part, because of this, EPA has concluded that (71 FR 12498):

> "we continue to believe that appropriate tools and guidance are necessary to ensure credible and meaningful PM2.5 and PM10 hot spot analyses. Before such analyses can be performed, technical limitations in applying existing motor vehicle emission factor models must be addressed, and proper federal guidance for using dispersion models for PM hot spot analysis must be issued. With the release of MOBILE6.2, state and local transportation agencies now have an approved model for estimating regional PM2.5 and PM10 emission factors in SIP [State Implementation Plan] inventories and regional emissions analyses for transportation conformity. However, MOBILE6.2 has significant limitations that make it unsatisfactory for use in microscale analysis of PM2.5 and PM10 emissions as necessary for quantitative hot-spot analysis."

The limitations noted by EPA equally apply to diesel PM emission factors.



2. Dispersion. The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated with emission rates from the MOBILE4 model more than a decade ago. Based on updated emission rates to MOBILE5, an extensive evaluation of the CAL3QHC model was conducted in an NCHRP study as part of the development of the HYROAD model. The study report documents poor model performance at ten sites across the country, 3 where intensive CO monitoring was conducted plus an additional 7 with less intensive monitoring. The report is available online from EPA at www.epa.gov/ scram001/dispersion_alt.htm#hyroad.

3. Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to reliably forecast long-term concentrations of MSATs near roadways, and to determine the portion of time that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for lifetime, 70-year risk 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. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by the Health Effects Institute (HEI).

   For example, consider the exposure-response relationship for alcoholic beverages. Alcoholic beverages are established causes of cancer in humans; about 3% of all cancers world-wide are thought to be caused by over-consumption of alcoholic beverages. There is a clear dose-response relationship for alcoholic beverages, with risk of cancer death increasing (essentially) linearly for exposures ranging from 2 drinks per day through 6-plus drinks per day. But there is neither evidence nor reason to suppose that, for example, 1 or 0.5 drinks per day also increase people's risk of cancer death. Indeed, the exposure-response data,

> interestingly enough, show a "J-shaped" dose response relationship, such that people consuming 1 drink per day are significantly less likely to die of cancer than those who drink no alcoholic beverages. If one were to make the standard "regulatory style" assumption about low-level exposure to alcohol, one would both vastly overestimate the cancer risk, and also miss entirely what turns out to be a low-level protective effect. In such a case, it would hardly be "erring on the side of public health" to estimate that exposures that are orders of magnitude smaller than the 2 drinks-per-day cancer-effect-level put people at risk of cancer. This is not to say, of course, that very-low-level exposures to MSAT emissions prevent cancer; nor is it to assert that such exposures are demonstrably or obviously safe. It is only to point out that extrapolation beyond observable exposures and responses are at best an uncertain business and become increasingly uncertain the farther one strays from the empirical data.

Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating 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 [name specific benefits with available supporting statistics, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response] that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or state level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized MSATs was taken from the IRIS database Weight of Evidence Characterization summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- Benzene is characterized as a known human carcinogen.
- The potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- Formaldehyde is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- 1,3-butadiene is characterized as carcinogenic to humans by inhalation.

- Acetaldehyde is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.

- Diesel exhaust (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.

- Diesel exhaust also represents chronic respiratory effects, possibly the primary non-cancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes – particularly respiratory problems.[1] Many health studies use an epidemiological approach to relate the possibility of harm due to the proximity to the roadway. FHWA has concerns about reaching conclusions regarding health impacts from highway emissions based on proximity studies in areas known to exceed ambient air quality standards, such as the recent study by Dr. James Gauderman, et al., entitled "Effect of Exposure to Traffic on Lung development from 10 to 18 Years of Age: A Cohort Study". These studies do not measure specific pollutants but only roadway proximity, so any reported negative health impacts may be due to either the criteria pollutants or MSATs. Epidemiological studies suffer from the limitation that they cannot by their very nature establish causality. They may indicate statistical associations, but other confounding factors may be missed and may represent the true cause of the impact. Furthermore, not all studies show a negative impact. For example, the "Long term Effects of Traffic-Related Air Pollution on Mortality", Beelen et al., only found weak associations between proximity to major roadways and health effects. This fact was also reported as a major shortcoming in health studies of this nature in, "Does Traffic-Related Air Pollution Contribute to Respiratory Disease Formation in Children", M. Jerritt, ERJ 2007, Vol. 29. In his review, Jerritt also points out another shortcoming in recent health studies dealing with determining the effect of proximity. He points out that most of these studies utilize a basic measure of distance to roadway as a proxy of exposure; however, because of the variable nature of particles and gaseous pollutants, the true variability of air pollutants within the neighborhood scale needs to be captured to identify the health effects of specific components of the air pollution mixture. Additionally, he states "exposures assigned on distance to traffic or traffic counts near the home are prone to . . . errors . . . and biased results".

Because analytical methodologies vary greatly between individual health studies, and all studies have limitations, it is not practical to draw definitive conclusions based solely on individual studies. Rather the total body of literature needs to be consulted before conclusions can be made. To that end, the Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The first study was completed and the findings published last year in Special Report 16 – *Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects*, available online at http://pubs.healtheffects.org/getfile.php?u=384. For each of the MSATs reviewed, the analysis answers three questions:

[1] South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-III (2007); Highway Health Hazards, The Sierra Club (2004) summarizing 24 Studies on the relationship between health and air quality); NEPA's Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles, Environmental Law Institute, 35 ELR 10273 (2005) with health studies cited therein.

1. To what extent are motor vehicles a significant source of exposure?

2. Does it affect human health?

3. Does it affect human health at environmental concentrations?

HEI concludes that exposure to many MSATs comes from sources other than vehicles and that mobile sources are the primary sources of exposure for only a few of the 21 MSATs listed by the EPA in its 2001 Rule. For many of the MSATs reviewed, HEI concluded that there is insufficient data for an assessment of ambient exposures on human health.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of Impacts Based Upon Theoretical Approaches or Research Methods Generally Accepted in the Scientific Community

Given the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be reliably made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

In this document, FHWA has provided a quantitative analysis of MSAT emissions relative to the various alternatives, (or a qualitative assessment, as applicable) and has acknowledged that (some, all, or identify by alternative) the project alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be reliably estimated.

1.1.1.1 Project Level MSAT Discussion

As discussed above, FHWA believes technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this transportation project (see Appendix G for more information). However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the transportation project level, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give 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: http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm.

For the Preferred and Optional Alternatives in the EA, the amount of MSATs 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 Optional Alternative is slightly higher than that for the No Action and Preferred Alternatives, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. The increase in VMT would lead to higher MSAT emissions for the 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 MOBILE6.2 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the Alternatives are nearly the same, 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 MSAT emissions by 57 to 87 percent between 2000 and 2020. 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 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 MSATs could be higher under the build alternatives than the No Action Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded _____roadway sections that would be built between _____ However, as discussed above, the magnitude and the duration of these potential increases compared to the No Action Alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a highway is widened and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Action Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs 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.

1.1.2 Mitigation

Motor vehicle emissions in the study area would not result in any exceedance of the NAAQS; therefore, no direct project air quality mitigation is necessary. During construction, dust emissions should be minimized by including techniques to control fugitive dust.

1.1.3 Coordination

_____ improvements to _____ have been included in the DRCOG 2030 fiscally-constrained, conforming RTP. This project has been coordinated with CDOT and the APCD of the CDPHE.

ATTACHMENT 3– CDOT GUIDANCE ON *DE MINIMIS* DETERMINATIONS FOR NON-HISTORIC 4(F) RESOURCES

Section 6009(a) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), amended existing Section 4(f) legislation to simplify the processing of projects that have only *de minimis* impacts on resources protected by Section 4(f). This provision provides that once the U.S. Department of Transportation (U.S. DOT) determines that a transportation use of a Section 4(f) resource, after consideration of any avoidance, minimization, and mitigation or enhancement measures, results in a *de minimis* impact on that resource, an analysis of avoidance alternatives is not required, and the Section 4(f) evaluation process is complete. However, in order for the Federal Highway Administration to make a 4(f) determination, certain requirements must still be met. These processes differ between historic and non-historic 4(f) resources. Outlined in this document is guidance on the process necessary for compliance with the Section 4(f) *de minimis* finding for non-historic 4(f) resources.

This document is intended to supplement and support the FHWA *de minimis guidance*: http://www.fhwa.dot.gov/hep/qasdeminimus.htm.

Parks, Recreational Resources, and Wildlife Refuges

The following procedures must be met in order for the impacts to parks, recreational resources, and wildlife refuges to be considered *de minimis.*

SAFETEA-LU requires that in order for the use of parks, recreational resources, or wildlife refuges to be considered *de minimis*:

1. The transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f);
2. The official(s) with jurisdiction over the property are informed of FHWA's or FTA's intent to make the *de minimis* impact finding based on their written concurrence that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); and
3. The public has been afforded an opportunity to review and comment on the effects of the project on the protected activities, features, and attributes of the Section 4(f) resource.

Public Involvement

If the use of a park, recreational, or wildlife refuge is being considered as part of a NEPA process with its own public involvement process, no separate public involvement is required for Section 4(f) *de minimis* as long as the proposed impacts and finding have been adequately disclosed as described below. However, for those projects that do not otherwise require public involvement, it will be necessary to provide the public notice and opportunity to comment on any proposed impacts, avoidance, minimization, mitigation, and enhancement activities related to a *de minimis* finding.

Public involvement should be appropriate to the individual project. While there are no specific requirements as to what the public involvement must include, it must at a minimum provide the public with published notice of the anticipated use of the park, recreational resource, or wildlife refuge, the anticipated effects on the activities, features, and/or attributes, and provide a reasonable opportunity for the public to respond. If only written comments are being

accepted, a minimum of 30 calendar days from publication of the notice must be provided to allow ample time for written comments to be received. Other methods used for public input (public meetings, phone comment line, website, etc.) must provide at a minimum 14 calendar days for public comments. If a public meeting is to be used for comment, published notice given before the meeting must be consistent with CDOT's public involvement procedures.

During a major environmental processes, the Environmental Assessment (EA) or the Draft Environmental Impact Statement (DEIS) is the primary vehicle for meeting public notice and comment requirements for the *de minimis* process. Public notice of the availability of the EA or DEIS where a *de minimis* finding is being pursued must also include notice that comments are being specifically requested related to the *de minimis* impacts in addition to the NEPA process as a whole. The public notice shall identify each non-historic resource for which a *de minimis* finding will be sought and public input is being requested. If appropriate for the EA/EIS process, public notice and comment activities specific to the *de minimis* process may be used.

For public meetings, open houses, or other formal public involvement activities being used to meet the public notice and comment requirements for a *de minimis* finding, the properties and the impacts and avoidance, minimization, mitigation, and enhancement activities related to the properties must be individually discussed and public comment requested. For EAs and DEISs in which this process is followed, no additional public involvement activities are required.

Within the Section 4(f) chapter of the EA or DEIS, the 4(f) resources where a *de minimis* finding will be requested should be clearly identified including:

- Name
- Official with Jurisdiction
- 4(f) applicability (park, recreational resource, or wildlife refuge)
- Use and impacts associated with alternatives still under consideration
  - Do not include no-action alternatives
  - Any impact avoidance, minimization, and mitigation or enhancement measures that are included in the project as part of the *de minimis* impact expectations
- All consultation and public involvement activities related to the resource that have already occurred and the results of these activities, particularly as they relate to avoidance, minimization, mitigation, or enhancement activities.
- Recommendation that these uses/impacts are *de minimis*

<u>Concurrence from the Official with Jurisdiction (OWJ)</u>

Consultation with the OWJ should begin as early in the project environmental review process as possible. Before public involvement, the project team and the OWJ should be in general agreement as to the potential level of impacts

to the 4(f) resource as well as have general agreement concerning avoidance, minimization, mitigation, and enhancement measures that will be presented to the public for comment.

Concurrence from the official with jurisdiction requires written documentation of the consultation with the OWJ. This can be done with a letter or written resolution from the OWJ. CDOT, or its consultant, may draft a letter which includes the OWJ's concurring signature. The documentation must outline:

- The consultation that has taken place,
- Any effects that the project will have on any of the activities, features and/or attributes that qualify the property as a Section 4(f) resource,
- Public Involvement activities for the resource including any changes to proposed actions that resulted from public input which both CDOT and the OWJ agree to include in the project.
- A summary of the minimization, mitigation, and enhancement measures that will be necessary, and
- Concurrence from the Official with Jurisdiction that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f). The following language should conclude the letter:

> As the official with jurisdiction over INSERT NAME OF PARK, RECREATIONAL RESOURCE, OR WILDLIFE REFUGE, I hereby concur with the recommendation of the project proponents that the use and impacts associated with this project along with the identified avoidance, minimization, and mitigation measures, will not adversely affect the activities, features, and attributes that qualify the property for protection under section 4(f)

While this letter will be used to demonstrate consultation with the OWJ submitted to the Federal Highway Administration, it is important to document all consultation activities with the OWJ in the project file.

De minimis finding by FHWA

A *de minimis* finding must be made for each separate 4(f) resource for which *de minimis* is appropriate. A single finding cannot be made on a project as a whole.

Only the U.S. DOT agencies have authority to make Section 4(f) *de minimis* findings. As appropriate for the project, this can be accomplished as part of the Record of Decision (ROD), as part of the Final Environmental Impact Statement (FEIS) as part of the Finding of No Significant Impact (FONSI), or as a separate *de minimis* finding process.

A *de minimis* or other 4(f) finding will be required in cases where a design modification changes the use of a 4(f) resource after the original NEPA process has been completed. Design modifications can occur during final design or as part of a supplemental EIS in which the design of the project is being modified. Design changes that modify use of a 4(f) resource may be identified during a supplemental EIS process (23 CFR §771.130), as part of a re-evaluation

(23 CFR §771.129) or during FHWA's review and approval of a project's plans, specifications and estimates for a project (23 CFR §635.309).,

In cases where the *de minimis* finding is being requested as a part of the FONSI, FEIS, or ROD, the following information must be included as a separate and independent section of the FONSI, FEIS or ROD. This section must include the following information:

- Identification of non-historic 4(f) resources for which a *de minimis* determination is being requested
- Identification of Official with Jurisdiction for each non-historic 4(f) resource
- Identification of the features, functions, and attributes that qualify the resource for protection under 4(f)
- Outline of Public Involvement activities for each resource seeking a *de minimis* finding including any changes to proposed actions that resulted from public input.
- Impacts to each non-historic 4(f) resource where a *de minimis* finding is being requested including physical use of the non-historic resource and any impacts to associated features, attributes or activities
- Statement of commitments for including all possible planning to minimize harm to the resource, which includes efforts to minimize impacts as well as any enhancement and mitigation measures
- Statement that concurrence has been received from any applicable Officials with Jurisdiction

To the extent possible, project teams are encouraged to provide this information in tabular form and use maps or other visual representations where such representations help clarify information.

Appendices for the Section 4(f) *de minimis* finding must include a written concurrence from the Official with Jurisdiction (as outlined above) and coordination activities for each property for which *de minimis* is being requested and any and all public involvement materials and public comments.

FHWA finding language must conclude the *de minimis* finding request for each specific resource in the FONSI, FEIS, or ROD (see Sample FHWA finding language below).

A copy of all *de minimis* materials must be submitted to EPB for review and approval before the FONSI, FEIS or ROD is submitted for signature.

In cases where the *de minimis* finding is being requested as part of a Categorical Exclusion or situations where a formal environmental review is not required, the coordination with the Official with Jurisdiction and the public involvement process described in this guidance still apply. For these situations, a CDOT Section 4(f) specialist will prepare a letter formally requesting the *de minimis* finding from FHWA that includes the finding language below:

Sample FHWA finding language:

The Federal Highway Administration hereby finds that:

- CDOT has consulted with the official(s) with jurisdiction on the uses and impacts to the non-historic 4(f) resource from the proposed [Project]
- The public has been given an opportunity to provide input,
- The official(s) with jurisdiction concur that the project will not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f). The FHWA finds that the Project will have de minimis impacts on the non-historic Section 4(f) resources for purposes of Section 6009 of SAFETEA-LU (to be codified at 23 U.S.C. § 138(b) and 49 U.S.C. § 303(d)).

Therefore, all Section 4(f) requirements, as they relate to these uses, have been met.

Scheduling Considerations

The regulations are intended to simplify the processing and approval of projects that have only *de minimis* impacts on lands protected by Section 4(f). However, there are aspects to the process that must be considered when evaluating whether a *de minimis* determination should be pursued. The Environmental Project Manager should weigh the following factors which may alter the existing schedule:

- Educating the Official with Jurisdiction on the Section 4(f) and *de minimis* process to the extent necessary to obtain its written concurrence.
- Consultation with the OWJ can and should begin early in the process. However, the public's opportunity to comment on the impacts to the resource may not occur until late in the process. Obtaining the OWJ's written concurrence should be sought shortly after the public comment period has been completed.
- There is risk involved in pursuing a *de minimis* determination where a finding of no adverse impact is tenuous. In cases where it is not clear, demonstrating to FHWA that the impacts are not adverse will require additional justification.

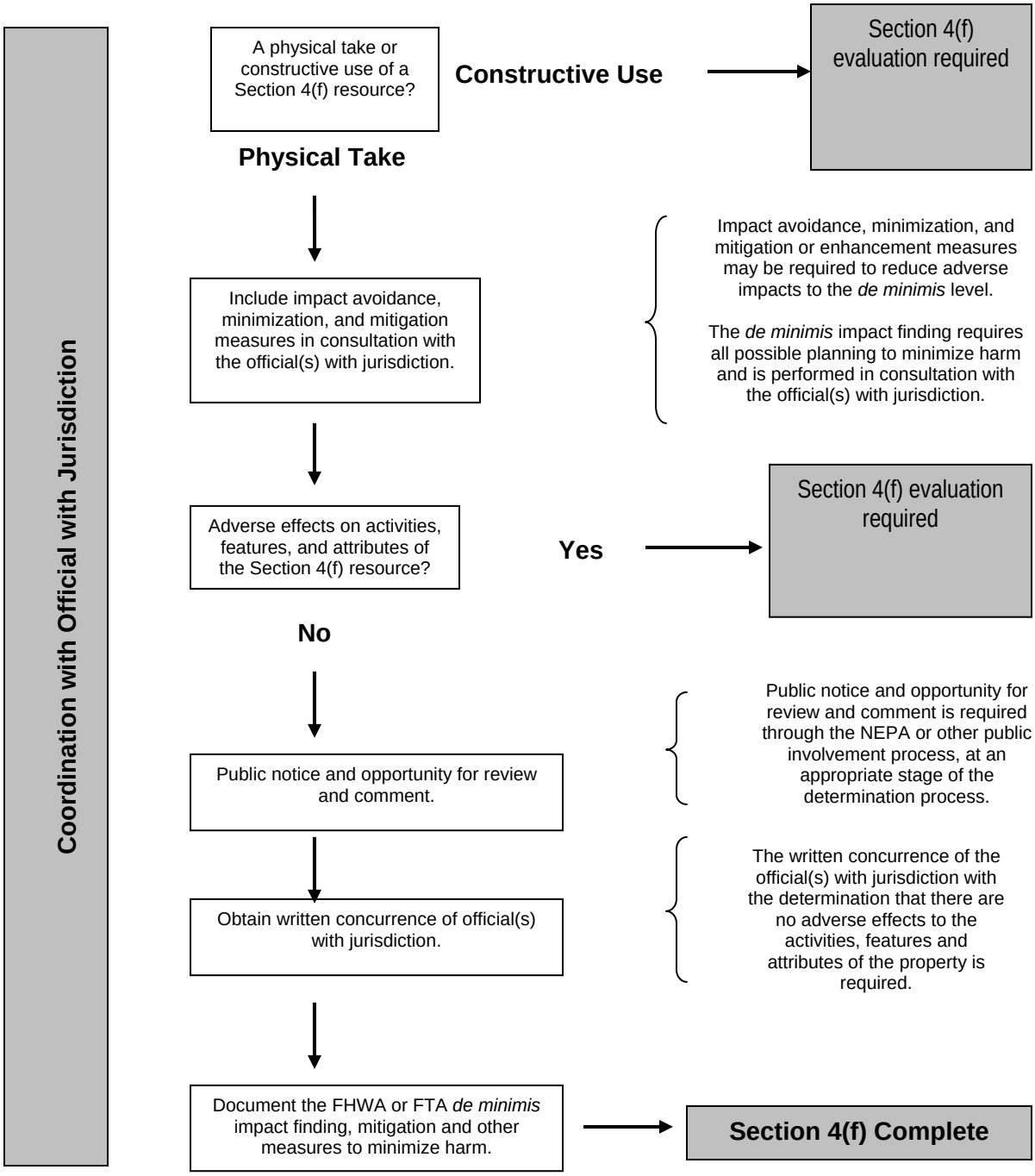
Tracking and Reporting

FHWA must make periodic reports as to how the *de minimis* exemption is being used. Tracking will include:

- Project name
- Expected project construction date
- Total 4(f) use and effects
- Any proposed 4(f) mitigation for the project

Additionally, as part of the project close out, a final letter should be included in the project file, and submitted to FHWA by the project manager outlining the final 4(f) use and effects.

Suggested Section 4(f) *De Minimis* Impact Determination Process for Parks, Recreation Areas, and Wildlife and Waterfowl Refuges
(Modified from FHWA *de minimis* guidance)



ATTACHMENT 4– FHWA STANDARD GLOBAL CLIMATE CHANGE LANGUAGE

Global Climate Change Cumulative Effects Discussion

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 (CO_2) emissions – the predominant GHG. In 2004, the transportation sector was responsible for 31 percent of all U.S. CO_2 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 CO_2 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 CO_2 emissions standards and to reduce vehicle travel through transit, flex time, telecommuting, ridesharing, and broadband communications. CDOT is working with a number of agencies to prepare a Memorandum of Agreement (MOA) titled "Memorandum of Agreement for Interagency Collaboration to Address Mobile Source Air Toxics and Greenhouse Gas Emissions Affecting the State of Colorado." The purpose of this MOA is to establish a collaborative, working relationship among 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), and the Colorado Department of Transportation (CDOT) to address unregulated mobile source air toxics (MSAT) and greenhouse gases (GHG) produced from Colorado's state highways, interstates, and construction activities. CDOT's commitments would include:

1. Develop truck routes/restrictions with the goal of limiting truck traffic in proximity to facilities, including schools, with sensitive receptor populations.
2. Continue researching pavement durability opportunities with the goal of reducing the frequency of resurfacing and/or reconstruction projects.
3. Develop air quality educational materials, specific to transportation issues, for citizens, elected officials, and schools.
4. Offer 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.
5. Commit to research additional concrete additives that would reduce the demand for cement.
6. Expand Transportation Demand Management (TDM) efforts statewide to better utilize the existing transportation mobility network.
7. Continue 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.
8. Explore congestion and/or right-lane only restrictions for motor carriers.

9. Fund truck parking electrification (note: mostly via exploring external grant opportunities)
10. Research additional ways to improve freight movement and efficiency statewide.
11. Commit to incorporating ultra-low sulfur diesel (ULSD) for non-road equipment statewide before June 2010 – likely using incentives during bidding.
12. Develop 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 CO_2 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)
27,700	29.9	31.3	0.108%	---------

1) EIA, International Energy Outlook 2007
2) Calculated by FHWA Resource Center

APPENDIX A
TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

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APPENDIX A
TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

	- A -
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 -
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
CDOW	Colorado Division of Wildlife
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

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TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

CLOMR	conditional letter of map revision
CMAQ	Congestion Mitigation and Air Quality
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
CRS	Colorado Revised Statutes
CSS	context sensitive solutions
	- 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
	- 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
	- F -
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIA	Federal Insurance Administration

APPENDIX A
TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

FINDS	facility index system
FIR	Foundation Investigation Report
FIRM	flood insurance rate map
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
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

APPENDIX A
TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

Leq(h)	hourly equivalent sound level
LOMR	letter of map revision
LOS	level of service
LOSS	level of service of safety
	- M -
MBTA	Migratory Bird Treaty Act
MESA	Modified Phase I Environmental Site Assessment
µg/m^3	micrograms per cubic meter
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

APPENDIX A
TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

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 -
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

APPENDIX A
TYPICAL NEPA ABBREVIATIONS AND ACRONYMS

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
STIP	State Transportation Implementation Plan
STP	Surface Transportation Program
SWAP	Source Water Assessment and Protection
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 Plan
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
USDOT	US Department of Transportation
USFS	US Forest Service
USFWS	US Department of Interior Fish and Wildlife Service
UST	underground storage tank

- V -

VE	value engineering
VCP	Colorado Department of Public Health and Environment's Voluntary Clean-up Program

APPENDIX B
TYPICAL NEPA TERMINOLOGY

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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.

Air Quality Standards: Levels of air pollutants prescribed by regulations that may not be exceeded. EPA establishes national air quality standards for major pollutants, including (ground-level) ozone, particulate matter, carbon monoxide, sulfur dioxide and nitrogen dioxide.

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: 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: Projects are 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 with in 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.

- M -

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.

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 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 (PM_{10} 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.

- O -

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.

- R -

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
REGULATIONS AND POLICIES

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Comprehensive Environmental Laws, Regulations, and Policies

23 CFR Part 771

Legislative/ Regulations Reference	Environmental Impact and Related Procedures; 23 CFR 771
Full text	http://www.fhwa.dot.gov/hep/23cfr771.htm
Purpose	"This regulation prescribes the policies and procedures of the FHWA and the Urban Mass Transportation Administration (UMTA), now Federal Transit Administration (FTA) for implementing the NEPA of 1969 as amended (NEPA), and the regulation of the CEQ 40 CFR 1500–1508. This regulation sets forth all FHWA, UMTA, and DOT requirements under NEPA for the processing of highway and urban mass transportation projects. This regulation also sets forth procedures to comply with 23 USC 109(h), 128, 138, and 49 USC 303, 1602(d), 1604(h), 1604(i), 1607a, 1607a-1 and 1610." http://www.dot.state.mn.us/tecsup/xyz/plu/hpdp/book4/23cfr771.html#101
Applicability	All CDOT projects that involve federal funds, federal approvals, federal lands, and the State 1601 process.
Timing/ considerations	The regulations outline procedures for each stage of the NEPA process.
Agency for coordination and consultation	FHWA

CEQ Regulations

Legislative/ Regulations Reference	Regulations for implementing NEPA from CEQ; 43 Federal Register (FR) 55990, November 28, 1978
Full text	http://ceq.hss.doe.gov/nepa/regs/ceq/toc_ceq.htm
Purpose	The CEQ was created by the NEPA of 1969 to oversee federal agencies' compliance with NEPA. Each federal agency is required to promulgate its own regulations to comply with NEPA, which must be consistent with the CEQ's regulations.

Applicability	All CDOT projects that involve federal funds, federal approvals, federal lands, and the State 1601 process.
Timing/ Considerations	The regulations outline procedures for each stage of the NEPA process.

NEPA

Legislative/ Regulations Reference	NEPA of 1969: 42 USC 4321-4347; (P.L. 91-190) (P.L. 94-83); 23 CFR 770–772; 40 CFR 1500–1508 EO 115514 as amended by EO 11991 on NEPA responsibilities
Full text	http://ceq.hss.doe.gov/nepa/nepanet.htm
Purpose	To declare a national policy that will encourage productive and enjoyable harmony between man and his environment; to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a CEQ.
Applicability	All CDOT projects that involve federal funds, federal approvals, federal lands, and the State 1601 process.
Timing/ considerations	Consideration of NEPA requirements should be a component of initial project planning and continue throughout project development. Mitigation and monitoring commitments established by a NEPA ROD should continue throughout project operation.
Agency for coordination and consultation	FHWA

Transportation

49 CFR Part 24 - URARPAA of 1970 and Advisory Circular 150/5100-17

Legislative/ Regulations Reference	URARPAA of 1970 (42 USC 4601 ET SEQ., P.L. 91-646) as amended by the Uniform Relocation Act Amendments of 1987 (P.L. 100-17); 49 CFR 24
Full text	http://www.fhwa.dot.gov/realestate/49cfr.htm

Purpose	To implement the Uniform Act as amended in an efficient manner; to ensure property owners of real property acquired for and persons displaced by federal-aid projects are treated fairly, consistently, and equitably, and so they will not suffer disproportionate injuries.
Applicability	All projects involving federal-aid funds.
Timing/ considerations	Procedures set forth in 49 CFR 24.
Agency for coordination and consultation	DOT/FHWA has lead responsibility. Appropriate federal, state, and local agencies.

49 USC, Subtitle III, Chapter 53, Transportation, General and Intermodal Programs – Mass Transportation

Legislative/ Regulations Reference	49 USC, Subtitle III, Chapter 53
Full text	http://www.gpoaccess.gov/uscode/index.html
Purpose	To improve mass transit equipment, techniques, facilities, and methods; to encourage planning; and to provide financial assistance.
Applicability	Mass transportation projects.
Timing/ considerations	The regulation outlines processes for metropolitan planning, grant programs, and research and development of mass transit.
Agency for coordination and consultation	FHWA

Economic, Social, and Environmental Effects 23 USC109H

Legislative/ Regulations Reference	Economic, social, and environmental effects: 23 USC 109(H); (P.L. 91-605); 23 USC 128; 23 CFR 771
Full text	http://www.fhwa.dot.gov/hep/23cfr771.htm

Purpose	To ensure that possible adverse, economic, social, and environmental effects of proposed highway projects and project locations are fully considered and that final decisions on highway projects are made in the best overall pubic interest.
Applicability	Applicable to the planning and development of proposed projects on any federal-aid system for which FHWA approves the plans, specifications, and estimates, or has the responsibility for approving a program.
Timing/ considerations	Identification of economic, social, and environmental effects; consideration of alternative courses of action; involvement of other agencies and the public; systematic interdisciplinary approach. The report required by Section 128 on the consideration given to ESE impacts may be the NEPA compliance document.
Agency for coordination and consultation	Appropriate federal, state, and local agencies.

FAA Order 5050.4, Airport Environmental Handbook

Legislative/ Regulations Reference	FAA Order 5050.4 Airport Environmental Handbook
Full text	http://www.faa.gov/airports_airtraffic/airports/resources/publications/orders/environmental_5050_4/
Purpose	Implements FAA order 1050, FAA agency-wide instructions to complete the NEPA process.
Applicability	CDOT projects at airports.
Timing/ considerations	The handbook should be used as a guide throughout the NEPA process while working with FAA at airport projects.
Agency for coordination and consultation	FAA

FHWA Technical Advisory (T-6640.8A)

Legislative/ Regulations Reference	Technical Advisory: Guidance for preparing and processing environmental and Section 4(f) documents
Full text	http://www.fhwa.dot.gov/legsregs/directives/techadvs/t664008a.htm
Purpose	To provide guidance to FHWA field offices and to project applicants on the preparation and processing of environmental and Section 4(f) documents. Specifically, it covers preparation of Categorical Exclusions (CatExs), EAs, FONSIs, EISs, supplemental EISs, reevaluations, and Section 4(f) evaluations.
Applicability	The material contained in the Technical Advisory is not regulatory. It has been developed to provide guidance for uniformity and consistency in the format, content, and processing of the various environmental studies and documents pursuant to the NEPA, 23 USC 109(h) and 23 USC 138 (Section 4(f) of the DOT Act) and the reporting requirements of 23 USC 128. The guidance is limited to the format, content and processing of NEPA and Section 4(f) studies and documents. It should be used in combination with a knowledge and understanding of the CEQ Regulations for Implementing NEPA (40 CFR 1500-1508), FHWA's Environmental Impact and Related Procedures (23 CFR 771) and other environmental statutes and orders.
Timing/ considerations	As with the consideration of NEPA requirements, consideration of the Technical Advisory should be a component of initial project planning and continue throughout project development. Mitigation and monitoring commitments established by a NEPA ROD should continue throughout project operation.
Agency for coordination and consultation	FHWA

Highway Beautification

Legislative/ Regulations Reference	Highway Beautification Act of 1965 23 USC 131, 23 USC 136, 23 USC 319, (P.L. 89-285); 23 CFR 750, 23 CFR 751, 23 CFR 752
Full text	http://www.gpo.gov/nara/cfr/waisidx_02/23cfr750_02.html

Purpose	To provide effective control of outdoor advertising and junkyards, to protect the public investment, to promote the safety and recreational value of public travel and preserve natural beauty, and to provide landscapes and roadside development reasonably necessary to accommodate the traveling public.
Applicability	Interstate and primary systems including toll sections thereof.
Timing/ considerations	Procedures set forth in 23 CFR 750, 751, and 752.
Agency for coordination and consultation	DOT/FHWA, state, and local agencies.

Memorandum of Understanding (MOU) and Memorandum of Agreement (MOA)

This section identifies MOUs and MOAs specific to CDOT. Complete text of each of the memoranda can be found online.

Title	**Letter of Agreement on Environmental Compliance Certification and Consultation**
Agencies	CDOT, FHWA
Date	6/23/1999
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Defines procedures for certifying completion of environmental requirements for Class I and III projects.
Applicability	Applies to all EIS and EAs. Prior to a Class I or III federal-aid project being advertised for construction, a memo will be prepared by the Region Planning and Environmental Manager and forwarded to the FHWA Division Administrator (to the attention of the appropriate Operations Engineer). The department will follow a similar procedure for non-federal-aid projects documented with an EA or EIS, except the Environmental Compliance memo will also be sent to the Project Manager, Region File, and Central Files.

Title	**Letter of Agreement for Programmatic Approval for Use of Certain CATEXs**
Agencies	CDOT, FHWA
Date	11/19/1991
Full Text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	FHWA granted programmatic category designation approval to the department for Class II actions (CATEX) meeting the definitions found at 23 CFR 771.117, subparagraphs 1–20. Specific CATEX. Projects that are determined to be programmatic CATEX shall not require further NEPA approvals by FHWA.
Applicability	All projects will, based on anticipated project activities and past experience, satisfy the definition of CATEX found in 23 CFR 771.117 (a) and (b).

Title	**MOU Related to Activities Affecting the State Transportation System and Public Lands in the State of Colorado**
Agencies	CDOT, FHWA, BLM, USFS
Date	11/1/2003
Full Text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Establishes procedures for coordinating activities affecting the state transportation system and lands administered by USFS/BLM within the State of Colorado. This MOU supersedes and replaces the MOU (USFS No. 1102-0007-97-002) of December 4, 1996, between USFS, BLM, FHWA, and CDOT. All projects that include National Forest System or BLM lands.
Applicability	The MOU specifies coordination procedures in the areas of early notification, long-range planning, project coordination, environmental coordination, NEPA document preparation, project design, rights-of-way, authorization for entry during emergency situation, construction/reconstruction, maintenance, signing, access control, third party occupancy, and snow avalanche control.

Title	**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**
Agencies	CDOT, FHWA, USFS
Date	9/17/1997
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	This MOU is to set forth the general procedures for the planning, programming, environmental studies, design, construction, and maintenance of forest highways in Colorado.
Applicability	Roads within, or providing access to, the National Forest System. A program meeting will be held annual in accordance with 23 CFR 660.109(a) with representatives from FHWA, CDOT, and USFS Region 2 to agree on the program of projects. CDOT agrees to integrate the long-range Forest Highways transportation plan into the state's long-range transportation plan. CDOT agrees to share information with FHWA on Forest Highway routes from their bridge, pavement, and safety management systems. The USFS agrees to work with FHWA and CDOT when amending or revising Forest Management Plans to incorporate land use and transportation planning.

Title	**NEPA/CWA Section 404 Merger Process**
Agencies	FHWA, CDOT, COE
Date	12/2004
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	The purpose of this agreement is to establish a procedure and provide guidance to ensure that documentation and coordination conducted to comply with NEPA will meet the standards of all signatories and that any preferred alternative selected under this joint NEPA/CWA Section 404 decision-making process also complies with CWA Section 404(b)(1) guidelines. These procedures do not supersede lead agency NEPA decision-making requirements.
Applicability	Projects requiring a CWA Section 404 merger. A project expected to require an EA and an Standard Individual Permit then it will enter the merger process only if FHWA, USACE, and CDOT

	determine it is in the overall best interest of the project. This agreement specifically outlines initiating the process, its purpose and need, alternatives to be evaluated, preferred alternative, and compensatory mitigation.
Title	**MOA between CDOT and FHWA, Colorado Division Regarding the Programmatic Approval of Certain Wetland Findings**
Agencies	CDOT, FHWA
Date	4/21/2006
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To expedite the wetland process and eliminate unnecessary coordination and paper work Projects that have a small impact to wetlands that can be easily mitigated.
Applicability	The agreement outlines coordination between FHWA and CDOT regarding the programmatic approval of certain wetland findings. The agreement also provides guidance defining a wetland, required criteria, the applicability of a programmatic approval, and coordination with the Division of Wildlife (DOW).
Title	**MOA Among the CDNR and CDOT Regarding SB 40 Certification (action to minimize adverse impacts to streams)**
Agencies	CDOT, CDNR
Date	11/30/1990
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Expedite the SB 40 certification process. Any project that impacts any stream or its bank or tributaries under SB 40 jurisdiction.
Applicability	The agreement outlines agreed-upon guidelines for SB 40 Wildlife Certification that include procedures for both a programmatic SB 40 certification, which will apply on certain activities resulting in minimal impact, and for a formal application for certification.

Title	**MOU between CDOT and DOW to Manage Wildlife Within Highway ROW**
Agencies	CDOT, DOW
Date	7/30/1980
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To conserve maintenance dollars and energy.
Applicability	Maintenance and management of aquatic and terrestrial wildlife within highway rights-of-way. The agreement outlines responsibilities for maintenance of rights-of-way areas and communication between CDOT and DOW.

Title	**MOA between CDOT and the APCD of CDPHE Regarding Procedures for Determining Project Level Conformity and Hotspot Analysis**
Agencies	CDOT, CDPHE (APCD)
Date	12/22/1995
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To identify procedures for ensuring compliance of federally funded transportation projects with the federal transportation conformity requirements and NEPA.
Applicability	All federally funded transportation projects. The agreement outlines consultation procedures for EA/EISs, CatEx, and project exempt requirements. The agreement also identifies hotspot project modeling procedures, MOBILE model emission factors/assumptions, conformity to federal standards, program review, and applicability.

Title	**MOU Between the CDPHE and CDOT Regarding the CDPHE Liaison Position**
Agencies	CDOT, CDPHE
Date	10/4/2001
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To reduce the time and expense involved when both agencies are involved in the same projects and/or issues by having a liaison to facilitate the functions and activities of both agencies when involved with hazardous waste management activities.
Applicability	All CDOT projects. The liaison primarily will provide coordination and assistance for proposed highway projects with all CDPHE positions, the EPA, and local health agencies.

Title	**MOU between BLM, Colorado State Office, and CDOT (Archaeology)**
Agencies	CDOT, BLM
Date	7/31/1985
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To provide for the highway department's needs to perform short notice archaeological work on BLM-administered lands in Colorado while meeting the BLM's legally mandated requirements to ensure that only qualified, responsible organizations and individuals are permitted to perform such scientific, archaeological undertakings.
Applicability	CDOT projects located on BLM property where a Cultural Resource Use Permit application for archaeological testing and excavations would be required.

Title	**MOU Between CDOT and the Colorado SHPO Regarding Cultural Resource Investigations – Negative Finds and Isolated Finds (Archaeology)**
Agencies	CDOT, SHPO, State Archaeologist
Date	1/3/1989

Full Text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To reduce review time for projects with negative or isolated finds.
Applicability	Report of Cultural Resource Investigations for an undertaking that identifies no historic resources or only isolated finds.
Title	**MOU between FHWA and the Heritage Conservation and Recreation Service Concerning Emergency Procedures Applicable to Unanticipated Historic Resources Discovered During Construction of Federal-Aid Highways**
Agencies	FHWA, Heritage Conservation and Recreation Service, National Conference of SHPOs
Date	10/28/1980
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To provide an expeditious alternate method for consideration of historic resources that are discovered after construction has begun.
Applicability	Projects that discover an unanticipated cultural resource.
Title	**MOA between CDOT and SHPO Regarding Section 106 and State Register Act Procedures for Historic Resources**
Agencies	CDOT, SHPO
Date	3/14/1996
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Outlines CDOT and SHPO procedures for compliance with Section 106.
Applicability	Projects requiring Section 106 compliance.
Title	**Programmatic Agreement on Minor Highway Improvement Projects Among FHWA, the ACHP, and SHPO**
Agencies	CDOT, SHPO, State Archaeologist, FHWA, ACHP
Date	2/15/1991
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Outlines coordination procedures for minor highway improvement

	projects.
Applicability	Projects requiring Section 106 compliance.
Title	**Historic Marker Maintenance Agreement**
Agencies	CDOT, Colorado Historical Society
Date	12/1/1994
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Outlines the management of federal funds for the maintenance of historic markers.
Applicability	Historic markers.
Title	**Programmatic Agreement with ACHP and SHPO Regarding the Management and Preservation of Colorado Historic Bridges**
Agencies	CDOT, ACHP, SHPO, FHWA
Date	7/1/2003
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Coordination procedures for the preservation and management of historic bridges.
Applicability	All projects involving a bridge or where a bridge may be impacted.
Title	**Letter of Agreement on Historic Bridge Recordation**
Agencies	CDOT, NPS
Date	2/19/1986
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Documentation for the recordation of Colorado's historic bridges to Historic American Engineering Record standards.
Applicability	Specific Colorado historic bridges.

Title	**Programmatic Agreement between FHWA, ACHP, and the National Conference of SHPOs on Transportation Enhancements**
Agencies	FHWA, ACHP, National Conference of SHPOs
Date	6/11/1997
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To expedite review by CDOT in enhancement projects.
Applicability	Transportation enhancement projects.

Title	**Interagency letter of agreement between CDOT and the USFWS for a position to be assigned to the USFWS who will be dedicated to completing USFWS tasks on CDOT projects**
Agencies	CDOT, USFWS
Date	11/17/1999
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Liaison between CDOT and USFWS projects.
Applicability	USFWS/CDOT projects.

Title	**Policy Agreement for the Review of EAs by EPA**
Agencies	CDOT, FHWA, EPA
Date	8/31/2000
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Outlines the review process for EAs by EPA when FHWA is the lead agency.
Applicability	EAs.

Title	**Native American Cultural Resources Consultation (Also included is a memo dated 10-24-01 from FHWA headquarters that provides approval of CDOT's role in the consultation with Native American tribal governments on federal-aid projects.)**
Agencies	CDOT, FHWA, SHPO
Date	2/12/2001
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Outlines consultation with Native American tribes.
Applicability	Projects requiring tribal coordination.

Title	**Programmatic Consultation Agreement About Canada Lynx in Colorado (Note: this agreement has expired. CDOT is in the process of updating it.)**
Agencies	CDOT, FHWA, USFWS
Date	6/1/2002
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To guide impact assessment of CDOT projects that may affect lynx by providing standard guidelines.
Applicability	Projects that meet the "no effect" and "not likely to adversely affect" criteria set forth in the agreement are covered by a blanket concurrence that will not require further consultation.

Title	**MOA Shortgrass Prairie Initiative among CDOT, FHWA, USFWS, CDNR, CDOW, and The Nature Conservancy (TNC)**
Agencies	CDOT, FHWA, USFWS, CDNR, CDOW, TNC
Date	4/1/2001
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Regional conservation by providing proactive advance conservation of priority habitats for multiple species.
Applicability	Projects located within Colorado's shortgrass prairie.

Title	**East Plum Creek Conservation Bank Agreement**
Agencies	CDOT, FHWA, USFWS
Date	4/1/2003
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	Establishes the terms and conditions for a conservation bank on certain real property located in Castle Rock, Colorado, within the East Plum Creek Conservation Bank.
Applicability	Projects located in or impacting the East Plum Creek Conservation Bank; map of the area included in the agreement.

Title	**MOU between FHWA, EPA, and CDOT That Formalizes the Cooperative Working Relationship Between These Agencies**
Agencies	FHWA, EPA, CDOT
Date	3/1/2004
Full text	http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp
Purpose	To formalizes and strengthen the cooperative working relationship between FHWA, EPA, and CDOT.
Applicability	All CDOT projects.

Public Hearings, 23 USC 128

Legislative/ Regulations Reference	Public hearings: 23 USC 128; 23 CFR 771.111
Full text	http://www.gpo.gov/nara/cfr/waisidx_02/23cfr771_02.html
Purpose	To ensure adequate opportunity for public hearings on the effects of alternative project locations and major design features, as well as on the consistency of the project with local planning goals and objectives.
Applicability	Public hearings or hearing opportunities are required for projects described in each state's FHWA-approved public involvement procedures.
Timing/	Public hearings or hearing opportunities during the consideration of

considerations	highway locations and design proposals are conducted as described in the state's FHWA-approved public involvement procedures. States must certify to FHWA that such hearings or the opportunity for them have been held and must submit a hearing transcript to FHWA.
Agency for coordination and consultation	Appropriate federal, state, and local agencies.

SAFETEA-LU

Legislative/ Regulations Reference	SAFETEA-LU Public Law 109-59; SAFETEA-LU Section(s): 6002-6005, 6007, 6009, 6010
Full text	http://www.fhwa.dot.gov/safetealu/legis.htm
Purpose	SAFETEA-LU incorporates changes aimed at improving and streamlining the environmental process for transportation projects. SAFETEA-LU retains and increases funding for environmental programs of TEA-21, and adds new programs focused on the environment. SAFETEA-LU also includes significant new environmental requirements for the statewide and metropolitan planning process.
Applicability	All CDOT projects that involve federal funds, federal approvals, and/or federal lands.
Timing/ considerations	Consideration of SAFETEA-LU should take place at the earliest stages of a NEPA project as well as during the environmental review process, CATEX, and Section 4(f).
Agency for coordination and consultation	FHWA

Section 4(f), DOT Act

Legislative/ Regulations Reference	Section 4(f) of the DOT Act: 23 USC 138; 49 USC 303; (P.L. 100-17); (P.L. 97-449); (P.L. 86-670); 23 CFR 771.135
Full text	http://www.access.gpo.gov/nara/cfr/waisidx_03/23cfr771_03.html
Purpose	To preserve publicly owned parklands, waterfowl and wildlife refuges,

	and significant historic sites.
Applicability	Significant publicly owned public parklands, recreation areas, wildlife and waterfowl refuges, and all significant historic sites "used" for a highway project.
Timing/ considerations	Specific findings required: Selected alternative should avoid protected areas, unless not feasible or prudent, and include all possible planning to minimize harm.
Agency for coordination and consultation	DOI, Department of Agriculture (DOA), Housing and Urban Development (HUD), state, or local agencies having jurisdiction and the SHPO (for historic sites).

DOT Act of 1966

Legislative/ Regulations Reference	DOT Act of 1966, Declaration of Purpose and Section 4(f), as amended; (Public Law 89-670), 49 USC 303 (formerly 49 USC 1651(b)(2) and 49 USC 1653f). Public Law 90-495 (August 23, 1968) amended section 4(f) to its most commonly known form, which is presented here. Public Law 97-449, (January 12, 1983) recodified the Act from 49 USC 1651 to 49 USC 303.
Full text	http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=browse_usc&docid=Cite:+49USC303
Purpose	Special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites.
Applicability	All CDOT projects that involve federal funds, federal approvals, federal lands, and the State 1601 process.
Timing/ considerations	The Secretary of Transportation shall cooperate and consult with the Secretaries of the Interior, Housing and Urban Development, and Agriculture, and with the states, in developing transportation plans and programs that include measures to maintain or enhance the natural beauty of lands crossed by transportation activities or facilities.
Agency for coordination and consultation	FHWA, DOI, BLM, USFWS, HUD, USDA, SHPO

Natural Resources

CAA (42 USC 7401–7626)

Legislative/ Regulations Reference	The CAA of 1990, as amended (42 USC 7401, 7642), requires CDOT to protect air quality, maintain federal- and state-designated air quality standards, and abide by the requirements of the Colorado SIP.
Full text	http://www.epa.gov/air/caa/
Purpose	To ensure that transportation plans, programs, and projects conform to the state's air quality implementation plans.
Applicability	Nonattainment and maintenance areas. The CAA of 1990, as amended (42 USC 7401, 7642), requires CDOT to protect air quality, maintain federal- and state-designated air quality standards, and abide by the requirements of the Colorado SIP.
Timing/ considerations	As with consideration of NEPA requirements, consideration of the CAA requirements should be a component of initial project planning and continue throughout project development. Mitigation and monitoring commitments established by a NEPA ROD should continue throughout project operation.
Agency for coordination and consultation	FTA, EPA, metropolitan planning organizations, state departments of transportation and state and local air quality control agencies.

CWA of 1972

Legislative/ Regulations Reference	The 1972 amendments to the Federal Water Pollution Control Act (known as the CWA)
Full text	http://www.epa.gov/r5water/
Purpose	Established the basic structure for regulating discharges of pollutants into the waters of the US. It gave EPA the authority to implement pollution control programs, such as setting wastewater standards for industry and continued requirements to set water quality standards for all contaminants in surface waters, and 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 provides the

	statutory basis for the NPDES permit program and the basic structure for regulating the discharge of pollutants from point sources to waters of the US. EPA sets effluent limits on an industry-wide (technology-based) basis and on a water-quality basis that ensure protection of the receiving water. The CWA requires anyone who wants to discharge pollutants to first obtain an NPDES permit, or else that discharge will be considered illegal.
Applicability	Construction is one of the industries regulated by the NPDES program and construction sites that disturb greater than one acre must obtain an NPDES stormwater discharge permit to prevent pollution of surface water bodies. CDOT is considered a large municipal separate storm sewer system under NPDES Phase I regulations and holds a state NPDES permit. Other state permits related to CWA that CDOT may be required to obtain during highway construction include: construction dewatering, sand and gravel production operations, and discharges to groundwater via land application. Under the Section 404 regulatory program the USACE may issue permits for the discharge of dredged or fill material into the navigable waters of the US at specified disposal sites Section 404 permits are also required, together with mitigation, if there are impacts to wetlands that are identified as jurisdictional.
Timing/ considerations	Identification of jurisdictional wetlands should begin as soon as the project area is defined, since field studies on wetlands are seasonally constrained and coordination with USACE can take time. These processes can impede project implementation if they are not started early. There is a tradeoff between the cost of performing field studies on these species over an area large enough to contain all potential alternatives, the potential time (and money) lost by waiting until specific alternatives have been defined or the preferred alternative has been selected, and the more streamlined review process when the project is as specific as possible. Permits related to the CWA must also be in hand before construction can begin.
Agency for coordination and consultation	USACE, EPA, CDPHE

Colorado SIP

Legislative/ Regulations Reference	The CAA of 1990, as amended (42 USC 7401, 7642)
Full text	http://www.environment.fhwa.dot.gov/guidebook/content/EPAEO11990.asp
Purpose	As a requirement of the CAA and a requirement to attain and maintain National Ambient Air Quality Standards (NAAQS), the state submits a SIP to EPA for approval.
Applicability	All CDOT projects.
Timing/ considerations	Several sections of the CAA describe the states' planning obligations to achieve healthy air quality. Section 110 of the Act requires states to submit SIPs to EPA that provide for implementation, maintenance, and enforcement of the primary and secondary NAAQS established by EPA under Title I of the Act. Section 172, and other provisions in Title I, Part D, of the Act, identify additional SIP requirements for areas that do not meet the NAAQS and that have been designated as nonattainment under Section 107 of the Act. Section 175A of the Act describes the maintenance plan requirements for states wishing to redesignate an area from nonattainment to attainment. Additionally, SIPs contain state air regulations that, for example, allow states to permit the construction and operation of stationary sources, establish specific requirements for categories of stationary sources, and identify open burning requirements. Each SIP revision submitted by the state must undergo reasonable notice and public hearing at the state level, and SIPs submitted to EPA to attain or maintain the NAAQS must include enforceable emission limitations and other control measures, schedules, and timetables for compliance.
Agency for coordination and consultation	EPA, CDPHE

Endangered Species Act of 1973 as amended (16 USC §§1531–1543)

Legislative/ Regulations Reference	The Endangered Species Act of 1973, as amended (16 USC §§1531–1543); 7 CFR 355, 50 CFR 17, 23, 81, 222, 225–227, 402, 424, 450–453
Full text	http://www.fws.gov/Endangered/ESA/content.html
Purpose	The law directs federal agencies to ensure that their actions do not jeopardize threatened and endangered species and that, through their authority, they help bring about the recovery of such species.
Applicability	Any action that is likely to jeopardize continued existence of such endangered/threatened species or result in destruction or modification of critical habitat.
Timing/ considerations	Consult with the Secretary of the Interior or Commerce, as appropriate. CDOT must obtain information from the USFWS and/or the National Marine Fisheries Service (NMFS) to determine the presence or absence of listed and proposed threatened or endangered species and designated and proposed critical habitat in the proposed project area (50 CFR 402.12(c)). When a proposed or listed species or a proposed or designated critical habitat may be present in the proposed project area, an evaluation or, if appropriate, a biological assessment is made on the potential impacts to identify whether any such species or critical habitat are likely to be adversely affected by the project.
Agency for coordination and consultation	DOI USFWS) Informal consultation with the USFWS or NMFS should begin as soon as the project area is defined. Investigation of the species potentially present in the area can then begin and the need for formal consultation determined. Formal consultation can be a lengthy process and field studies, if required, are seasonally constrained. These processes can impede project implementation if they are not started early. There is a tradeoff between the cost of performing field studies on these species over an area large enough to contain all potential alternatives, the potential time (and money) lost by waiting until specific alternatives have been defined or the preferred alternative has been selected, and the more streamlined review process when the project is as specific as possible.

EO 13148: Greening the Government Through Leadership in Environmental Management

Legislative/ Regulations Reference	Greening the Government Through Leadership in Environmental Management, EO 13148
Full text	http://www.nepa.gov/nepa/regs/eos/eo13148.html
Purpose	To ensure that the federal government exercises leadership in the reduction of petroleum consumption through improvements in fleet fuel efficiency and the use of alternative fuel vehicles and alternative fuels.
Applicability	Purchase and management of CDOT vehicles.
Timing/ considerations	At the time of purchase or management of the CDOT fleet vehicles.
Agency for coordination and consultation	FHWA

EO 11988: Floodplain Management

Legislative/ Regulations Reference	EO 11988, Floodplain Management, as amended by EO 12148; DOT Order 5650.2; 23 CFR 650, Subpart A, 23 CFR 771
Full text	http://www.epa.gov/owow/wetlands/regs/eo11988.html
Purpose	To avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to restore and preserve the natural and beneficial values served by floodplains.
Applicability	All construction of federal or federally aided buildings, structures, roads, or facilities that encroach upon or affect the base floodplain.
Timing/ considerations	Assessment of floodplain hazards. Specific finding is required in the final environmental document for significant encroachments.
Agency for coordination and consultation	Federal Emergency Management Agency (FEMA), state and local agencies.

EO 11990: Protection of Wetlands

Legislative/ Regulations Reference	EO 11990, Protection of Wetlands; DOT Order 5660.1A, 23 CFR 777
Full text	http://www.archives.gov/federal-register/codification/executive-order/11990.html
Purpose	To avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.
Applicability	Federally undertaken, financed, or assisted construction and improvements in or with significant impacts on wetlands.
Timing/ considerations	Evaluate and mitigate impacts on wetlands. Specific finding is required in the final environmental document.
Agency for coordination and consultation	DOI (USFWS), EPA, USACE, USFS, state agencies.

EO 13112: Invasive Species

Legislative/ Regulations Reference	On February 3, 1999, EO 13112 was signed establishing the National Invasive Species Council. The EO requires that a Council of Departments dealing with invasive species be created. Currently there are 13 departments and agencies on the council**.**
Full text	http://www.invasivespeciesinfo.gov/laws/execorder.shtml
Purpose	To create a Council of Departments dealing with invasive species.
Applicability	Management of invasive species.
Timing/ considerations	As with consideration of NEPA requirements, consideration of EO 13112 should be a component of initial project planning and continue throughout project development. Mitigation and monitoring commitments established by a NEPA ROD should continue throughout project operation.
Agency for coordination and consultation	CEQ, DOI

FPPA

Legislative/ Regulations Reference	FPPA of 1981: 7 USC 4201–-4209, (P.L. 97-98), (P.L. 99-198); 7 CFR 658
Full text	http://www.nrcs.usda.gov/programs/fppa/pdf_files/FPPA_Law.pdf
Purpose	To minimize impacts on farmland and maximize compatibility with state and local farmland programs and policies.
Applicability	All projects that take ROW in farmland, as defined by the regulation.
Timing/ considerations	Early coordination with the NRCS. Land evaluation and site assessment. Determination of whether or not to proceed with farmland conversions, based on severity of impacts and other environmental considerations.
Agency for coordination and consultation	NRCS

FWCA of 1958 (16 USC §§661–667e)

Legislative/ Regulations Reference	FWCA: 16 USC 661–666 (C), (P.L. 85-624), (P.L. 89-72), (P.L. 95-616)
Full text	http://wildlifelaw.unm.edu/fedbook/index.html
Purpose	The FWCA provides the basic authority for the USFWS's involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It also requires federal agencies that construct, license, or permit water resource development projects to first consult with the USFWS (and the NMFS in some instances) and the state fish and wildlife agency regarding the impacts on fish and wildlife resources and measures to mitigate these impacts. Conservation, maintenance, and management of wildlife resources.
Applicability	Any project that involves impoundment (surface area of 10 acres or

	more), diversion, channel deepening, or other modification of a stream or other body of water. Transfer of property by federal agencies to state agencies for wildlife conservation purposes.
Timing/ considerations	Coordinate early in project development with USFWS and state fish and wildlife agencies.
Agency for coordination and consultation	DOI (USFWS), state fish and wildlife agencies.

Land and Water Conservation Fund Act

Legislative/ Regulations Reference	Land and Water Conservation Fund Act (Section 6f): 36 CFR Part 59
Full text	http://www.nps.gov/ncrc/programs/lwcf/protect.html
Purpose	To preserve, develop, and assure the quality and quantity of outdoor recreation resources for present and future generations.
Applicability	All projects that impact recreational lands purchased or improved with land and water conservation funds.
Timing/ considerations	The Secretary of the Interior must approve any conversion of property acquired or developed with assistance under this act to other than public, outdoor recreation use.
Agency for coordination and consultation	DOI, state agencies.

NFIA of 1968

Legislative/ Regulations Reference	NFIA (P.L. 90-448); DOT Order 5650.2; 23 CFR 650; Subpart A, 7; 23 CFR 771; 44 CFR 59-62, 64-68, 70-71, 75-77

Full text	http://www.ssa.gov/OP_Home/comp2/F090-448.html
Purpose	To identify flood-prone areas and provide insurance. Requires purchase of insurance for buildings in special flood hazard areas.
Applicability	Any federally assisted acquisition or construction project in an area identified as having special flood hazards.
Timing/ considerations	Avoid construction in, or design to be consistent with, FEMA-identified flood hazard areas.
Agency for coordination and consultation	FEMA, state and local agencies.

Rivers and Harbors Act of 1899 (33 USC §403)

Legislative/ Regulations Reference	Rivers and Harbors Act of 1899: 33 USC 401, et seq., as amended and supplemented; 23 CFR 650, Subparts D & H, 33 CFR 114–115
Full text	http://www.law.cornell.edu/uscode/uscode33/usc_sup_01_33.html
Purpose	To protect navigable waters in the US.
Applicability	Any construction affecting navigable waters and any obstruction, excavation, or filling.
Timing/ considerations	Must obtain approval of plans for construction, dumping, and dredging permits (Sec. 10) and bridge permits (Sec. 9).
Agency for coordination and consultation	USACE, USCG, EPA, state agencies.

SDWA of 1974

Legislative/ Regulations Reference	SDWA: 42 USC 300F-300J-6 (P.L. 93-523), (P.L. 99-339); FAPG Subpart E
Full text	SDWA: http://www.epa.gov/safewater/sdwa/index.html Colorado Source Water Assessment and Protection (SWAP) program: http://www.cdphe.state.co.us/wg/sw/swaphom.html
Purpose	Originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply; amended in 1986 and 1996, it requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and ground water wells. SDWA regulates private wells that serve 25 or more individuals. For these, EPA sets national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water. States and water suppliers must conduct assessments of water sources to see where they may be vulnerable to contamination. Water systems may also voluntarily adopt programs to protect their watershed or wellhead and states can use legal authorities from other laws to prevent pollution.
Applicability	CDOT is a potential stakeholder in the Colorado SWAP program mandated by the SDWA. The DOT (and, thus, FHWA) is a signatory to the Federal Multi-Agency Source Water Agreement and thereby committed to considering state, tribal, and local drinking water source protection priorities when developing management plans . . . including decisions regarding placement and construction of new facilities.
Timing/ considerations	Identification of the source water assessment area in which the CDOT project occurs should begin as soon as the project area is defined. Knowledge of the susceptibility of this area will enable early incorporation of any appropriate extraordinary measures to protect water quality into project planning.
Agency for coordination and consultation	EPA, CDPHE

Section 404 Regulatory Program

Legislative/ Regulations Reference	The Federal Water Pollution Control Act Amendments of 1972 established the Section 404 Regulatory Program
Full text	http://www.epa.gov/r5water/ http://www.epa.gov/owow/wetlands/pdf/reg_authority_pr.pdf
Purpose	Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the US, including wetlands. Activities in waters of the US regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects. Section 404 requires a permit before dredged or fill material may be discharged into waters of the US, unless the activity is exempt from Section 404 regulation (e.g., certain farming and forestry activities).
Applicability	Projects impacting waterways and wetlands
Timing/ considerations	An *individual permit* is required for potentially significant impacts. Individual permits are reviewed by USACE, which evaluates applications under a public interest review, as well as the environmental criteria set forth in the CWA Section 404(b)(1) Guidelines. However, for most discharges that will have only minimal adverse effects, a *general permit* may be suitable. are issued on a nationwide, regional, or state basis for particular categories of activities.
Agency for coordination and consultation	EPA, USFWS

Water Bank Act

Legislative/ Regulations Reference	Water Bank Act: 16 USC 1301–1311, (P.L. 91-559), (P.L. 96-182); 7 CFR 752
Full text	http://www.epa.gov/EPA-WATER/1997/September/Day-16/w24486.htm

Purpose	To preserve, restore, and improve wetlands of the nation.
Applicability	Any agreements with landowners and operators in important migratory waterfowl nesting and breeding areas.
Timing/ considerations	Apply procedures established for implementing EO 11990.
Agency for coordination and consultation	Secretary of Agriculture, Secretary of Interior.

Intermodal Surface Transportation Act (ISTEA) - Wetland Mitigation Banking

Legislative/ Regulations Reference	ISTEA of 1991. Wetlands Mitigation Banks: Sec.1006–1007 (P.L. 102-240, 105 STAT 1914); 23 CFR 771
Full text	http://thomas.loc.gov/cgi-bin/query/z?c102:H.R.2950.ENR:
Purpose	To mitigate wetland impacts directly associated with projects funded through CDOT and STP, by participating in wetland mitigation banks, restoration, enhancement, and creation of wetlands authorized under the Water Resources Development Act, and through contributions to statewide and regional efforts.
Applicability	Federally undertaken, financed, or assisted construction, and improvements, or with impacts on wetlands.
Timing/ considerations	Evaluate and mitigate impacts on wetlands. Specific finding is required in the final environmental document. Guidance document: http://www.fhwa.dot.gov/environment/tea21bnk.htm http://www.epa.gov/owow/wetlands/guidance/mitbankn.html
Agency for coordination and consultation	DOI (USFWS), EPA, USACE, state agencies.

Wild and Scenic Rivers

Legislative/ Regulations Reference	Wild and Scenic Rivers Act: 16 USC 1271–1287; 36 CFR 251, 297 43 CFR 8350
Full text	http://www4.law.cornell.edu/uscode/html/uscode16/usc_sec_16_00001271----000-.html
Purpose	To preserve and protect wild and scenic rivers and their immediate environments for benefit of present and future generations.
Applicability	All projects that affect designated and potential wild, scenic, and recreational rivers, and/or immediate environments.
Timing/ considerations	Coordinate project proposals and reports with appropriate federal agency.
Agency for coordination and consultation	DOI (NPS) and/or Department of Agriculture (USFS), state agencies.

Wildflowers

Legislative/ Regulations Reference	Surface Transportation and Uniform Relocation Assistance Act of 1987: Sec. 130 Wildflowers 23 USC 319 (B) (P.L. 100-17); 23 CFR 752
Full text	http://www.gpo.gov/nara/cfr/waisidx_01/23cfr752_01.html
Purpose	To encourage the use of native wildflowers in highway landscaping.
Applicability	Native wildflowers are to be planted on any landscaping project undertaken on the federal-aid highway system.
Timing/ considerations	At least 1/4 of 1% of funds expended on a landscaping project must be used to plant native wildflowers on that project.
Agency for coordination and consultation	FHWA State Division, regional contacts.

Cultural/Social/Economic Resources

23 USC 140 (Non-Discrimination)

Legislative/ Regulations Reference	23 USC 140
Full text	http://www4.law.cornell.edu/uscode/html/uscode23/usc_sec_23_00000140----000-.html
Purpose	To provide equal opportunity for all persons.
Applicability	Projects with environmental justice considerations.
Timing/ considerations	At the scoping stage in the NEPA process, which provides early identification of public and agency issues, there should be adequate consideration of environmental justice. Populations should be identified as early as possible and their concerns should be examined and addressed, preferably in planning.
Agency for coordination and consultation	Department of Labor (DOL)

23 USC 324 (Non-Discrimination on Basis of Sex)

Legislative/ Regulations Reference	23 USC 324
Full text	http://uscode.house.gov/uscode-cgi/fastweb.exe?getdoc+uscview+t21t25+3881+0++%28%29%20%20AND%20%28%2823%29%20ADJ%20USC%29%3ACITE%20AND%20%28USC%20w%2F10%20%28324%29%29%3ACITE%20%20%20%20%20%20%20%20%20
Purpose	To provide equal opportunity to all persons.
Applicability	Projects with environmental justice considerations
Timing/ considerations	At the scoping stage in the NEPA process, which provides early identification of public and agency issues, there should be adequate consideration of environmental justice. Populations should be identified

	as early as possible and their concerns should be examined and addressed, preferably in planning.
Agency for coordination and consultation	FHWA, DOL

American Indian Religious Freedom Act

Legislative/ Regulations Reference	American Indian Religious Freedom Act: 42 USC 1996 (P.L. 95-341); EO 13007
Full text	http://www.cr.nps.gov/nagpra/AGENCIES/EO_13007.HTM
Purpose	To protect places of religious importance to American Indians, Eskimos, and Native Hawaiians.
Applicability	All projects that affect places of religious importance to Native Americans.
Timing/ considerations	Consult with knowledgeable sources to identify and determine any effects on places of religious importance. Comply with Section 106 procedures if the property is historic.
Agency for coordination and consultation	Bureau of Indian Affairs (BIA) SHPO, State Indian Liaison ACHP if appropriate.

Americans with Disabilities Act of 1990

Legislative/ Regulations Reference	Americans with Disabilities Act of 1990
Full Text	http://www.ada.gov/pubs/ada.htm
Purpose	To ensure that no qualified disabled individual shall, solely on the basis of his or her disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any of its programs, services, or activities.
Applicability	All CDOT projects.
Timing/	At the scoping stage in the NEPA process, which provides early

considerations	identification of public and agency issues, there should be adequate consideration of environmental justice. Populations should be identified as early as possible and their concerns should be examined and addressed, preferably in planning.
Agency for coordination and consultation	FHWA headquarters and field offices.

Archeological Resources Protection Act

Legislative/ Regulations Reference	DOI (NPS) Departmental consulting archeologist, SHPO; 18 CFR 1312, 32 CFR 229, 36 CFR 79, 36 CFR 296, 43 CFR 7
Full text	http://www.cr.nps.gov/local-law/FHPL_ArchRsrcsProt.pdf#search=%22Archeological%20Resources%20Preservation%20Act%22
Purpose	To preserve and protect paleontological resources, historic monuments, memorials, and antiquities from loss or destruction.
Applicability	Archeological resources on federally or Native American–owned property.
	Ensure contractor obtains permit, and identifies and evaluates resource.
Timing/ considerations	Mitigate or avoid resource in consultation with appropriate officials in the state.
	If necessary, apply for permission to examine, remove, or excavate such objects.
Agency for coordination and consultation	Department or agency having jurisdiction over land on which resources may be situated (BIA, BLM, DOA, DOD, NPS, USFS, SHPO, Recognized Native American Tribe, if appropriate).

Colorado Historical, Prehistorical, and Archaeological Resources Protection Act of 1973

Legislative/ Regulations Reference	CRS 24-80-401ff & CRS 24-80-120ff
Full text	http://www.coloradohistory-oahp.org/publications/pubs/1308b.pdf#search=%22Colorado%20Historical%2C%20Prehistorical%2C%20and%20Archaeological%20Resources%20Act%20of%201973%22
Purpose	Protection of all historic and paleontological properties owned by the state or any of its subdivisions (cities, counties and other political subdivisions); creation of the Office of the State Archaeologist; creation of a permitting system for the investigation of cultural or paleontological resources.
Applicability	State of Colorado lands and properties administered by subdivisions thereof.
Timing/ considerations	Consultation with the SHPO for all investigations on State lands.
Agency for coordination and consultation	SHPO, other state agencies and local jurisdictions

DOT Order 5610.2 on Environmental Justice

Legislative/ Regulations Reference	DOT Order To Address Environmental Justice in Minority Populations and Low-Income Populations
Full text	http://www.fhwa.dot.gov/environment/ejustice/dot_ord.htm
Purpose	The DOT is issuing its final DOT Order, which will be used by DOT to comply with EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.
Applicability	The order generally describes the process that the Office of the Secretary and each Operating Administration will use to incorporate environmental justice principles (as embodied in the EO) into existing programs, policies, and activities. The order provides that the Office of the Secretary and each Operating Administration within DOT will

	develop specific procedures to incorporate the goals of the DOT Order and the EO with the programs, policies and activities that they administer or implement.
Timing/ considerations	Adequate consideration of environmental justice should take place at the scoping stage of the NEPA process.
Agency for coordination and consultation	FHWA

EO 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

Legislative/ Regulations Reference	EO 12898: Environmental Justice; FR Vol. 60, No. 125, pp. 33896–33903
Full text	http://www.fhwa.dot.gov/Environment/ejustice/dot_ord.htm
Purpose	To avoid federal actions that cause disproportionately high and adverse impacts on minority and low-income populations with respect to human health and the environment.
Applicability	All federal programs and projects.
Timing/ considerations	Environmental justice was first identified as a national policy in 1994 when President Clinton signed EO 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This order requires that each federal agency shall, to the greatest extent allowed by law, administer and implement its programs, policies, and activities that affect human health or the environment so as to identify and avoid "disproportionately high and adverse" effects on minority and low-income populations. EO 12898 applies to a wider population than Title VI, which does not cover low-income, non-minority populations.
Agency for coordination and consultation	FHWA headquarters and field offices.

EO 13166: Improving Access to Services for Persons With LEP

Legislative/ Regulations Reference	EO 13166: Improving access to services for persons with limited English proficiency
Full text	http://www.usdoj.gov/crt/cor/Pubs/eolep.htm
Purpose	Requires federal agencies to examine the services they provide, identify any need for services to those with LEP, and develop and implement a system to provide those services so LEP persons can have meaningful access to them. It is expected that agency plans will provide for such meaningful access consistent with, and without unduly burdening, the fundamental mission of the agency. The EO also requires that the federal agencies work to ensure that recipients of federal financial assistance provide meaningful access to their LEP applicants and beneficiaries.
Applicability	Projects located in communities with limited English proficiency and environmental justice cases.
Timing/ considerations	At the scoping stage in the NEPA process, which provides early identification of public and agency issues, there should be adequate consideration of environmental justice. Populations should be identified as early as possible and their concerns should be examined and addressed, preferably in planning.
Agency for coordination and consultation	State agencies as appropriate.

FHWA Environmental Policy Statement 1994

Legislative/ Regulations Reference	FHWA Environmental Policy Statement 1994
Full text	http://www.fhwa.dot.gov/environment/eps_txt.htm
Purpose	With adoption of the EPS, FHWA is committed to incorporating

	environmental stewardship into all policies, procedures, and decisions, not just those related to project development. Protecting and enhancing the environment, as well as the quality of life, requires a total, active commitment by all FHWA employees, especially program managers.
Applicability	All federally funded projects.
Timing/ considerations	Aggressively pursue improved communication and collaboration with our federal, state, and local partners in the transportation and environmental communities, including other modal administrations within the DOT. Seek new partnerships with tribal governments, businesses, transportation and environmental interest groups, resource and regulatory agencies, affected neighborhoods, and the public. Ensure that those historically underserved by the transportation system, including minority and low-income populations, are included in our outreach. Actively involve our partners and all affected parties in an open, cooperative, and collaborative process, beginning at the earliest planning stages and continuing through project development, construction, and operations. Ensure the development of comprehensive, cooperative public involvement programs during statewide and metropolitan planning and project development activities.
Agency for coordination and consultation	FHWA

FHWA Order 6640.23 on Environmental Justice

Legislative/ Regulations Reference	FHWA Order 6640.23 FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
Full text	http://www.fhwa.dot.gov/legsregs/directives/orders/6640_23.htm
Purpose	To establish policies and procedures for FHWA to use in complying with EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898), dated February 11, 1994.
Applicability	EO 12898 requires federal agencies to achieve environmental justice by identifying and addressing disproportionately high and adverse human health and environmental effects, including the interrelated social and economic effects, of their programs, policies, and activities on minority populations and low-income populations in the US.

Timing/ considerations	These requirements are to be carried out to the greatest extent practicable, consistent with applicable statutes and the National Performance Review. Compliance with this FHWA Order is a key element in the environmental justice strategy adopted by FHWA to implement EO 12898, and can be achieved within the framework of existing laws, regulations, and guidance.
Agency for coordination and consultation	FHWA

FHWA Order 6640.8A

Legislative/ Regulations Reference	Guidance for Preparing and Processing Environmental and Section 4(f) Documents, FHWA Order 6640.8A
Full text	http://www.environment.fhwa.dot.gov/projdev/4fpolicy.asp
Purpose	To provide guidance to FHWA field offices and to project applicants on the preparation and processing of environmental and Section 4(f) documents.
Applicability	Order 6640.8A has been developed to provide guidance for uniformity and consistency in the format, content, and processing of the various environmental studies and documents pursuant to the NEPA, 23 USC109(h) and 23 USC 138 (Section 4(f) of the DOT Act) and the reporting requirements of 23 USC 128.
Timing/ considerations	The guidance is limited to the format, content, and processing of NEPA and Section 4(f) studies and documents. It should be used in combination with a knowledge and understanding of the CEQ Regulations for Implementing NEPA (40 CFR 1500–1508), FHWA's Environmental Impact and Related Procedures (23 CFR 771), and other environmental statutes and orders.
Agency for coordination and consultation	FHWA

Historic Bridges

Legislative/ Regulations Reference	Surface Transportation and Uniform Relocation Assistance Act of 1987: Section 123 (F) Historic Bridges 23 USC 144(O) (P.L. 100-17)
Full text	http://www.law.cornell.edu/uscode/html/uscode23/usc_sec_23_00000144----000-.html
Purpose	To complete an inventory of on- and off-system bridges to determine their historic significance. To encourage the rehabilitation, reuse, and preservation of historic bridges.
Applicability	Any bridge that is listed on, or eligible for listing on, the National Register of Historic Places. Identify historic bridges on and off system.
Timing/ considerations	Seek to preserve or reduce impact to historic bridges. Seek a recipient prior to demolition.
Agency for coordination and consultation	SHPO ACHP.

NHPA of 1966

Legislative/ Regulations Reference	Section 106 of the NHPA, as amended: (P.L. 89-665) (P.L. 91-243) (P.L. 93-54) (P.L. 94-422) (P.L. 94-458) (P.L. 96-199) (P.L. 96-244) (P.L. 96-515); EO 11593 23 CFR 771, 36 CFR 60, 36 CFR 63, 36 CFR 800
Full text	http://www.achp.gov/nhpa.html
Purpose	To protect, rehabilitate, restore, and reuse districts, sites, buildings, structures, and objects significant in American architecture, archeology, and culture. Expands protection of historic and archeological properties to include those of national, state, and local significance. The NHPA (in Section 106) requires federal agencies to take into account the potential effects

	of agency actions on properties listed on or eligible for the NRHP. Agencies are also required to consult with the SHPO, and sometimes with the ACHP, concerning those effects. The SHPO is also sometimes consulted concerning applicable methods for determining whether or not there are NRHP-eligible properties in the area of potential effect of an agency undertaking, whether properties are eligible, and appropriate mitigation measures. The NHPA (in Section 110) also requires federal agencies to identify properties that may qualify for listing on the NRHP, to nominate such places to the register, and to develop plans for their management.
Applicability	All properties on or eligible for inclusion on the National Register of Historic Places. CDOT is required to coordinate with the SHPO and, when a National Historic Landmark might be impacted, with the ACHP and DOI.
	Identify and determine the effects of project on subject properties. Afford Advisory Council an early opportunity to comment, in accordance with 36 CFR 800. Avoid or mitigate damages to greatest extent possible.
Timing/ considerations	Informal consultation with the SHPO should begin as soon as the project area is defined. Investigation of the historic resources in the area and on or potentially eligible for the National Register of Historic Places can then begin. Formal consultation can be a lengthy process and field studies, if required, are seasonally constrained. These processes can impede project implementation if they are not started early. There is a tradeoff between the cost of performing field studies on historic resources over an area large enough to contain all potential alternatives, the potential time (and money) lost by waiting until specific alternatives have been defined or the preferred alternative has been selected, and the more streamlined review process when the project is as specific as possible.
Agency for coordination and consultation	SHPO, DOI (NPS).

NAGPRA

Legislative/ Regulations Reference	PL 101-601, 104 Stat. 3049, 25 USC §3001–3013
Full text	http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title43/43cfr10_main_02.tpl
Purpose	To protect human remains and cultural material of Native American and Hawaiian groups.
Applicability	Actions on federal and tribal lands. Consult with appropriate Native American group.
Timing/ considerations	This act and regulations develop a systematic process for determining the rights of Native American tribes to certain Native American human remains and cultural items with which they are affiliated, when such remains and items are (in part) in the possession or control of an institution or state or local government receiving federal funds and were collected prior to November 16, 1990, or are excavated or discovered on federal or tribal lands after that date.
Agency for coordination and consultation	Appropriate Native American group, DOI, BIA, SHPO.

Preservation of American Antiquities

Legislative/ Regulations Reference	Act for the Preservation of American Antiquities, 16 USC 431-433 (P.L. 59-209); 36 CFR 251.50-.64 43 CFR 3
Full text	http://www.cr.nps.gov/local-law/anti1906.htm
Purpose	To protect of historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the US.
Applicability	Antiquities located within a project area.
Timing/ considerations	Notify DOI (NPS) when a federal project may result in the loss or destruction of a historic or archeological property. DOI and/or the

	federal agency may undertake survey or data recovery.
Agency for coordination and consultation	DOI (NPS) Departmental consulting archeologist and SHPO.

Section 110, Historic Preservation Act

Legislative/ Regulations Reference	Section 110 of the NHPA, as amended: 16 USC 470H- 2 (P.L. 96-515); 36 CFR 65; 36 CFR 78
Full text	http://www.achp.gov/NHPA.pdf
Purpose	To protect national historic landmarks. To record historic properties prior to demolition.
Applicability	All properties designated as national historic landmarks. All properties on, or eligible for inclusion on, the National Register of Historic Places.
Timing/ considerations	Identify and determine the effects of project on subject properties. Afford Advisory Council an early opportunity to comment, in accordance with 36 CFR 800.
Agency for coordination and consultation	SHPO, DOI (NPS)

Title VI of the Civil Rights Act of 1964

Legislative/ Regulations Reference	Title VI of the Civil Rights Act of 1964 (42 USC 2000D et seq.) and related statutes; 49 CFR 21 and 23 CFR 200
Full text	http://www.usdoj.gov/crt/cor/coord/titlevi.htm
Purpose	To ensure that no person shall, on the grounds of race, color, national origin, age, sex, or disability be subjected to discrimination under any program or activity receiving federal financial assistance.
Applicability	All federal programs and projects.
Timing/	Procedures set forth in 49 CFR 21 and 23 CFR 200.

considerations	At the scoping stage in the NEPA process, which provides early identification of public and agency issues, there should be adequate consideration of Title VI and environmental justice. Minority and low-income populations should be identified as early as possible and their concerns should be examined and addressed, preferably in planning.
Agency for coordination and consultation	FHWA headquarters and field offices.

URARPAA

Legislative/ Regulations Reference	49 CFR Part 24, PL 91-646
Full text	http://www.fhwa.dot.gov/realestate/ua/index.htm
Purpose	Provides important protections and assistance for people affected by federally funded projects. This law was enacted by Congress to ensure that people whose real property is acquired, or who move as a result of projects receiving federal funds, will be treated fairly and equitably and will receive assistance in moving from the property they occupy.
Applicability	Projects including the purchase of real property. Guidance : http://www.fhwa.dot.gov/realestate/ua/uapubs.htm
Timing/ considerations	At the scoping stage in the NEPA process, which provides early identification of public and agency issues, there should be adequate consideration of environmental justice. Populations should be identified as early as possible and their concerns should be examined and addressed, preferably in planning.
Agency for coordination and consultation	FHWA

Hazardous Substances

CERCLA

Legislative/ Regulations Reference	CERCLA, as amended: 42 USC 9601-9657, (P.L. 96-510), Superfund Amendments and Reauthorization Act of 1986: (SARA) (P.L. 99- 499); 40 CFR 300; 43 CFR 11
Full text	http://www.epa.gov/superfund/policy/cercla.htm
Purpose	To provide for liability, compensation, clean up, and emergency response for hazardous substances released into the environment and the clean up of inactive hazardous waste disposal sites. Provides for liability, risk assessment, compensation, emergency response, and cleanup (including the cleanup of inactive sites) for hazardous substances. The act requires federal agencies to report sites where hazardous wastes are or have been stored, treated, or disposed of, and requires responsible parties, including federal agencies, to clean up releases of hazardous substances.
Applicability	Any project that might take ROW containing a hazardous substance. During early planning, CDOT should identify the location of permitted and non-regulated hazardous waste sites within the project area. Early coordination with the appropriate Regional Office of the EPA and the appropriate state agency will aid in identifying known or potential hazardous waste sites. If known or potential waste sites are identified, the locations should be clearly marked on a map showing their relationship to the alternatives under consideration. If a known or potential hazardous waste site is affected by an alternative, information about the site, the potential involvement, impacts and public health concerns of the affected alternative(s), and the proposed mitigation measures to eliminate or minimize impacts or public health concerns should be discussed in the draft EIS. Avoid hazardous waste sites, if possible. Check EPA lists of hazardous waste sites.
Timing/ considerations	Field surveys and reviews of past and present land use. Contact appropriate officials if uncertainty exists. If hazardous waste is present or suspected, coordinate with appropriate officials.

	If hazardous waste is encountered during construction, stop project and develop remedial action. CDOT's compliance with CERCLA regarding any hazardous waste sites identified during early planning will continue throughout the project and be a factor in the finalization of alternatives evaluated and the preferred alternative selected and implemented.
Agency for coordination and consultation	EPA or state agency approved by EPA, if any.

RCRA (42 USC §6901 et seq.)

Legislative/ Regulations Reference	RCRA, as amended: 42, USC 6901, et seq. (P.L. 94-580) (P.L. 98-616); 40 CFR 260-271
Full text	http://www.epa.gov/epawaste/inforesources/online/index.htm
Purpose	To protect human health and the environment. Prohibit open dumping. Manage solid wastes. Regulate treatment, storage, transportation, and disposal of hazardous waste. Authorizes the EPA to manage, by regulation, hazardous wastes on active disposal operations. The act waives sovereign immunity for federal agencies with respect to all federal, state, and local solid and hazardous waste laws and regulations. Federal agencies are subject to civil and administrative penalties for violations and to cost assessments for the administration of the enforcement. Any project that takes ROW containing a hazardous waste.
Applicability	CDOT projects are subject to RCRA to the extent that they have active or future components that fall under EPA's authority to control hazardous waste from the "cradle-to-grave," including the generation, transportation, treatment, storage, and disposal of hazardous waste and the management of non-hazardous wastes. CDOT's compliance with RCRA is a regular part of doing business, and not a specific component of NEPA.
Timing/ considerations	Coordinate with EPA or state agency on remedial action. Compliance with RCRA is an integral component of BMP implementation and should be introduced into early planning for project

	construction and operation, and then continue throughout the project.
Agency for coordination and consultation	EPA or state agency approved by EPA, if any.

Rights of Way

Legislative/ Regulations Reference	Title 23 CFR 710
Full text	http://www.access.gpo.gov/nara/cfr/waisidx_01/23cfr710_01.html
Purpose	The primary purpose of the requirements in this part is to ensure the prudent use of federal funds under Title 23 of the USC in the acquisition, management, and disposal of real property. In addition to the requirements of this part, other real property related provisions apply and are found at 49 CFR, part 24.
Applicability	This part applies whenever federal assistance under Title 23 of the USC is used. The part applies to programs administered by FHWA. Where federal funds are transferred to other federal agencies to administer, those agencies' procedures may be utilized. Additional guidance is available electronically at the FHWA Real Estate services website: http://www.fhwa.dot.gov/realestate/index.htm
Timing/ considerations	Guidance: http://www.fhwa.dot.gov/realestate/polguid.htm
Agency for coordination and consultation	FHWA

Table 2-2 *Permits*

Permit, Approval, Certification, or Concurrence: When Required	Coordinating Agency(ies)	Timing	Applicable Project Phase(s)	Potentially Affected Resource(s)[b]	Potential Environmental Consequence(s) Addressed by Compliance	Regulations and Additional Resources
Air Quality Concurrence Letter: required for projects in air quality non-attainment or maintenance areas.	Colorado Department of Public Health and the Environment (CDPHE), Air Pollution Control Division (APCD) Federal Highway Administration (FHWA)	Before final FHWA environmental approvals are required for project.	NEPA document development—must be included in appendix to Environmental Assessment (EA) or Environmental Impact Statement (EIS).	Air	Degradation of air quality in nonattainment or maintenance area resulting from construction of the project.	Clean Air Act (CAA), Section 176(c) Memoranda of Agreement (MOA) between CDOT and APCD regarding procedures for determining project level conformity at Website: http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp Colorado Department of Transportation (CDOT) Project Development Manual (PDM), Section 2.16 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm
Senate Bill (SB) 40 Clearance: required when a project or maintenance activity may obstruct, damage, diminish, destroy, change, modify, or vary the natural shape and form of any stream or river or its banks, tributaries, or as much riparian area as is expected to contribute to the quality of the general stream habitat. Also applies to lakes.	Colorado Division of Wildlife (CDOW)	Before construction begins.	Construction planning.	Vegetation Fish and Wildlife Wetlands Habitat degradation caused by altered riparian environment.	Habitat degradation caused by altered water body or its course, banks, or riparian area.	Colorado SB 40 CRS 33-5-101 Guidelines for SB 40 Wildlife Certification 23 CFR Part 771, Environmental Impact and Related Procedures MOA between CDOT) regarding SB 40 Certification at Website: http://www.dot.state.co.us/environmental/StandardsForms/Forms.asp http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm
Section 7 Consultation: required when the project has the potential to affect listed species or modify designated critical habitat.	US Fish and Wildlife Service (USFWS)	During NEPA document development.	NEPA document development—must be included in appendix to EA or EIS.	Threatened and Endangered Species	Effects to listed species or modification of critical habitat.	16 USC 1531–1543, Endangered Species Act 42 USC 4321, NEPA [insert link] 23 CFR Part 771, Environmental Impact and Related Procedures 50 CFR Part 402, Interagency Cooperation – Endangered Species Act CDOT PDM, Section 2.13 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm
Depredation Permit: required for projects that involve taking, possession, or transport of migratory birds to prevent damage to personal property, agricultural interests, and natural resources, or for health and human safety purposes.		Before implementation of action that would affect migratory birds.	Construction.	Fish and Wildlife	To authorize take of migratory birds, including eggs and occupied nests.	

Table 2-2 *Permits (continued)*

Permit, Approval, Certification, or Concurrence: When Required	Coordinating Agency(ies)	Timing	Applicable Project Phase(s)	Potentially Affected Resource(s)[b]	Potential Environmental Consequence(s) Addressed by Compliance	Regulations and Additional Resources
Wetland Finding: required for certain projects that involve construction in wetlands to determine the effect the project will have on their quality.	CDOW US Army Corps of Engineers (USACE) USFWS Bureau of Land Management (BLM) FHWA	Beginning of project development.	NEPA document development—include in Final EIS or EA, depending on size of project. May need amendment at Finding of No Significant Impact (FONSI), Record of Decision (ROD), or Reevaluation.	Water Resources Wetlands Fish and Wildlife	Degradation to water quality. Loss or degradation of wetlands. Habitat degradation	Executive Order 11990, Protection of Wetlands 23 CFR Part 777, Mitigation of Environmental Impacts to Privately Owned Wetlands 23 CFR Part 771, Environmental Impact and Related Procedures FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm CDOT PDM, Section 2.11 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm
Clean Water Act (CWA) Section 404 Permit: required when construction or maintenance projects require discharge of dredged or fill material below the ordinary high-water line in any body of water considered a water of the United States (US).	USACE	Before construction begins.	Construction planning.	Wetlands Fish and Wildlife Vegetation	Loss or degradation of wetlands. Degradation to water quality. Habitat degradation.	CRS 25-8-101 through 25-8-105 and 25-8-201 through 25-8-205, Colorado Water Quality Control Act CDOT Erosion Control and Stormwater Quality Guide at Website: http://www.dot.state.co.us/environmental/envWaterQual/wqms4.asp CDOT PDM, Section 2.19 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm 23 Code of Federal Regulations (CFR) Part 771, Environmental Impact and Related Procedures 33 CFR Parts 320-384 USACE– General Regulatory Policies 33 United States Code (USC) 1251-1376, CWA FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm
CWA Section 401 Certification: required for any project or maintenance activity that has obtained an individual Section 404 permit.	CDPHE, WQCD	Four to six months prior to construction.	Construction planning.	Water resources Wetlands Fish and Wildlife Vegetation	Degradation of water quality. Loss or degradation of wetlands. Habitat degradation.	CRS 25-8-101 through 258-105, Colorado Water Quality Control Act 23 CFR Part 771, Environmental Impact and Related Procedures 33 USC 1251-1376, CWA FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm CDOT PDM, Section 2.17 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm

Table 2-2 *Permits (continued)*

Permit, Approval, Certification, or Concurrence: When Required	Coordinating Agency(ies)	Timing	Applicable Project Phase(s)	Potentially Affected Resource(s)[b]	Potential Environmental Consequence(s) Addressed by Compliance	Regulations and Additional Resources
Wetland Finding: required for certain projects that involve construction in wetlands to determine the effect the project will have on their quality.	CDOW US Army Corps of Engineers (USACE) USFWS Bureau of Land Management (BLM) FHWA	Beginning of project development.	NEPA document development—include in Final EIS or EA, depending on size of project. May need amendment at Finding of No Significant Impact (FONSI), Record of Decision (ROD), or Reevaluation.	Water Resources Wetlands Fish and Wildlife	Degradation to water quality. Loss or degradation of wetlands. Habitat degradation	Executive Order 11990, Protection of Wetlands 23 CFR Part 777, Mitigation of Environmental Impacts to Privately Owned Wetlands 23 CFR Part 771, Environmental Impact and Related Procedures FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm CDOT PDM, Section 2.11 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm
Clean Water Act (CWA) Section 404 Permit: required when construction or maintenance projects require discharge of dredged or fill material below the ordinary high-water line in any body of water considered a water of the United States (US).	USACE	Before construction begins.	Construction planning.	Wetlands Fish and Wildlife Vegetation	Loss or degradation of wetlands. Degradation to water quality. Habitat degradation.	CRS 25-8-101 through 25-8-105 and 25-8-201 through 25-8-205, Colorado Water Quality Control Act CDOT Erosion Control and Stormwater Quality Guide at Website: http://www.dot.state.co.us/environmental/envWaterQual/wqms4.asp CDOT PDM, Section 2.19 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm 23 Code of Federal Regulations (CFR) Part 771, Environmental Impact and Related Procedures 33 CFR Parts 320-384 USACE– General Regulatory Policies 33 United States Code (USC) 1251-1376, CWA FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm
CWA Section 401 Certification: required for any project or maintenance activity that has obtained an individual Section 404 permit.	CDPHE, WQCD	Four to six months prior to construction.	Construction planning.	Water resources Wetlands Fish and Wildlife Vegetation	Degradation of water quality. Loss or degradation of wetlands. Habitat degradation.	CRS 25-8-101 through 258-105, Colorado Water Quality Control Act 23 CFR Part 771, Environmental Impact and Related Procedures 33 USC 1251-1376, CWA FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm CDOT PDM, Section 2.17 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm

Table 2-2 *Permits (continued)*

Permit, Approval, Certification, or Concurrence: When Required	Coordinating Agency(ies)	Timing	Applicable Project Phase(s)	Potentially Affected Resource(s)[b]	Potential Environmental Consequence(s) Addressed by Compliance	Regulations and Additional Resources
CWA Section 402 Certification: required for projects with construction dewatering operations or if a discharge is expected to occur from mechanical wastewater treatment plants, vehicle washing, or industrial discharges.	CDPHE, Water Quality Control Division (WQCD)	30 days prior to construction. 401 certification is sought at the same time the individual 404 permit application is submitted.	NEPA document development—include discussion of the need for permit in EIS or EA.	Water resources	Depletion of groundwater resources and degradation of water quality from discharging dewatering fluids containing sediment into adjacent water bodies.	CRS 25-8-101 through 25-8-105, Colorado Water Quality Control Act Regulation No. 61 Colorado Discharge Permit System (CDPS) Regulations FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm 23 CFR Part 771, Environmental Impact and Related Procedures 40 CFR Part 122, CWA – The National Pollutant Discharge Elimination System 33 USC 1251-1376, CWA CDOT PDM, Section 2.18 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm
CDPS Construction General Permit: required when a project will disturb one acre or greater of land.	CDPHE, WQCD	Before construction begins.	Construction.	Special status species, Vegetation Fish and Wildlife Geologic resources Soil Water resources Floodplains	Habitat degradation caused by concentrated stormwater flows and sediment. Erosion and potentially destabilized formations caused by concentrated stormwater flows. Erosion of topsoil and formation of gullies caused by increased stormwater flows from disturbed area. Water quality degradation caused by stormwater carrying sediment and other pollutants. Flooding caused by increased stormwater runoff from disturbed site.	CRS 25-8-101 through 25-8-105 and 25-8-201 through 25-8-205, Colorado Water Quality Control Act CDOT PDM, Section 2.20 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm New National Pollution Discharge Elimination System (NPDES) Procedure for Construction Activities Memo (CDOT PDM) CDOT Procedural Directive 704.1 Section 404 Permit Access Process 23 CFR Part 771, Environmental Impact and Related Procedures 23 CFR Part 777, Mitigation of Environmental Impacts to Privately Owned Wetlands 40 CFR Part 122, CWA FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm CDOT Erosion Control and Stormwater Quality Guide at Website: http://www.dot.state.co.us/environmental/envWaterQual/wqms4.asp
Section 303 4(f) Evaluation: required for any project that will use land designated a historic site or publicly owned parks, recreational areas, and wildlife and waterfowl refuges.	Department of the Interior (DOI) State Historic Preservation Officer (SHPO) FHWA	Before route location approval is required from FHWA.	Construction planning. NEPA document development.	Land use Fish and Wildlife	Restricted land use by public. Habitat degradation.	23 CFR Part 771.135, Environmental Impact and Related Procedures – Section 4(f) (49 U.S.C 303) FHWA Section 4(f) Policy Paper (Revised June 7, 1989) FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm CDOT PDM, Section 2.04 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm

Table 2-2 *Permits (continued)*

Permit, Approval, Certification, or Concurrence: When Required	Coordinating Agency(ies)	Timing	Applicable Project Phase(s)	Potentially Affected Resource(s)[b]	Potential Environmental Consequence(s) Addressed by Compliance	Regulations and Additional Resources
Section 6(f) Approval: required when a project must use lands acquired or improved using Land and Water Conservation funds. Where Section 6(f) lands will be used for transportation project construction, replacement lands are required.	DOI, National Park Service (NPS) FHWA	As soon as Section 6(f) lands are identified. May require extensive research and coordination with DOI.	NEPA document development—analysis can be included in EIS or EA or as separate document.	Land use Water resources	Land can no longer be used for purposes for which improvement funds were expended. Change in land use will adversely affect water conservation.	16 USC 4601-4608, Section 6(f) Requirements CDOT PDM, Section 2.04 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm
Section 106 Consultation: for all projects, CDOT in-house cultural resource staff or contractor conducts archival research and a field survey to document and evaluate all historic properties more than 50 years old.	SHPO Advisory Council on Historic Preservation (ACHP) FHWA	Prior to FHWA approval and funding of construction and maintenance projects.	NEPA document development—include in EA or EIS.	Historic Properties	Adverse effects to historic property.	23 CFR Part 771.135, Environmental Impact and Related Procedures – Section 4(f) (49 U.S.C 303) 36 CFR Part 60, DOI, National Register of Historic Places 36 CFR Part 800, Parks, Forests, and Public Property, Protection of Historic and Cultural Properties CRS 24-80.1 ff, Colorado Register of Historic Places Act CDOT PDM, Section 2.05 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm FHWA Technical Advisory T 6640.8A, Guidance for Preparing and Processing Environmental and Section 4(f) Documents at Website: http://www.fhwa.dot.gov/legsregs/directives/techadvs.htm
Farmland Protection Clearance: required for projects that need to acquire Right-of-way (ROW) through designated farmland.	Natural Resources Conservation Service (NRCS)	During NEPA document development.	NEPA document development—include in EA or EIS.	Farmlands	Conversion of prime or unique farmland to non-agricultural uses.	7 CFR Part 658, Agriculture – Farmland Protection Policy Act (FPPA) 23 CFR Part 771, Environmental Impact and Related Procedures CDOT PDM, Section 2.10 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm Farmland Protection Flowchart, Figures 2(a) and 2(b) (CDOT PDM, Section 2.10)
Special Use Permits: required when CDOT or a contractor is required to work outside the ROW or easement area that was previously obtained from other government entities.	State Board of Land Commissioners BLM US Forest Service (USFS) FHWA	Prior to construction, including environmental clearances, utility relocations, surveying, or related work.	Construction planning.	ROW	Encroachment on property for which CDOT has not been granted right of way.	23 CFR 660A, Special Programs, Forest Highways CDOT ROW Manual, Chapter 2 at Website: http://www.dot.state.co.us/ROW_Manual/ CDOT Survey Manual at Website: http://www.dot.state.co.us/Survey_Manual/ Memoranda of Understanding (MOU), USFS and Bureau of Land Management, August–September 1995 CRS 38-50-101 ff, Survey Plats and Monument Records – General Provisions CRS 38-51-101 ff, Survey Plats and Monument Records – Minimum Standards for Land Surveys and Plats CRS 38-52-101 ff, Survey Plats and Monument Records – Colorado Coordinate System CDOT PDM, Section 6.02 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm

Table 2-2 *Permits (continued)*

Permit, Approval, Certification, or Concurrence: When Required	Coordinating Agency(ies)	Timing	Applicable Project Phase(s)	Potentially Affected Resource(s)[b]	Potential Environmental Consequence(s) Addressed by Compliance	Regulations and Additional Resources
ROW Certification Letter: required when federal aid will be used for project construction.	FHWA	Before project can be advertised for construction.	Construction planning.	ROW	Encroachment on property for which CDOT has not been granted right of way.	CFR 23, Part 710.201 through 713.308, ROW issues CDOT PDM, Section 6.02 at Website: http://www.dot.state.co.us/DesignSupport/Project%20Development%20Manual/CDOT%20Project%20Development%20Manual.htm CDOT ROW Manual, Chapter 2 at Website: http://www.dot.state.co.us/ROW_Manual/ Federal-aid Policy Guide at Website: http://www.fhwa.dot.gov/legsregs/directives/fapgtoc.htm FHWA ROW Project Development Guide at Website: http://www.fhwa.dot.gov/realestate/pdg.htm
Railroad Agreement: required for projects that involve work on railroad property or railroad crossings. A Public Utilities Commission application is required when projects involve railroad crossings or over/underpasses.	Railroad company Local agencies Public Utilities Commission	Early in planning process, as obtaining clearance may take 12 months.		Railroad	Encroachment on property for which CDOT has not been granted right of way.	CFR 23 Part 140I, Reimbursement for Railroad Work; Part 646A Railroad-Highway Insurance Protection, and Part 646B, Railroad-Highway Projects FHWA Railroad – Highway Grade Crossing Handbook at Website: http://fhwainter.fhwa.dot.gov/tfhrc/safety/pubs/86215/intro.htm

Notes:
a Agency definitions: ACHP: Advisory Council on Historic Preservation; BLM: United States (US) Bureau of Land Management; CDOW: Colorado Division of Wildlife; CDPHE, APCD: Colorado Department of Public Health and Environment, Air Pollution Control Division; CDPHE, WQCD: CDPHE, Water Quality Control Division; DOI: US Department of Interior; DOI, NPS: DOI, National Park Service; FHWA: Federal Highways Administration; NRCS: Natural Resources Conservation Service; SHPO: State Historic Preservation Officer; USACE: US Army Corps of Engineers; USFS: US Forest Service
b A detailed description of the project conditions requiring the specific permit, approval, certification, or coordination identified is further discussed in Section 9.0 (Resources) in the subsection noted.
Note: Most of the information in this table came from the CDOT Project Development Manual (Chapters 2 and 6). The manual updates were reviewed and incorporated, but the information should be checked for accuracy.

APPENDIX F: QUALITY ASSURANCE (QA)/QUALITY CONTROL (QC) GUIDANCE FOR NEPA DOCUMENTS

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APPENDIX F: QUALITY ASSURANCE (QA)/QUALITY CONTROL (QC) GUIDANCE FOR NEPA DOCUMENTS - CONTENTS

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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.

"To provide the best multi-modal transportation system for Colorado that most effectively moves people, goods and information"

-CDOT's Mission Statement

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

"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, as identified in Appendix E of the NEPA Manual. 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 Plans are included in Attachments 1 and 2.

Planning is the beginning. Quality in work is not an accident.

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

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, 2001a).

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 judgement 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, 2006) references project management and coordination requirements on a project-specific basis.

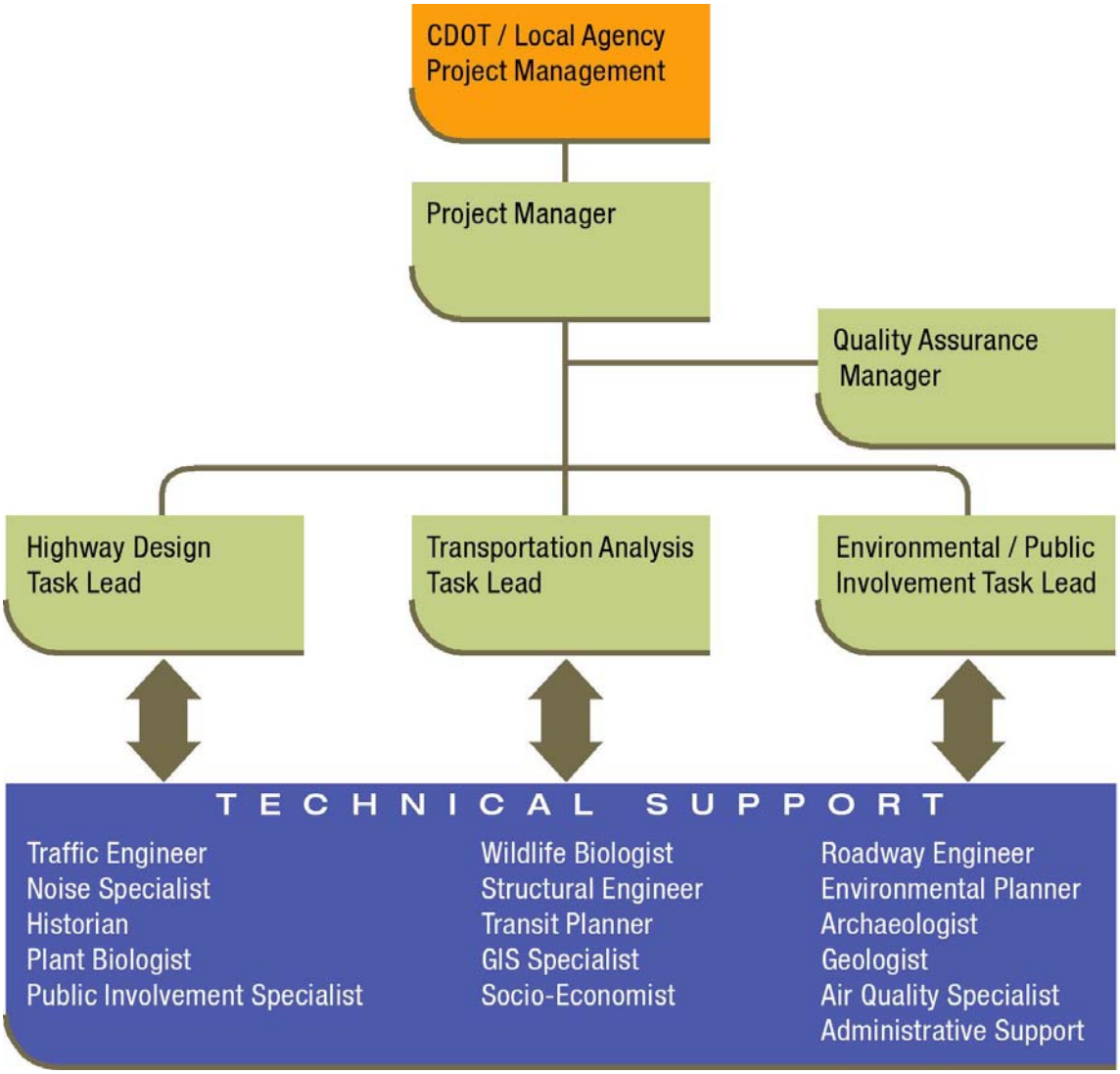
"The best way to eliminate quality problems is to minimize the chance of making mistakes with good planning, adequate preparation, and the necessary support."

-PSMJ Resources, Inc. The Ultimate Project Management Manual

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.

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 decisionmakers 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 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.

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

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, 2008). The CDOT Corridor GIS Standards (CDOT, 2001b) 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, 2008) 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

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.

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

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: Virginia Duvall VA.Duvall@dot.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.

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.

No matter how well a NEPA project is managed, some mistakes and omissions will occur.

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.

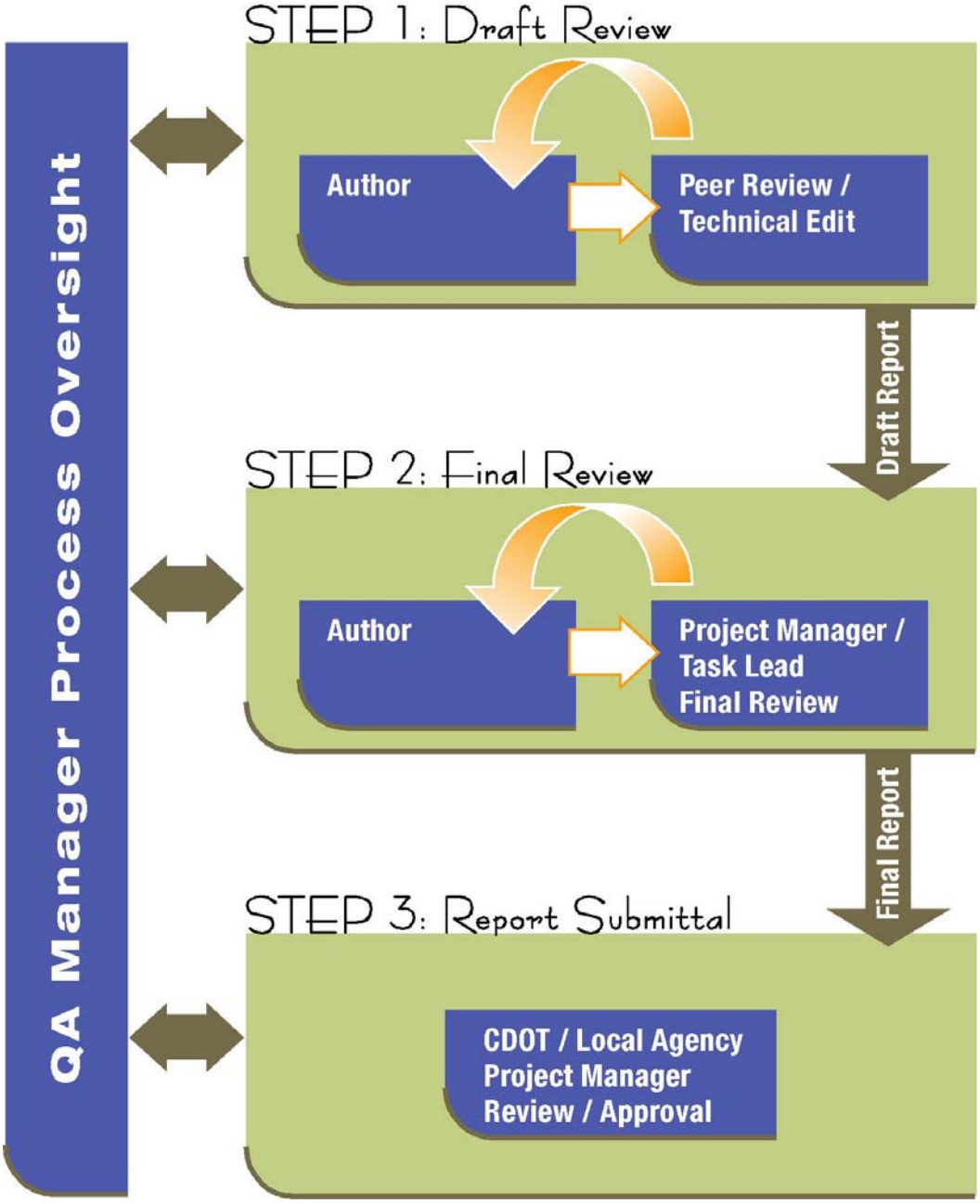
Step #3 – Report Submittal

- 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

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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ATTACHMENT 1
NORTH I-25 EIS
QUALITY ASSURANCE PROGRAM

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NORTH I-25 EIS

information. cooperation. transportation.

QUALITY ASSURANCE PROGRAM

Prepared for:
Colorado Department of Transportation
Region 4
2207 East Highway 402
Loveland, CO 80537

Prepared by:

Felsburg Holt & Ullevig
6300 South Syracuse Way, Suite 600
Centennial, CO 80111

August, 2008
FHU Reference No. 07-190

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1.0 INTRODUCTION

The Felsburg Holt & Ullevig (FHU) team is strongly committed to sound engineering design, good science, and the production of quality documents. The Quality Assurance Program (QAP) for the North I-25 project is designed to provide a functional and easily understood set of guidelines to maintain and ensure quality during the preparation of National Environmental Policy Act (NEPA) environmental documents. These are public documents that are reviewed 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, and to provide full and honest disclosure.

1.1 PURPOSE OF THE PROGRAM

The objective of this QAP is to ensure technically accurate and legally defensible application of the NEPA process, and to prepare documents for the North I-25 project that are readily understood by the general public. This includes not only the NEPA document themselves, but the data that they are based on, the alternatives that are developed, and all other tasks that support the NEPA process. To meet this objective, this QAP document serves to:

- Outline the EIS development process under NEPA
- Identify an administrative system of management controls for project management, document management, document review, and project review
- Ensure that the environmental data used during the NEPA process is of sufficient quantity and quality to support the data's intended use
- Identify the management controls to be used for design development and to prepare the NEPA documentation

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2.0 NEPA PROCESS

The National Environmental Policy Act (NEPA) was signed into law on January 1, 1970. NEPA established a national environmental policy and provided a framework for federal agencies to account for environmental factors in agency decision-making. Under NEPA, an environmental review is required for major federal agency actions.

Proposed projects are reviewed and categorized according to their likely environmental impact in accordance with NEPA requirements, Council on Environmental Quality guidelines, and lead federal agency guidance, such as the Federal Highway Administration (FHWA). Proposed projects that are likely to have “significant” environmental impacts require the preparation of an Environmental Impact Statement (EIS).

The EIS process ensures that adequate analysis of environmental issues occurs. The process occurs in stages to allow for interagency coordination and public involvement. Internal drafts of the "draft EIS" (DEIS) and the "final EIS" (FEIS) are reviewed by the project team before the documents are considered technically and legally adequate for publication and public and agency review. Public comments are addressed in the FEIS. Ultimately, the Record of Decision (ROD) is prepared based on public and agency comment received on the FEIS, and the lead agency's determination of technical and legal requirements for the project. The ROD is FHWA's official decision document explaining the selection of the preferred alternative and funding for the project.

2.1 PURPOSE AND NEED

PROJECT DESCRIPTION

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), in cooperation with the Colorado Department of Transportation (CDOT), have initiated preparation of an EIS to identify and evaluate multi-modal transportation improvements along approximately 70 miles of the I-25 corridor from the Fort Collins-Wellington area to Denver. The EIS study area is shown in **Figure 2-1**. The EIS will address regional and inter-regional movement of people, goods and services in the I-25 corridor.

PROJECT PURPOSE

The purpose of the project is to meet long-term travel needs between the Denver metropolitan area and the rapidly growing population centers along the I-25 corridor north to the Fort Collins-Wellington area.

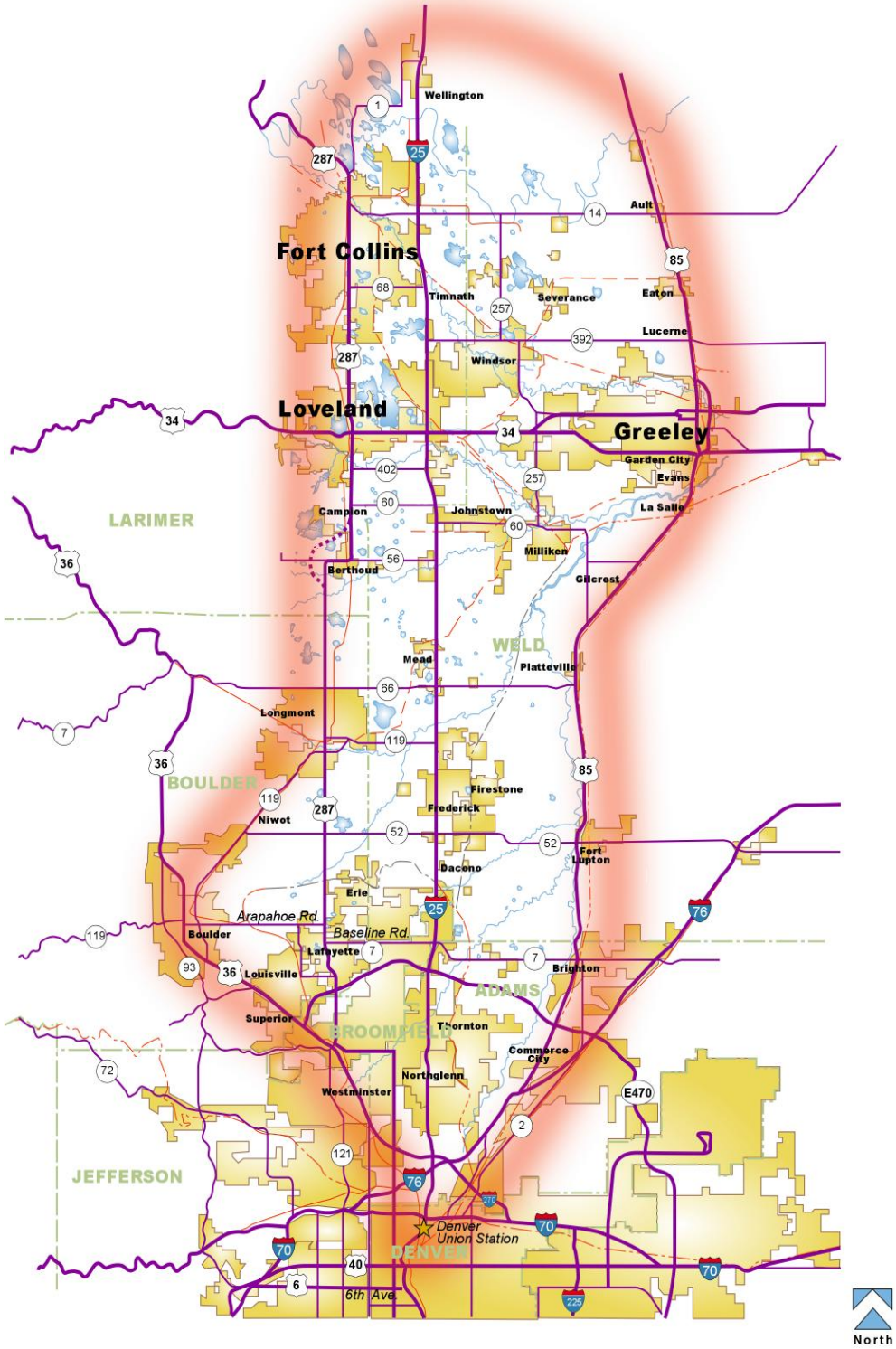
NEED FOR THE ACTION

The project need can be divided into five major categories. The study has identified the need to:

- Improve safety
- Improve mobility and accessibility
- Replace and/or rehabilitate aging and obsolete infrastructure
- Provide for modal alternatives and interrelationships
- Support economic growth

The project needs relate differently to highway solutions and transit solutions. Highway alternatives were evaluated on all five of these needs. Transit alternatives were evaluated only on three of the needs: (1) mobility and accessibility, (2) modal alternatives and interrelationships, and economic growth.

FIGURE 2-1 NORTH I-25 EIS STUDY AREA



3.0 PROJECT MANAGEMENT

Project management is the planning, monitoring, and control of 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 for this project are:

- Comprehensive project scoping
- Collaborative public process
- Project team identification
- Dedication to product quality and defensibility
- Budgeting
- Scheduling
- Subcontractor management

3.1 PROJECT SCOPING

The specific work scope for this project was developed through discussion with FHWA, FTA, CDOT officials, federal, state and local agencies, and the public. In determining the proper scope for NEPA documentation, it is important to ensure that the scope of the project:

- Connects logical termini
- Is of sufficient length and area to address environmental matters on a broad scope
- Has independent utility or is of independent significance
- Does not restrict consideration of alternatives for other reasonably foreseeable transportation improvements

The northern terminus is at the SH 1 interchange near Wellington, Colorado. The southern terminus for all highway alternatives (except HOT and HOV lanes) is E-470. HOV and HOT lane alternatives extend south to connect to the existing reversible HOT lanes north of US 36. Transit alternatives extend south to Denver Union Station.

Based upon scoping and direction by the FHWA and CDOT decision makers, a Purpose and Need Statement was developed. It was later revised as new information became available to CDOT or FHWA. The Statement has been approved by both agencies.

3.2 PROJECT TEAM IDENTIFICATION

The project leadership organization is shown in **Figure 3-1.** The complete project team is shown in **Figure 3-2**.

FIGURE 3-1 PROJECT LEADERSHIP ORGANIZATION

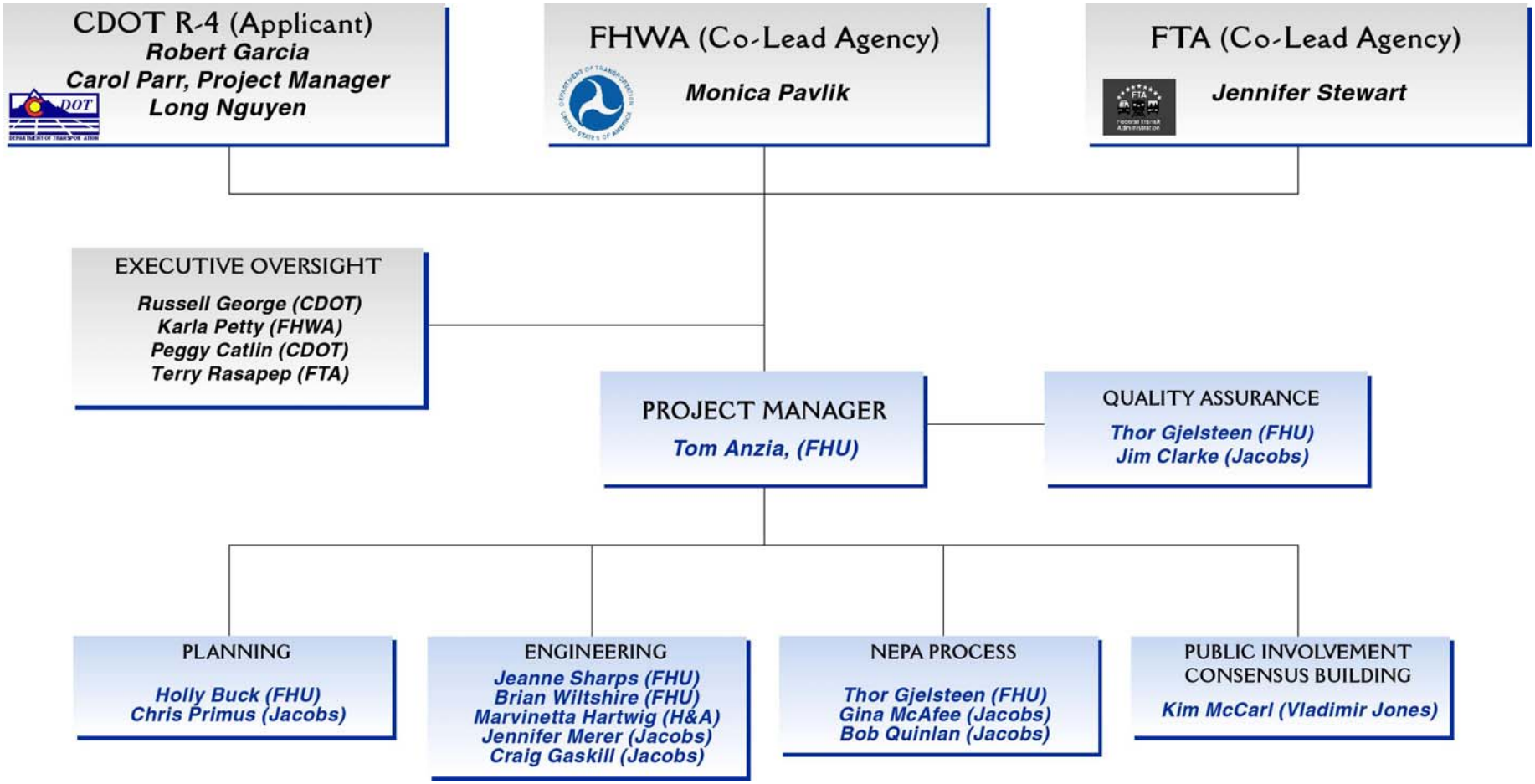
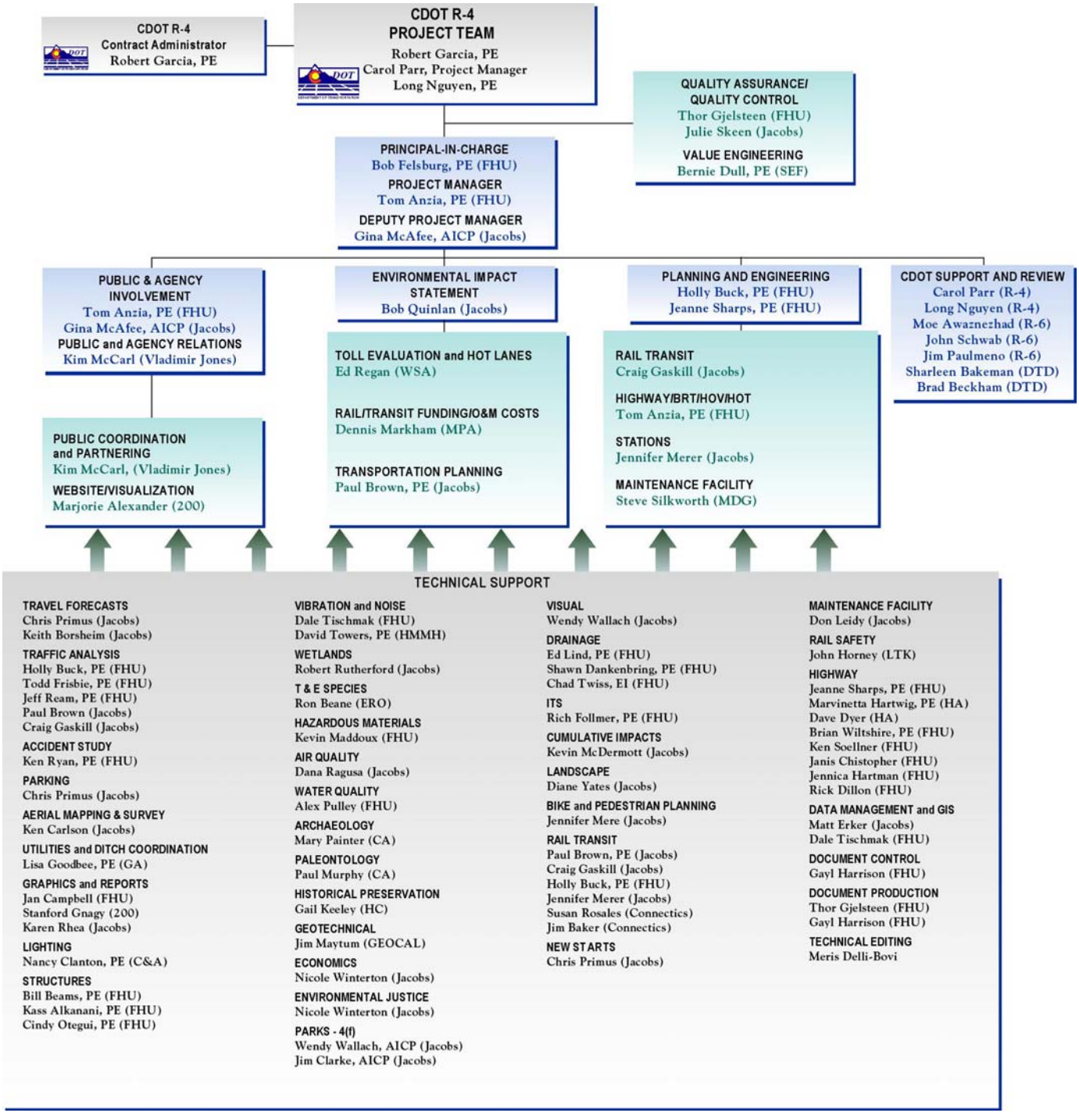


FIGURE 3-2 PROJECT TEAM



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4.0 DOCUMENTATION CONTROL

A large volume of documentation has been and will be generated for the North I-25 EIS project. The CDOT project manager must manage document storage, search existing documents, and extract information as necessary to streamline workflow and acquire important information. The CDOT project manager has designated these tasks to Tom Anzia, the FHU Project Manager, with CDOT oversight. Document management requires the implementation of document control procedures to track documents generated, file documents, and provide access to previously generated documents. This program is documented in the guidelines presented below.

Guidelines for Document Retention for the
North I-25 Corridor
NEPA Process

1) A copy of all documents related to the project and the NEPA process are to be forwarded to the Project File Manager, Gayl Harrison, who is responsible for document control at Felsburg, Holt & Ullevig. This includes all correspondence, drafts, 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 data. These documents will be logged in and so become a part of the project's document control files.

2) Out of the project's document control files, the following documents will be included in the official "Administrative Record" for the NEPA process:

   a. Final Purpose and Need Statement: Drafts and revisions of the final Purpose and Need Statement will be included in document control, but will not be included in the Administrative Record.

   b. Summary of comments received during the scoping process and all other public forums. The individual comments will be included in the document control files.

   c. Final screening criteria: Drafts of the screening criteria will be included in document control, but will not be included in the Administrative Record.

   d. Public Involvement documents: Documents related to public involvement including notices of meetings, committee meeting 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.

   e. 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.

   f. Correspondence between CDOT and cooperating and other agencies.

   g. All reports, data, and memorandums that were prepared to provide detail to supplement information presented in the EIS.

   h. All documents related to internal processes that lead to a decision or a change in direction for the project.

   i. Draft EIS, Final EIS, the ROD, and any amendments or supplements.

3) When documents are sent to the Project File Manager, project team members must give these documents designations in keeping with the Document Filing Codes listed in **Section 5.1.1** of this Quality Assurance Program. For example, members must consider which documents were used as a resource to conduct analyses, create mapping, etc. The Project File Manager, in consultation with the Project Manager, will decide whether the document will be allocated to the Administrative Record.

4) 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 Outlook folders labeled “e-mails”. Then on a weekly or monthly basis the individual contributors import all of these stored e-mails into their “askSAM” (email software storage system) database files for the project. These files are automatically stored on FHU’s file server. 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.

5) 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 document’s contents, who has received copies of the document, and the grounds for claiming that the document is confidential.

6) All of the above documents, including personal notes and e-mails are subject to the Colorado Open Records Act and/ or Freedom of Information Act. 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 File Manager at Felsburg, Holt & Ullevig (Gayl Harrison).

All requests for information under the Colorado Open Records Request Act and/or Freedom of Information Act are to be processed in the following manner:

1. The request is sent to CDOT’s Project Manager (Carol Parr) and to CDOT’s Legal Assistant (Virginia Duvall), with no action taken by the consultant unless directed by them or their designee.
2. Once directed, the consultant develops an estimate of the cost to provide the requested information.
3. Once CDOT receives the funds from the requesting party to cover the cost of providing the information, the consultant prepares the information and a copy of it for CDOT records.
4. The consultant also develops a complete listing of the information provided and gives that list to CDOT.
5. The consultant keeps track of all costs associated with the production of the information and provides a full accounting of the costs along with the information.
6. Information provided by the consultant is given only to CDOT.

Paper documents are assigned tracking numbers and filed as shown according to the following Document Control Form. Electronic documents are labeled and filed in a system described in **Section 5.0**.

DOCUMENT CONTROL FORM

THIS SHEET SHOULD BE COMPLETED FOR DOCUMENT(S) – OR – ENTER INFORMATION ON TOP RIGHT OF FRONT PAGE OF DOCUMENT.

Today's Date: _____ Assigned Document Tracking No. _____

Date of Document: _____ Document Sender: _____

Document Recipient: Name: _____ Company: _____

☐ Admin Record ☐ Confidential ☐ FHU Internal

(PM) PROJECT MANAGEMENT Drawer (All Project Management Files are located in Project Manager's Office)

☐ Correspondence COR ☐ Misc. PJM ☐ Pay Apps PAP ☐ Schedule SCH

(MIN) MINUTES (Non-Committee) Drawer #8 Blue File

☐ PM ☐ Agency ☐ EIS ☐ Environmental ☐ Public Inv ☐ Planning ☐ ENG ☐ Mapping/Survey/Data ☐ GIS ☐ ACAD

(EOC) EXECUTIVE OVERSIGHT COMMITTEE - Drawer #4 Aqua Files

☐ Correspondence COR ☐ Minutes EOC ☐ Misc EOC

(RCC) REGIONAL COORDINATION COMMITTEE - Drawer #4 Gray Files

☐ Directory DIR ☐ Minutes RCC ☐ Misc RCC ☐ Presentations PRE

(TAC) TECHNICAL ADVISORY COMMITTEE - Drawer #4 Pink Files

☐ Directory DIR ☐ Minutes TAC ☐ Misc TAC ☐ Presentations PRE

(AGE) AGENCY Drawer #2 Manilla Files

☐ Agency AGE ☐ Corp of Engineers COE ☐ Colo Dept of Transportation DOT ☐ Dept of Wildlife DOW ☐ Fed Hwy Admin FHW ☐ Fed Railroad Assn FRA ☐ Federal Transportation Admin FTA

☐ Misc AIM ☐ Metropolitan Planning Org MPO ☐ Rapid Transp Dist RTD ☐ State Historic Preservation Office SHP

(EIS) ENVIRONMENTAL IMPACT STUDY - Drawer #1 Blue Files

☐ Alternatives/Screening ALT ☐ Correspondence COR ☐ Data DAT ☐ Draft EIS DEI

☐ Misc EIS ☐ NOI NOI ☐ NO Action NOA ☐ Purpose and Need PAN ☐ Scoping SCO ☐ Temini TER

(ENV) ENVIRONMENTAL - Drawer #2 Green Files

☐ 4f & 6f FSF ☐ Aesthetics AES ☐ Air Quality AQU ☐ Archeology ARC ☐ Cumulative CUM ☐ Drainage DRN

☐ Ecological ECO ☐ Economics ECN ☐ EJ & Social SEJ ☐ Energy ENE ☐ Farmlands FRM ☐ Geology GEO

☐ Haz Mat HAZ ☐ Historical HIS ☐ Misc ENV ☐ Noise & Vib RNV ☐ Noise (Hwy) HNV ☐ Other Analysis OTH

☐ Paleontology PAL ☐ ROW ROW ☐ T&E Specs TES ☐ Utilities UTI ☐ Water Quality H20 ☐ Wetlands WET ☐ Wildlife WIL

(PI) PUBLIC INVOLVEMENT - Drawer #5 Black Files

☐ Comments COM ☐ Handout HND ☐ HIRSYS HIR ☐ Mailing List MLG ☐ Media MED ☐ Misc PIM

☐ News Release NEW ☐ Open House OPN/ Town Hall ☐ Small Groups SMG ☐ Highway Small Groups ____ (1-7) ☐ Website WEB

(PLN) PLANNING - (Pre DEIS (Files before 2/1/06) Drawer #7 Red Files

☐ Accident (non-modeling) ☐ Bike & Ped BNP ☐ Bus Transit BTR ☐ Congestion Mgmt CMT ☐ Express ACC ☐ Funding FUN ☐ Highway HWY EXP

☐ HOT HOT ☐ HOV HOV ☐ Rail Transit RRT ☐ Tolling TOL ☐ Traffic TFR ☐ Travel Forecast TFC ☐ Value Eng VAL

(ENG) ENGINEERING - (DEIS/FEIS) (Files after 2/1/06) Drawer #3 Purple Files

☐ Congestion Mgmt CMT ☐ DEIS-Draft Design ☐ FEIS-Final Design ☐ Misc MSC ☐ Transit ☐ Travel Forecast/ Land Use TFC ☐ Traffic

(GIS) GEOGRAPHIC INFORMATION SYSTEMS - Drawer #4 Yellow Files

☐ Datum DAT ☐ Geo Database GDB ☐ Image IMG ☐ Layers LAY ☐ Misc GIS

(MSD) MAPPING/SURVEY/DATA -Drawer #6 Yellow Files

☐ Data DAT ☐ Mapping MPP ☐ Misc MDS ☐ Planning PLA ☐ Survey SUR

(D0C) DOCUMENT CONTROL - Drawer #4 Blue Files

☐ Correspondence COR ☐ Misc DOC ☐ Quality Assurance QA

(REF) - REFERENCE Bookcase ☐ Bookcase REF

(ACAD) AUTOMATED COMPUTER AIDED DESIGN - Drawer #6 – Orange Files

☐ Base BSE ☐ Displays DSP ☐ LOGO LOG ☐ Misc ACD ☐ Temp TEM

(N-S) NON-SUBSTANTIVE - Drawer #6– Turquoise Files ☐ Non-Substantive N-S

Comments/Details of Document Content (if necessary)

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5.0 ELECTRONIC FILE STORAGE AND FILE LABELING

The electronic file storage is an integral part of the quality assurance program. One central location is assigned the responsibility of collecting correspondence and information that is transmitted electronically. Information is filed in an accessible file system and labeled so that documents are readily identified by the file name.

Once the file location is established, a standardized format is established for location and labeling files used by all staff.

5.1 ELECTRONIC DOCUMENT CONTROL

The electronic files for the North I-25 EIS at FHU are located on the J:\ drive. Within that directory, there is a folder titled “03-225”. This folder contains the subdirectories that house all of the project information associated with the EIS. This information is “backed up” regularly as part of the system maintenance process to ensure safekeeping.

The project folder contains these sub-directories, most of which are described and outlined in the following four pages:

- Project Management
- Minutes (Non-Committee)
- Executive Oversight Committee
- Regional Coordinating Committee
- Technical Advisory Committee
- Agency
- Environmental Impact Study
- Environmental
- Technical Reports
- Public Involvement
- Engineering (DEIS/FEIS) (After 2/1/06)
- Planning (Before 2/1/06)
- GIS
- Mapping/Survey/Data
- Document Control
- Reference (Bookcase)
- Alternatives Report
- ACAD
- Administration
- Modeling

Document Filing Codes

CODE	DESCRIPTION of FILES	FILE NAME
(PM) PROJECT MANAGEMENT- All matters related to contract, schedule and scoping.		
COR	Correspondence	COR-Sub/Aut-Date.doc
MSC	Miscellaneous	MSC-Subject-Date.doc
PAP	Pay Applications	PAP-Company-Date.doc
SCH	Schedule	SCH-Subject-Date.doc
(MIN) MINUTES- All meeting minutes, with the exception of the TAC, RCC, Public Open House, and EOC. Minutes are filed by date of the meeting. Any documents pertaining to this meeting, including but not limited to minutes, agendas, handouts and schedules.		
PM	Project Mgmt.	PM-Subject-Date.doc
AGE	Agency	AGE-Subject-Date.doc
EIS	EIS	EIS-Subject-Date.doc
ENV	Environmental	ENV-Subject-Date.doc
PI	Public Involvement	PI-Subject-Date.doc
PLN	Planning	PLN-Subject-Date.doc
ENG	Engineering	ENG-Subject-Date.doc
MAP	Mapping/Survey/Data	MAP-Subject-Date.doc
GIS	GIS	GIS-Subject-Date.doc
AAD	ACAD	ACAD-Subject-Date.doc
(EOC) EXECUTIVE OVERSIGHT COMMITTEE - Meeting agendas, handouts, and minutes of the EOC and documents related to the project's policy issues.		
COR	Correspondence	COR-Subject-Date.doc
MIN	Minutes	MIN-Subject-Date.doc
MSC	Miscellaneous	MSC-Subject-Date.doc
PRE	Presentations	PRE-Subject-Date.doc
(RCC) REGIONAL COORDINATION COMMITTEE - Documents pertaining to the Regional Coordination Committee.		
DIR	Directory	DIR-Type-Date.doc
MIN	Minutes	MIN-Subject-Date.doc
PRE	Presentations	PRE-Subject-Date.doc
(TAC) TECHNICAL ADVISORY COMMITTEE - Documents pertaining to the Technical Advisory Committee.		
DIR	Directory	DIR-Type-Date.doc
MIN	Minutes	MIN-Subject-Date.doc
PRE	Presentations	PRE-Subject-Date.doc
(AGE) AGENCY - Documents to/from CDOT, lead agencies, cooperating agencies, and participating MPO's.		
AGE	Agency	AGE-Subject-Date.doc
COE	Corps of Engineers	COE-Subject-Date.doc
DOT	Colorado Department of Transportation	DOT-Subject-Date.doc
DOW	Colorado Division of Wildlife	DOW-Subject-Date.doc
FHW	Federal Highway Administration	FHW-Subject-Date.doc
FRA	Federal Railroad Association	FRA-Subject-Date.doc
FTA	Federal Transportation Administration	FTA-Subject-Date.doc
MPO	North Front Range Metro Planning Organization	MPO-Subject-Date.doc
MSC	Miscellaneous	RES-Subject-Date.doc
RES	Resource Agencies	RES-Subject-Date.doc
RTD	Regional Transportation District	RTD-Subject-Date.doc
SHP	State Historic Preservation Office	SHP-Subject-Date.doc
(EIS) ENVIRONMENTAL IMPACT STUDY - Documents related to the Environmental Impact Study development processes		
ALT	Alternatives/Screening	ALT-Subject-Date.doc
COR	Correspondence	COR-Subject-Date.doc
DAT	Data Collection & Organization	DAT-Subject-Date.doc
DEIS	Draft Environmental Impact Study	DEIS-Subject-Date.doc

CODE	DESCRIPTION of FILES	FILE NAME
(EIS) ENVIRONMENTAL IMPACT STUDY - Documents related to the Environmental Impact Study development processes (Cont'd)		
MSC	Miscellaneous	MSC-Subject-Date.doc
NOI	Notice of Intent	NOI-Subject-Date.doc
NOA	No Action Alternative	NOA-Subject-Date.doc
PAN	Purpose & Need	PAN-Subject-Date.doc
SCO	Scoping	SCO-Subject-Date.doc
TER	Termini	TER-Subject-Date.doc
(ENV) ENVIRONMENTAL - Documents related to resources during the alternative screening process		
FSF	4(f) & 6(f) - Parks, Recreation, or Historic	4(f)-Subject-Date.doc
AES	Aesthetics	ARC-Subject-Date.doc
ARC	Archaeology	ARC-Subject-Date.doc
AQU	Air Quality	ARC-Subject-Date.doc
CUM	Cumulative.	CUM-Subject-Date.doc
DRN	Drainage	DRN-Subject-Date.doc
ECO	Ecological	ECO-Subject-Date.doc
ECN	Economics	ECN-Subject-Date.doc
EJS	Environmental Justice & Social	EJS-Subject-Date.doc
ENE	Energy	ENE-Subject-Date.doc
FRM	Farmlands	FRM-Subject-Date.doc
GEO	Geology	GEO-Subject-Date.doc
HAZ	Hazardous Material	HAZ-Subject-Date.doc
HIS	Historical	HIS-Subject-Date.doc
MSC	Miscellaneous	MSC-Subject-Date.doc
RNV	Noise & Vibration	RNV-Subject-Date.doc
HNV	Noise	HNV-Subject-Date.doc
OTH	Other Analyses	OTH-Subject-Date.doc
PAL	Paleontology	PAL-Subject-Date.doc
ROW	Right of Way	ROW-Subject-Date.doc
TES	Threatened & Endangered Species	TES-Subject-Date.doc
UTI	Utilities	UTI-Subject-Date.doc
H20	Water Quality	H20-Subject-Date.doc
WET	Wetlands	WET-Subject-Date.doc
WIL	Wildlife	WIL-Subject-Date.doc
(PI) PUBLIC INVOLVEMENT - Documents related to informing the public and engaging them in the environmental impact study process		
COM	Comments	COM-Subject-Date.doc
HND	Handout	HND-Subject-Date.doc
HIR	HIRSYS	HIR-Subject-Date.doc
MLG	Mailing List	MLG-Subject-Date.doc
MED	Media	MED - Title - Date.doc
MSC	Miscellaneous	MSC-Subject-Date.doc
NEW	News Release	NEW - Title - Date.doc
OPN	Open House - Public	OPN-Subject-Date.doc
SMG	Small Groups	SMG - Group - Date.doc
HWY	Highway Small Groups 1-7	HWY - Subject - Date.doc
WEB	Website	WEB-Subject-Date.doc

CODE	DESCRIPTION of FILES	FILE NAME
(PLN) PLANNING - Documents through the alternative screening processes, prior to pre-DEIS development (Before Feb. 1, 2006)		
ACC	Accident	ACC-Subject-Date.doc
BNP	Bike & Pedestrian	BNP-Subject-Date.doc
BRT	Bus Transit	BRT-Subject-Date.doc
CMT	Congestion Management	CMT - Sub/Rev - Date.doc
EXP	Express	EXP-Subject-Date.doc
FUN	Funding	FUN-Subject-Date.doc
HWY	Highway	HWY-Subject-Date.doc
HOT	High Occupancy Toll Lane	HOT-Subject-Date.doc
HOV	HOV	HOV-Subject-Date.doc
RRT	Rail Transit	RRT-Subject-Date.doc
TOL	Tolling	TOL-Subject-Date.doc
TRA	Traffic	TRA-Subject-Date.doc
TFC	Travel Forecasting	TFC-Subject-Date.doc
VAL	Value Engineering	VAL-Subject-Date.doc
(ENG) ENGINEERING (DEIS) – (Files after 2/1/06)		
CMT	Congestion Management	CMT-Subject-Date.doc
DEIS	Draft EIS Design	DEIS-Subject-Date.doc
FEIS	Final EIS Design	FEIS-Subject-Date.doc
MSC	Miscellaneous	MSC-Subject-Date.doc
TRN	Transit	TRN-Subject-Date.doc
TFC	Travel Forecast	TFC-Subject-Date.doc
TRA	Traffic	TRA-Subject-Date.doc
(MSD) MAPPING/SURVEY/DATA - Field survey correspondence related to Public Resource Librarian (PRL), where all data is stored		
DAT	Data	DAT-Subject-Date.doc
MPP	Mapping	MPP-Subject-Date.doc
MSC	Miscellaneous	MSC-Subject-Date.doc
PLN	Planning	PLN-Subject-Date.doc
SUR	Survey	SUR-Subject-Date.doc
GIS - Correspondence related to GIS data collection and storage, such as aerial photography and data sharing agreements		
DAT	Datum	DAT-Subject-Date.doc
GDB	Geo Database	GDB-Subject-Date.doc
IMG	Image	IMG-Subject-Date.doc
LAY	Layers	LAY-Subject-Date.doc
MSC	Miscellaneous	MSC-Subject-Date.doc
(DOC) DOCUMENT CONTROL– General documents related to the environmental impact study project that are not specific to other sub-directories		
COR	Correspondence	COR-Sub/aut - Date.doc
MSC	Miscellaneous	MSC-Subject-Date.doc
QA	Quality Assurance	QA-Subject-Date.doc
REFERENCE – CDOT, FHWA, and FTA environmental guidance and design manuals and information		
REF	Bookcase	REF-Subject-Date.doc
ACAD - All drawings and exhibits completed in AutoCAD, set up according to FHU convention. Sub-folders are established to separate major categories of drawings such as interchanges and segments of highways.		
BSE	Base	BSE-Subject-Date.doc
DSP	Displays	DSP-Subject-Date.doc
LOG	Logo	LOG-Subject-Date.doc
MSC	Miscellaneous documents	MISC-Subject-Date.doc
TEM	Temp	TEM-Subject-Date.doc

5.2 FORMAT FOR TITLES OF CORRESPONDENCE FILES

Document Type	Formatting	Example
Letters	LTR – Subject-Author-Date	ENV – LTR – Water quality SJS 040404.doc
Reports	RPT – Subject Author Rev Date.doc	EIS – RPT – Draft EIS TA 040404.doc
Memo	MEM – Subject Author Date.doc	MEM – Open House 2 HM 050104.doc
Facsimile	FAX – From-Subject Date.doc	FAX – PRACO Open house 050104.doc
E-mail	EMA – From Subject Date.doc	EMA – Anzia Sub-Consultant Agreement 050104.doc
Drawing	DWG -	
Presentation	PPT – Subject date rev.doc	PPT – Small Grps 050104 Rev 2.doc
Agenda	*XXX – Dateag.doc	PPM – 070604ag.doc
Meeting Minutes	*XXX – date.doc	TAC – 061004.doc
Agreements	AGM – Company Date.doc	AGM – PRACO 061004.doc
Directories	DIR – Title Date.doc	TAC – Member Directory 061004.doc
Small Groups	SMG – Group Date.doc	SMG – Ft. Collins Chamber 040104.doc
News Releases	NEW – Title Date.doc	NEW – New Highway 010404.doc
Public Open Houses	OPN – Description Date.doc	OPN – Comments Sheet 061004.doc
Purpose & Need/Draft EIS	PAN – Description Date Rev.doc	PAN – Draft 060404 Rev 4.doc

*Directly related to the type of meeting this is slated for, such as Technical Advisory Committee = TAC, Project Progress Meeting = PPM

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6.0 QUALITY ASSURANCE PROCESSES

6.1 QA PROCESS - HIGHWAY GROUP

The North I-25 Highway Design Group will conduct the following activities:

- I-25 Mainline and Interchange Conceptual Design
- Graphics for Interchange Small Group Meetings
- Construction Opinions of Probable Costs
- DEIS Level Plan Production

FHU and Hartwig & Associates staff members that will perform these tasks include but are not limited to Jeanne Sharps, Brian Wiltshire, Ken Soellner, Janis Christopher, Jennica Hartman, Rick Dillon, Cindy Otegui, Dave Dyer and Marvinetta Hartwig. The primary contact and scheduler for the highway design effort is Jeanne Sharps. QA efforts will be conducted by the group as a whole with Jeanne Sharps and Marvinetta Hartwig as the leads for the QA effort.

I-25 MAINLINE & INTERCHANGE CONCEPTUAL DESIGN – TASK LEADER: JEANNE SHARPS

Jeanne will oversee and coordinate the I-25 alignment and interchange conceptual design efforts, and design work associated with queue-jumps, station access, frontage roads, and other elements.

Jeanne will coordinate with Todd Frisbie (FHU) to ensure the conceptual geometric designs are adequate for traffic operations. Brian, Ken, Janis, Jennica, Rick, Cindy, and Dave D. will perform the conceptual design development.

Review 1 - Internally with the highway design group

Review 2 – Internally with Jeanne and Marvinetta

Review 3 – Project team including CDOT, FHWA, and FTA

GRAPHICS FOR INTERCHANGE SMALL GROUP MEETINGS – TASK LEADER: KEN SOELLNER

Ken will develop graphic standards to be utilized consistently for all interchange small group meeting exhibits. He will be responsible for ensuring all team members are aware of the current graphic standards, and that the standards are used consistently for all meeting exhibits.

Review 1 - Internally with the highway design group

Review 2 – Internally with Ken

Review 3 – Project team including CDOT, FHWA and FTA

CONSTRUCTION OPINIONS OF PROBABLE COSTS – TASK LEADER: BRIAN WILTSHIRE

Brian will develop a standard excel worksheet for calculating highway construction opinions of probable costs for the DEIS package alternatives. He will oversee quantity calculations and data input for the cost worksheets to ensure consistency in calculating the opinions of probable costs for all DEIS package alternatives.

Review 1 - Internally with the highway design group

Review 2 – Internally with Brian

Review 3 – Project team including CDOT, FHWA, and FTA

DEIS LEVEL PLAN PRODUCTION – TASK LEADER: KEN SOELLNER

Ken will develop DEIS plan production standards to be utilized consistently for DEIS plan production. He will be responsible for ensuring all team members are aware of these standards, and that the standards are used consistently for all DEIS package alternative plan sets.

Review 1 – Internally with the highway design group

Review 2 – Internally with Janis Christopher (FHU)

Review 3 – Project team including CDOT, FHWA and FTA

INTERNAL REVIEW COORDINATION

Each task leader will coordinate their schedules with Jeanne Sharps throughout the conceptual design process. All e-mails and correspondence will be distributed to the entire highway design group. At the discretion of each task leader additional internal review or coordination with select team members may take place prior to distribution to the project team. All project team comments should be forwarded to Jeanne. Comments from CDOT will be collected and compiled by Long Nguyen into a single document and forwarded to Jeanne (See **Table 6-1**).

TABLE 6-1 HIGHWAY DESIGN GROUP

	Task Leader	Internal Group Review	Internal QA Review	Project Manager Review	CDOT Review
QC Rounds	A minimum of three, additional at the discretion of task leader				
I-25 Mainline and Interchange Conceptual Design	Jeanne Sharps	Highway Design Group	Jeanne Sharps & Marvinetta Hartwig	Tom Anzia	Long Nguyen
Graphics for Interchange Small Group Meetings	Ken Soellner	Highway Design Group	Ken Soellner	Tom Anzia	Long Nguyen
Construction Opinions of Probable Costs	Brian Wiltshire	Highway Design Group	Brian Wiltshire	Tom Anzia	Long Nguyen
DEIS Level Plan Production	Ken Soellner	Highway Design Group	Janis Christopher	Tom Anzia	Long Nguyen

6.2 QA PROCESS – TRAFFIC GROUP

The North I-25 Traffic Group will conduct the following analyses:

- Existing and future interchange operation
- I-25 mainline operation
- Toll evaluation
- Transit station area impacts
- Congestion management, as appropriate

FHU and C&B staff will conduct these tasks. Primary contact and scheduler for the traffic effort is Holly Buck. QA efforts will be conducted by the group as a whole with Jeff Ream as the lead for this exercise.

EXISTING AND FUTURE INTERCHANGE OPERATION – TASK LEADER: TODD FRISBIE

Working closely with the design group, Todd will identify feasible interchange configurations for development and evaluation. A report will be prepared for each interchange (with transit station area impacts included when appropriate) documenting existing conditions, future traffic projections, future operation and recommendations to mitigate impacts.

Review 1 - Internally with the traffic group

Review 2 – Internally with Jeff Ream

Review 3 – Project team including CDOT, FHWA, and FTA

I-25 MAINLINE OPERATION – TASK LEADER: HOLLY BUCK

Tyler will extract volumes from the travel demand forecasting model; calibrate them with existing counts and the existing travel model results. He will conduct level of service along the I-25 mainline including ramp junctions and weaving areas, where appropriate, for both existing and future conditions.

Review 1 - Internally with the traffic group

Review 2 – Internally with Jeff Ream (FHU)

Review 3 – Project team including CDOT, FHWA, and FTA

TOLL EVALUATION – TASK LEADER: WILBUR SMITH ASSOCIATES/HOLLY BUCK/JEFF REAM

Toll evaluation will include identification of access and egress points, potential direct connect ramps, and reversible lanes. Methodology used for evaluation and recommendations will be documented and distributed for review.

Review 1 - Internally with the traffic group

Review 2 – Internally with Paul Brown/Craig Gaskill (C&B)

Review 3 – Project team including CDOT, FHWA, and FTA

TRANSIT STATION AREA IMPACTS – TASK LEADER: PAUL BROWN

Traffic impacts associated with transit stations along US 85, US 287, Harmony Road and

US 34 will be documented. The report will include existing conditions, future traffic projections, future operation and recommendation to mitigate impacts.

Review 1 - Internally with the traffic group

Review 2 – Internally with Jeff Ream

Review 3 – Project team including CDOT, FHWA, and FTA

CONGESTION MANAGEMENT – TASK LEADER: PAUL BROWN

Queue jumps, transit signal priority, and ramp metering recommendations will be developed by Paul for inclusion in the congestion management portion of the DEIS packages.

Review 1 – Internally with the traffic group

Review 2 – Project team including CDOT, FHWA, and FTA

INTERNAL REVIEW COORDINATION

Each task leader will coordinate their schedules with Holly Buck throughout the evaluation process. All e-mails and correspondence will be distributed to the entire traffic group. At the discretion of each task leader, additional internal review or coordination with select team members may take place prior to distribution to the project team. All project team comments should be forwarded to Holly. Comments from CDOT will be collected and compiled by Long Nguyen into a single document and forwarded to Holly (See **Table 6-2**).

TABLE 6-2 TRAFFIC GROUP

	Task Leader	Internal Group Review	Internal QA Review	Project Manager Review	CDOT Review
QA Rounds	A minimum of three, additional at the discretion of task leader				
I-25 interchange and station evaluation	Todd Frisbie	Traffic Group	Jeff Ream	Gina McAfee Tom Anzia	Long Nguyen
I-25 mainline	Holly Buck	Traffic Group	Jeff Ream	Gina McAfee Tom Anzia	Long Nguyen
Toll evaluation	Holly Buck Jeff Ream	Traffic Group	Paul Brown	Gina McAfee Tom Anzia	Long Nguyen
Transit station impacts	Paul Brown	Traffic Group	Jeff Ream	Gina McAfee Tom Anzia	Long Nguyen
Congestion management	Paul Brown	Traffic Group	Jeff Ream	Gina McAfee Tom Anzia	Long Nguyen

6.3 QA PROCESS – TRANSIT GROUP

The North I-25 Transit Group is comprised of the following emphasis areas:

- Alternatives Development
- Stations
- Travel Demand Forecasting
- Operations
- Rail Transit Design
- Bus Transit Design

Each of these emphasis areas has different task leadership, but generally the main contact for the C&B Transit Group QA process is Paul Brown. Paul will serve as the main point of contact should any questions arise related to the transit elements of the North I-25 alternatives. Paul will resolve the issue with the appropriate task leader. Where issues arise that involve more than one area of emphasis, Paul will schedule the topic as an agenda item at the regularly-scheduled, bi-weekly transit group meetings at C&B.

ALTERNATIVES DEVELOPMENT – TASK LEADER: CHRIS PRIMUS

When materials related to Alternatives Development are produced, Julie will distribute them for the following series of reviews.

Review 1 – Internally with the transit group
Review 2 – Internally with Project Managers (Gina McAfee and/or Tom Anzia)
Review 3 – Project team including CDOT, FHWA, and FTA

STATIONS – TASK LEADER: JENNIFER MERER

When materials related to Stations are produced, the primary author, typically Jennifer, will distribute them for the following series of reviews.

Review 1 – Internally with Steve Wilensky (C&B)
Review 2 – Internally with the transit group
Review 3 – Internally with Project Managers (Gina McAfee and/or Tom Anzia)
Review 4 – Project team including CDOT, FHWA, and FTA

TRAVEL DEMAND FORECASTING – TASK LEADER: CHRIS PRIMUS

Model network coding is subjected to a review process prior to operation of the model. Keith Borsheim provides an initial review and Chris Primus a subsequent review. For roadway networks, Holly Buck or Todd Frisbie provides a final check of the coding. For transit networks, Smith Myung provides a final check of the coding.

When materials related to travel forecasting are produced, Chris will distribute them for the following series of reviews.

Review 1 – Internally with Smith Myung, Paul Brown or Holly Buck, depending on content
Review 2 – Internally with the transit group
Review 3 – Internally with Project Managers (Gina McAfee and/or Tom Anzia)
Review 4 – Project team including CDOT, FHWA, and FTA

OPERATIONS – TASK LEADER: SMITH MYUNG

When materials related to Operations are produced, Smith will distribute them for the following series of reviews.

Review 1 – Internally with Susan Rosales and/or Jim Baker
Review 2 – Internally with the transit group
Review 3 – Internally with Project Managers (Gina McAfee and/or Tom Anzia)
Review 4 – Project team including CDOT, FHWA, and FTA

RAIL TRANSIT DESIGN – TASK LEADER: DANIELLE SMITH

When materials related to Transit Design are produced, Danielle will distribute them for the following series of reviews.

Review 1 – Internally with Tom Bacus
Review 2 – Internally with the design team, including Paul Brown
Review 3 – Internally with the transit group
Review 4 – Internally with Project Managers (Gina McAfee and/or Tom Anzia)
Review 5 – Project team including CDOT, FHWA, and FTA

Paul Brown will be included on all transmissions to members of the project team as materials are forwarded for Transit Group review and approval. In this way, Paul will be included in the review process, and apprised of the status of the revisions. Though the primary responsibility for making the changes requested during the review process will reside with the primary authors, Paul will be involved in every step of the materials development.

BUS TRANSIT DESIGN – TASK LEADER: JEANNE SHARPS

When materials related to Bus Transit Design are produced, Jeanne will distribute them for the following series of reviews.

Review 1 – Internally with the highway design group and Holly Buck
Review 2 – Internally with the transit design group, including Paul Brown
Review 3 – Internally with Project Managers (Gina McAfee and/or Tom Anzia)
Review 4 – Project team including CDOT, FHWA, and FTA

TABLE 6-3 TRANSIT GROUP

	Task Leader	Internal Group Review	Internal QA Review	Project Manager Review	CDOT Review
QA Rounds	A minimum of three, additional at the discretion of task leader				
Alternatives Development	Chris Primus	Transit Group	Paul Brown	Gina McAfee Tom Anzia	Long Nguyen
Stations	Jennifer Merer	Transit Group	Paul Brown	Gina McAfee Tom Anzia	Long Nguyen
Travel Demand Forecasting	Chris Primus	Transit Group	Paul Brown	Gina McAfee Tom Anzia	Long Nguyen
Operations	Smith Myung	Transit Group	Paul Brown	Gina McAfee Tom Anzia	Long Nguyen
Rail Transit Design	Danielle Smith	Transit Group	Paul Brown	Gina McAfee Tom Anzia	Long Nguyen
Bus Transit Design	Jeanne Sharps	Highway Design Group & Holly Buck	Paul Brown	Gina McAfee Tom Anzia	Long Nguyen

6.4 QA PROCESS – PUBLIC INVOLVEMENT

The North I-25 Public Involvement Team (PIT) will produce the following materials to inform the public about the project and engage them in the EIS process:

- Small group meeting presentations and minutes
- Transit station and interchange group meeting minutes
- Newsletters
- Web site copy
- Advertisements
- News releases and press kits
- Public comment reports

These tasks will be completed by PRACO with direction and approval from FHU and CDOT. The Public Involvement Team is made up of representatives from CDOT, FHU, C&B, Two Hundred, and Project Vision 21. This group sets the strategy and direction for the overall public involvement efforts.

The primary contact and scheduler for the public involvement effort is Kim Podobnik. QA efforts will be conducted by PRACO with review from FHU and the appropriate task leader.

SMALL GROUP MEETING PRESENTATIONS AND MINUTES – TASK LEADER: KIM PODOBNIK

Working closely with the PIT, Kim will identify community, civic, and neighborhood groups that might be interested in a presentation from the project team. Kim will also respond to requests for presentations received by the CDOT public involvement office. Presentations are given by the member of the project team most appropriate to address the questions of the particular group. PRACO and FHU work collaboratively to maintain the PowerPoint document used as the basis for all small group presentations. A representative from PRACO attends all small group meetings to take minutes and track action items.

Review 1 – Internally with the PRACO team
Review 2 – Internally with Holly Buck
Review 3 – Project team including CDOT Project Management

TRANSIT STATION AND INTERCHANGE GROUP MEETING MINUTES – TASK LEADER: KIM PODOBNIK

Kim will work with transit planning group and interchange design group to plan presentations and inform the public. Kim will write meeting notifications and minutes, and respond to requests for information.

Review 1 – Internally with the PRACO team
Review 2 – Internally with Jeanne Sharps or Paul Brown
Review 3 – Project team including CDOT Project Management

NEWSLETTERS – TASK LEADER: KIM PODOBNIK

Kim will assemble an editorial outline of the articles to be included in each edition of the newsletter for internal consideration and approval. She will then request articles to be written by the appropriate team member or will draft the articles. She will distribute the draft copy for review and will incorporate edits as they are received. The newsletter copy will be reviewed a final time to ensure that all edits have been incorporated and that they are not contradictory.

Review 1 - Internally with the PRACO team
Review 2 – Internally with Holly Buck
Review 3 – Internally with Tom Anzia, Wendy Wallach, Gina McAfee
Review 4 – Project team including CDOT
Review 5 – CDOT Public Relations Liaison
Review 6 – Internally with the PRACO team and Holly Buck

WEBSITE COPY – TASK LEADER: KIM PODOBNIK AND MARJORIE ALEXANDER

PRACO staff will visit the project website monthly to ensure that information is up to date and and that the links work properly. Kim will write any additions and updates needed for the project Web site. Marjorie Alexander will upload all information to the site after final approval is received.

Review 1 - Internally with the PRACO team
Review 2 – Internally with Holly Buck
Review 3 – Project team including CDOT
Review 4 – CDOT Public Relations Liaison

ADVERTISEMENTS – TASK LEADER: KIM PODOBNIK AND KIM PODOBNIK

Paid advertisements will be placed in local publications to announce dates and locations for public meetings. The publications that these ads run in will be determined by the locations of the meetings as well as the circulation numbers of the publications. Kim wil work with the PRACO Creative Team to determine a theme or tag line. Kim will also finalize the publication list as well as dates and number of times the ad will run. Kim will draft the ad copy, which then will be edited by the PRACO copy writing staff, project managers, and CDOT.

Review 1 - Internally with the PRACO team
Review 2 – Internally with Holly Buck
Review 3 – Internally with Tom Anzia, Wendy Wallach, Gina McAfee
Review 4 – Project team including CDOT
Review 5 – CDOT Public Relations Liaison

NEWS RELEASES AND PRESS KITS – TASK LEADER: KIM PODOBNIK

News releases will be drafted and distributed to announce the times and locations for public meetings. Press kits will be prepared in advance to distribute to reporters who attend the meetings.

Review 1 - Internally with the PRACO team
Review 2 – Internally with Holly Buck
Review 3 – Internally with Tom Anzia, Wendy Wallach, Gina McAfee
Review 4 – Project team including CDOT
Review 5 – CDOT Public Relations Liaison

PUBLIC COMMENT REPORTS – TASK LEADER: KIM PODOBNIK

Periodic reports that reflect the trend of public comments received more recently will be prepared and distributed to the Regional Coordination Committee and the Technical Advisory Committee. A cover letter will be attached to a complete printout of all comments received.

Review 1 - Internally with the PRACO team
Review 2 – Internally with Holly Buck
Review 3 – Project team including CDOT

INTERNAL REVIEW COORDINATION

The internal PRACO team will coordinate review schedules with Holly Buck throughout the evaluation process. All e-mails and correspondence will be distributed to all members of the PRACO team. At the discretion of each task leader, additional internal review or coordination with select team members may take place prior to distribution to the project team. All project team comments will be forwarded to Kim. Comments from CDOT will be collected and compiled by Holly and compiled into a single document and forwarded to Kim.

TABLE 6-4 PUBLIC INVOLVEMENT GROUP

	Task Leader	Internal Review	Internal QA Review	Project Manager Review	CDOT Review
QA Rounds	A minimum of three, additional at the discretion of task leader				
Small Group meeting presentations and minutes	Kim Podobnik	Kim Podobnik	Holly Buck	Gina McAfee Tom Anzia	Long Nguyen
Transit station and interchange group meeting minutes	Kim Podobnik	Jeanne Sharps Paul Brown	N/A	Gina McAfee Tom Anzia	Long Nguyen
Newsletters	Kim Podobnik	Kim Podobnik	Holly Buck	Wendy Wallach Gina McAfee Tom Anzia	Long Nguyen Mindy Crane
Web site copy	Kim Podobnik	Kim Podobnik	Holly Buck	Gina McAfee Tom Anzia	Mindy Crane
Advertisements	Kim Podobnik	Kim Podobnik	Holly Buck	Gina McAfee Tom Anzia	Long Nguyen Mindy Crane
News releases and press kits	Kim Podobnik	Kim Podobnik	Holly Buck	Gina McAfee Tom Anzia	Long Nguyen Mindy Crane
Public comment reports	Kim Podobnik	Kim Podobnik	Holly Buck	N/A	N/A

6.5 LIST OF TECHNICAL REPORTS AND ASSESSMENTS

The many reports and memorandums that were prepared to provide detail to supplement information presented in the EIS are listed in eight categories as follows.

INTERCHANGE TRAFFIC REPORTS

- SH 1
- SH14 / Mulberry Street
- Harmony Road
- Crossroads Boulevard
- SH 402
- SH 60
- SH 66
- SH 52
- SH 7
- 136th Avenue
- 104th Avenue
- 84th Avenue
- Mountain Vista
- Prospect Road
- SH 392 / Carpenter Road
- US 34
- Larimer CR 16
- SH 56
- SH 119
- Weld CR 8
- 144th Avenue
- 120th Avenue
- Thornton Parkway

RAIL STATION REPORTS

Fort Collins Downtown Transit Center - BNSF and Maple Street
Colorado State University - Mason Street between University Avenue and West Pitkin
South Fort Collins Transit Center - Mason Street and West Fairway lane
North Loveland - BNSF and 29th Street
Downtown Loveland - BNSF and approximately 6th Street
Berthoud - BNSF and SH 56
North Longmont - BNSF and SH 66
Longmont Sugar Mill - South of Rogers Road
WCR 8 - I-25 and CR 8

COMMUTER BUS STATION TRAFFIC REPORTS

Greeley - US 85 and D Street
South Greeley - 8th Avenue and 24th Street
Evans - US 85 and 42nd Street
Platteville - US 85 and Grand Avenue
Fort Lupton - US 85 and CR 14.5

BUS RAPID TRANSIT STATION TRAFFIC REPORTS

South Fort Collins Transit Center - US 287 and Harmony Road
Fort Collins Timberline Road - Timberline Harmony Road and Timberline Road
Fort Collins Harmony Multi-modal Transfer Facility - Harmony Road and I-25
Greeley Downtown Transfer Center- 8th Avenue and 8th Street
West Greeley - US 34 and 83rd Avenue
US 34 and SH 257 - US 34 and SH 257
Windsor - I-25 and SH 392
Crossroads - I-25 and Crossroads Boulevard
Johnstown - I-25 between SH 60 and SH 56
Firestone - I-25 and SH 119
Frederick/Dacono - I-25 and SH 52
SH 7 – SH 7 and I-25

HIGHWAY DESIGN TECHNICAL MEMORANDUMS

- BRT Station Location Highway Review
- Construction Phasing Reviews for SH 402, SH 56, & LCR 16
- DEIS No-Action Plan Development
- Alignment Review (SH 66 to SH 60)
- Highway Strategy for Design and Plans
- I-25/US 34 Interchange Development
- Frontage Road Typical Section & I-25 Offset
- Cross Street Design Approach – Region 6 Area (US 36 to SH 7)
- Port of Entry Geometric Layout
- Highway Design Strategy
- 88th Avenue Pedestrian Connection
- DEIS Screening: Design to Environmental Handoff
- Development and Evaluation of Barrier and Buffer-Separated
- Managed Lane Alternatives
- Highway Design Strategy for Transit Queue Jumps
- DEIS Design Summary: Water Quality Ponds
- Frontage Road / Railroad At-grade Crossings Evaluation
- DEIS Design Avoidance Alternatives – Historic Properties (4)
- I-25 Horizontal Alignment at SH 14 Interchange
- Erosion and Scour Protection at Bridges and Culverts
- DEIS Design Revisions for Environmental Analysis
- Stream Bridge Crossings / Minimization of Wetland Impacts

TRANSIT DESIGN TECHNICAL MEMORANDUMS

- Operational & Maintenance Facility White Paper
- Transit Operating Plans, Statistics, and O&M Costs
- Evaluation of Median BRT Stations South of SH 7
- Carpool Sites – Lot Location Strategy for DEIS
- Commuter Bus Development
- Bus Rapid Transit Development
- Transit Design Strategy for DEIS
- Station Design Strategy for DEIS

OTHER TECHNICAL MEMORANDUMS/REPORTS

- Land Use Technical Memorandum
- Alternatives Development and Screening Technical Report
- Traffic Analysis Technical Reports
- Bicycle and Pedestrian Facilities Technical Memorandum

ENVIRONMENTAL TECHNICAL MEMORANDUMS/REPORTS

- Traffic Noise and Vibration Technical Report
- Rail Transit Noise and Vibration Technical Report
- Historic Cultural Resources Report
- Archeological Resources Report
- Paleontological Resources Technical Report
- Air Quality Technical Report
- Wildlife Technical Report
- Environmental Justice Technical Memorandum
- Modified Phase I Environmental Site Assessment
- Water Quality and Floodplain Technical Report
- Wetlands Technical Report

6.6 ENVIRONMENTAL ANALYSIS AND NEPA DOCUMENTATION

This section describes roles and responsibilities and the processes to be followed for Quality Assurance for environmental analysis and NEPA documentation.

6.6.1 NEPA RESOURCE RESPONSIBILITES OF CONSULTANTS

The following resources are tasked to C&B for completion:

- Land use
- Social impact analysis, including Environmental Justice
- Public safety and security
- Air quality
- Energy
- Vegetation, including weeds
- Cumulative effects
- Economic considerations
- Parklands, recreation areas, wildlife and waterfowl refuge, Sections 4(f) and 6(f)
- Visual and aesthetics resources
- Farmlands
- Wetlands
- Construction-related impacts
- Transit alternatives

The following resources are tasked to outside subconsultants but are being managed by C&B.

- Historic resources (Hermsen Consulting)
- Archaeological resources (Centennial Archaeology)
- Paleontological resources (Rocky Mountain Paleontology)
- Wildlife/ Threatened and Endangered Species (ERO Resources)
- Financial analysis (Connectics)
- Land use (induced growth) (Clarion)

The following resources are tasked to FHU for completion:

- Purpose and Need
- Alternatives
- Noise (traffic)
- Water resources and water quality
- Floodplains
- Hazardous materials

The following resources are tasked to outside subconsultants but are being managed by FHU:

- Right-of-way and relocations (H.C. Peck)
- Geology and mineral resources (GEOCAL)
- Transit noise and vibration (HMMH)
- Comments and coordination chapter (PRACO)

6.6.2 QA ROLES AND RESPONSIBILITIES

Project Manager (Tom Anzia):	Responsible for overall project management.
EIS Director (Gina McAfee):	Responsible for overall QA of environmental analysis and NEPA document content (document production by FHU).
EIS Manager (Wendy Wallach):	Responsible for management of budgets, management of EIS tasks, peer review
Consultant QA Leaders:	One person at each firm will be responsible for all QA activities for that firm's work products. These people are: FHU: Thor Gjelsteen C&B: Julie Skeen ERO Resources: Mary Powell HC Peck: Mike Anders HMMH: Dave Towers Clarion: Ben Herman PRACO: Barry Grossman Centennial Archaeology: Chris Zier
Resource Lead:	Responsible for technical review of technical reports and a DEIS individual section, including technical accuracy, overall methods, and approach
Section Author:	Responsible for checking accuracy, style, graphic for each DEIS section and/or technical report
Technical Editor:	Responsible for review of overall DEIS document consistency with respect to content, structure, and grammar

6.6.3 DESCRIPTION OF THE QA PROCESS

Field activities and environmental analysis tasks will follow the following process:

- Data collection and environmental analysis methodologies will be documented and discussed with CDOT Region 4: Carol Parr (all sections), CDOT Environmental Programs Branch (wetlands, historic properties, water quality, noise, air quality), and outside agencies as approved by CDOT (Carol Parr)
- Field notes checked for accuracy and data gaps (by Section Author)
- Field documents checked for quality, readability, and completeness (by Resource Lead)
- Environmental analyses checked for accuracy, data gaps, quality, and completeness (by Resource Lead)
- Technical reports reviewed by Resource Lead, QA Section Lead, and EIS Manager
- Technical reports provided by EIS Director to Carol Parr (CDOT Region 4)

The process to be followed for NEPA document QA is as follows (as illustrated in **Figure 6-1**):

Step #1. The Section Author prepares the section and responds to comments received from CDOT, FHWA, FTA, and Cooperating Agency reviews. The DEIS Style Guide is to be followed, and all graphics will be checked.

Step #2. The Resource Lead reviews each section and return comments to the Section Author.

Step #3. After the Resource Lead has signed off on the section, it is forwarded to the firm's QA Lead. All comments are returned to the Section Author and the process is repeated until the firm's QA Lead for the assigned resource signs off on the section (using Form 1 in Appendix A).

Step #4. Any comments are returned to the Section Author and the process is repeated until new sign-offs are received from the firm's QA Lead. The EIS Manager will use a checklist similar to the attached (Appendix B).

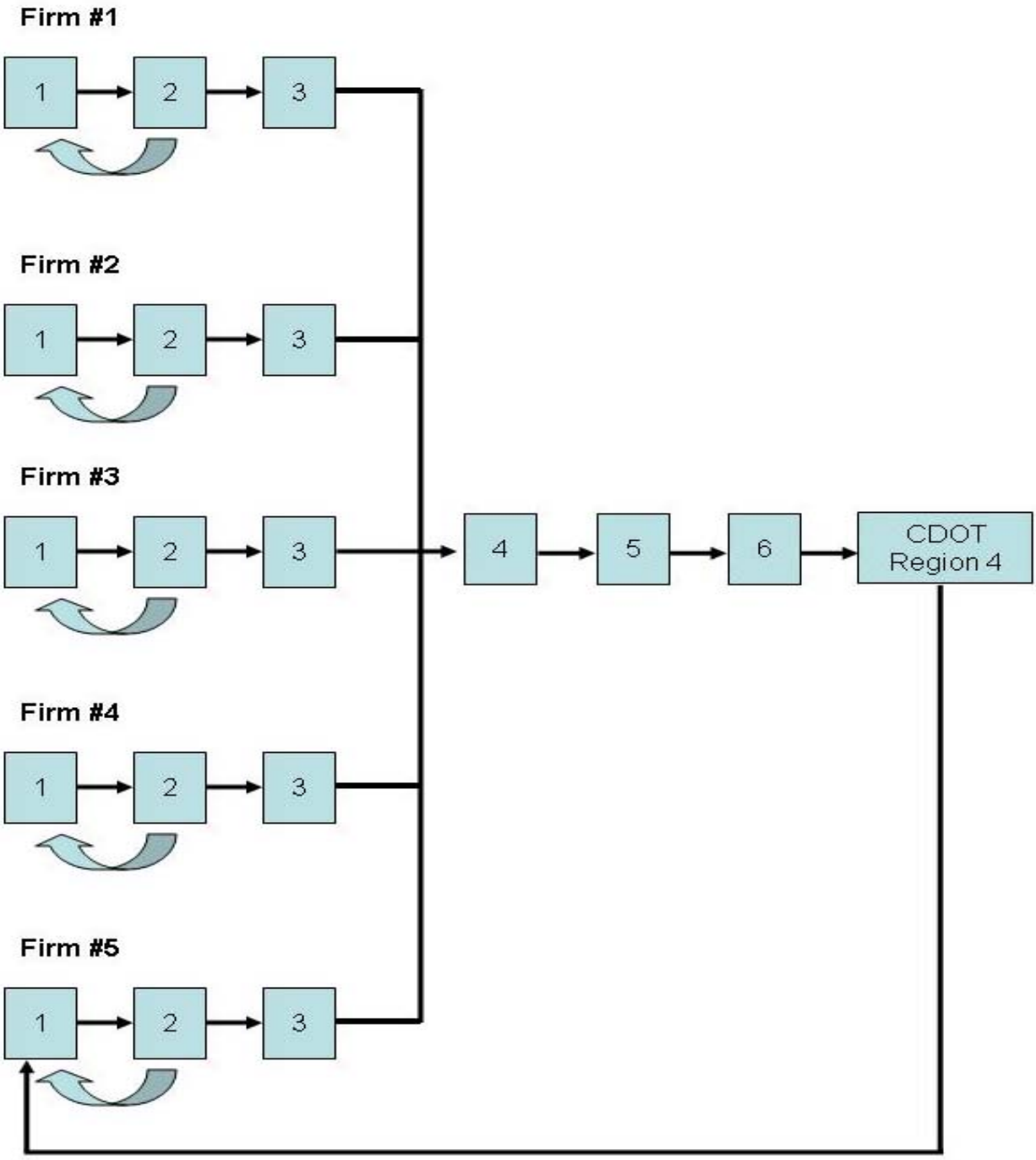
Step #5. A completed chapter or full document is provided to the Technical Editor. Any substantive comments are provided back to the Section Author and the process is repeated until new sign-offs are received from the firm's QA Leads.

Step #6. A completed chapter or document (with up-to-date Form 1) is provided to the EIS Director for final QA review. Any substantive comments from this review are provided back to the Section Author.

Step #7. The final internal QA step provides a completed chapter or document to CDOT Region 4, along with the Form 1 initialed by all reviewers and a certification letter from the EIS Director.

This process is repeated for each cycle of DEIS review.

FIGURE 6-1 QA PROCESS CHART



1 = Section Author prepares section and graphics

2 = Resource Lead reviews section and graphics

3 = QA Firm Lead reviews and signs-off on section

4 = EIS Manager reviews sections: returns to Section Author (or signs Form 1)

5 = Technical Editor reviews chapters or document

6 = EIS Director reviews chapter or document

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APPENDIX A

CONTENT CHECKLIST FOR ENVIRONMENTAL DOCUMENTS

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
COVER SHEET (Includes information on page 11 in TA.)	☐	☐	
(r.c.) Only cooperating federal agency(s) that have formally accepted are listed (letters from agencies in appendix).	☐	☐	
(r.c.) Abstract includes listing of important social, economic, and environmental impacts expected.	☐	☐	
(r.c.) Citations referenced are correct.	☐	☐	
(r.c.) End of comment date listed as a minimum of 45 days from the date of the Federal Register availability	☐	☐	
(r.c.) The FHWA signature block on the title page reads: Division Administrator Federal Highway Administration	☐	☐	
SUMMARY (Addresses all items on pages 12-13 in TA.)	☐	☐	
(r.c.) Identifies and discusses areas of controversy and any major unresolved issues.	☐	☐	
TABLE OF CONTENTS (Includes all headings on page 13 in TA.)	☐	☐	
Lists Section 4(f) Evaluation, if appropriate.	☐	☐	
(r.c.) Includes listing of figures and tables.	☐	☐	
PURPOSE AND NEED OF PROJECT [Purpose and Need Policy Paper, pages 13-14 of TA, the NEPA/404 Integration Memorandum of Understanding (MOU)]			
Identifies the transportation problem with supporting data and the proposed solutions to solve the problem.	☐	☐	
Establishes Level of Service (LOS) objective, if any.	☐	☐	
(r.c.) Includes a summary of how the project purpose and need was identified in the planning process and a summary of relevant studies.	☐	☐	
(r.c.) Includes a statement “this project is included in the current approved federally required State Transportation Improvement Program [STIP]” (and, if in an urbanized area with a Metropolitan Planning Organization [MPO], is included in the current Regional Transportation Plan [RTP] and Transportation Improvement Program [TIP]).	☐	☐	
ALTERNATIVES (Alternatives Guidance Papers, pages 14-17 of TA, the NEPA/404 Integration MOU)			
Includes discussion and description of reasonable alternatives and the “no action” alternative including estimated costs information.	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Includes discussion on mass transit alternatives if in urbanized areas over 200,000 in population.	☐	☐	
Demonstrates that Single Occupant Vehicle capacity increasing projects come from or are consistent with the State Congestion Management Plan and that all reasonably available travel demand reduction and operational management strategies have been adopted for the proposed project and project corridor.	☐	☐	
Considers Transportation System Management (TSM) alternatives.	☐	☐	
Summarizes and references Major Investment Study (MIS) (reference 23 CFR 450.318 and August 25, 1994 FHWA Questions and Answers in MIS paper).	☐	☐	
Explains in detail "other alternatives" previously considered in project development and why they were eliminated or rejected.	☐	☐	
Evaluates all reasonable alternatives including the "no action" to a comparable level of detail.	☐	☐	
Includes supporting information if a "preferred alternative" is identified.	☐	☐	
(r.c.) Includes a summary of the screening process for eliminating the alternatives rejected during transportation planning.	☐	☐	
(r.c.) Includes a statement that indicates the final selection of an alternative will not be made until after the consideration of impacts and the public hearing comments.	☐	☐	
(r.c.) Includes pictorial of six Levels Of Service (LOS)	☐	☐	
(r.c.) Includes 20-year traffic projection.	☐	☐	
(r.c.) Discusses analysis of all alternatives including full and non-standard approved design. Also, discusses any non-standard features and why.	☐	☐	
AFFECTED ENVIRONMENT The following list should address what are the **existing conditions** in the study area affected by all reasonable alternatives. The outline format is used only for ease of referencing and follows the TA format. Discussion of the information is not restricted to the listed checklist headings but may be contained under the broader or narrower subheadings. Also, a statement that an issue listed below is not pertinent within the project study area should be included when appropriate.			
Land Use (page 19 of TA)			
Includes a Regional summary.	☐	☐	
Identifies the study area.	☐	☐	
(r.c.) Includes map showing existing and planned land use (farmland, parks, community and recreational facilities, etc., by type).	☐	☐	
Farmland (pages 19-20 of TA)	☐	☐	
Describes existing farmlands.	☐	☐	
Summarizes the NRCS form AD 1006 farmland determination (includes form in appendix).	☐	☐	
Social and Economic (pages 20-22 of TA)	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Includes demographics (i.e., age, ethnic, and income) by most current census data.	☐	☐	
Discusses locations and sense of neighborhood and community cohesion relative to alternatives.	☐	☐	
Identifies community resources (parks, churches, shopping, schools, emergency services, libraries, etc.).	☐	☐	
Discusses existing travel patterns.	☐	☐	
Discusses existing types of housing and businesses.	☐	☐	
Discusses employment and tax base.	☐	☐	
Environmental Justice (EJ):			
Includes two sources for EJ areas.	☐	☐	
Includes summary of outreach.	☐	☐	
Includes analysis of disproportionate impacts.	☐	☐	
Includes concluding statements	☐	☐	
Pedestrian and Bicycle Facilities (page 23 of TA)			
Identifies any existing facilities and their use (recreation-4(f) or transportation).	☐	☐	
Air quality (pages 23-24 of TA)			
Identifies relevant pollutants and their National Ambient Air Quality Standards (NAAQS) in existing air quality.	☐	☐	
Discusses regional compliance with NAAQS (TIP & RTP conformity to SIP).	☐	☐	
References concurrence letter from APCD.	☐	☐	
Water Resources (pages 25-26 of TA)			
Identifies public water sources, sole source aquifers, watersheds, and wellhead protection areas.	☐	☐	
(r.c.) Identifies beneficial uses of surface waters.	☐	☐	
Wetlands/Waters of the U.S. (page 17 of TA) The text needs to indicate whether waters of the U.S. are in the project area.			
If waters of the U.S. are not in the project area			
Includes and references the location(s) of a copy of a Corps letter concurring that waters of the U.S. are not in the project area.	☐	☐	
Provides the basis for and concludes that waters of the U.S. are not in the project area.	☐	☐	
If waters of the U.S. are in the project area			
Includes an exhibit or exhibits depicting the waters of the U.S. in the project relative to the alternatives under consideration, including identification of the location(s) of any associated sensitive species habitat or special aquatic sites.	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Provides a concise description of the waters of the U.S. in the project area;	☐	☐	
Briefly describes all sensitive resources associated with the waters of the U.S. in the project area; and	☐	☐	
References the location(s) for the exhibits depicting the waters of the U.S., special aquatic sites, and associated sensitive species habitat.	☐	☐	
Wildlife (pages 28-29 of TA)	☐	☐	
Discusses ecosystems (wildlife and vegetation) and any sensitive species.	☐	☐	
Discusses wildlife migration patterns.	☐	☐	
Floodplain (pages 29-30 of TA)			
Identifies base flood plains (100 year) using National Flood Insurance Program (NFIP) maps or other maps developed by the highway agency. If the NFIP maps do not exist, the agency must develop the needed maps so that the floodplain can be identified.	☐	☐	
Identifies natural and beneficial floodplain values.	☐	☐	
Wild and Scenic Rivers (page 30 of TA)			
Summarizes the coordination with Federal Land agency to determine presence of river on or under study for inclusion on the National Wild and Scenic Rivers System (possible Section 4(f)).	☐	☐	
Threatened and Endangered Species (pages 31-33 of TA)			
Includes a summary of the biological studies specific to threatened and endangered species.	☐	☐	
References and includes Fish and Wildlife Service (FWS) letter identifying species and critical habitat in appendix.	☐	☐	
Historic and Archaeological (pages 33-34 of TA)			
Includes identification and description of National Register of Historic Places (NRHP) listed and eligible historic and archaeological resources for **each** reasonable alternative.	☐	☐	
References and includes concurrence in eligibility letter from State Historic Preservation Officer (SHPO) for property affected by each reasonable alternative in appendix.	☐	☐	
Hazardous Waste (page 34 of TA)			
Identifies known and potential sites.	☐	☐	
Visual (page 34-35 of TA)			
Identifies sensitive visual resources.	☐	☐	
Indicates if project is in a visually sensitive urban or rural setting.	☐	☐	
ENVIRONMENT CONSEQUENCES (avoid, minimize, mitigate) The document must address what is the probable impact in the study area affected by all reasonable alternatives. All measures proposed to mitigate any adverse impacts identified must be included or an explanation as to why the mitigation would not be a reasonable, feasible or prudent expenditure of public funds. A statement that a given subject area listed below is not applicable for the particular project study area is recommended when appropriate.			

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Land use (page 19 of TA)			
Discusses consistency with land use plans.	☐	☐	
Discusses growth inducement:			
Current development trends and land use planning efforts.	☐	☐	
Indirect effects of the project on land use patterns, population density, and growth rate.	☐	☐	
(r.c.) Includes a statement, if applicable, that "The proposed transportation project is intended to meet the existing and/or projected traffic demand based upon the local land use plans. “	☐	☐	
Farmland (pages 19-20 of TA)			
Discusses impacts to farmland in the project area.	☐	☐	
Summarizes results of coordination with NRCS.	☐	☐	
(r.c.) Provides alternatives to avoid farmland impacts if feasible on scores of 160 points or greater on NRCS form AD 1006.	☐	☐	
Social and Economic (pages 20-22 of TA)			
Discusses neighborhood and community cohesion.	☐	☐	
Addresses impacts on travel patterns, accessibility, community facilities, and overall public safety.	☐	☐	
Discusses impacts on economic vitality in project area and on established business districts, including employment effects, if any.	☐	☐	
Identifies any contacts with community, city or county leaders.	☐	☐	
Complies with Executive Order 12898, Environmental Justice guidance.	☐	☐	
EJ: concluding statements	☐	☐	
Relocation (pages 21-22 of TA)			
Identifies and described residential (number and type of dwelling and price range, tenants and owners) and non-residential (types of businesses) displaces for all reasonable alternatives.	☐	☐	
References or summarized the preliminary relocation study including right-of-way cost estimates.	☐	☐	
Discusses available replacement dwellings and business sites based on current market data.	☐	☐	
Discusses and references the Relocation Assistance Program including the types of benefits available to residential and business displacees (Last Resort Housing, if applicable) and Title VI of the Civil Rights Act of 1964. A detailed summary of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, should be included in the appendix, if appropriate.	☐	☐	
(r.c.) Includes a statement, if applicable, that “(T)he acquisition and relocation program will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.”	☐	☐	
Joint Development (pages 22-23 of TA)	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Pedestrian and Bicycle Facilities (See page 23 of TA)			
Describes any impacts to avoid or reduce adverse impacts to the facilities.	☐	☐	
Discusses where new facilities are part of the project, basis for providing such facilities.	☐	☐	
Air Quality (pages 23-24 of TA)			
Air quality conformity			
States that the project is included in a conforming plan and TIP-with consistent design concept and scope.	☐	☐	
States that the conformity determination is based on the latest planning assumptions.	☐	☐	
Demonstrates that the project does not cause or contribute to any new localized CO or PM-10 violations or increase the frequency or severity of any existing CO or PM-10 nonattainment and maintenance areas.	☐	☐	
States that the project complies with PM-10 control measures in the PM-10 air quality plan.	☐	☐	
States that the "hot-spot" analysis assumptions are consistent with those in the regional emissions analysis for those inputs which are required for both analyses.	☐	☐	
Discusses possible mitigation to avoid exceeding the federal standard.	☐	☐	
Noise (pages 24-25 of TA and 23 CFR 772)			
Identifies land use categories and sensitive noise receptors.	☐	☐	
Uses decibels, Leq(h), to compare existing with predicted noise levels.	☐	☐	
Describes noise abatement measures such as range of wall heights, decibel reductions.	☐	☐	
Describes what are considered reasonable and feasible abatement measures that would likely be incorporated into the project including wall lengths, and associated costs.	☐	☐	
(r.c.) Traffic noise impacts occur when the predicted traffic noise levels approach, exceed and/or substantially increase. Uses FHWA Noise Abatement Criteria (NAC) and includes the 23 CFR 772 reference.	☐	☐	
(r.c.) States that a final decision on the installation of abatement measure(s) will be made upon completion of the project design and the public involvement process. Explains factors that will be used in determining whether to abate noise in a given location.	☐	☐	
Water Quality (pages 25-26 of TA)			
Discusses roadway runoff and/or non-point source pollution impacting water resources.	☐	☐	
National Pollution Discharge Elimination System permit required?	☐	☐	
Documents coordination with EPA.	☐	☐	
Discusses water quality analysis and impacts.	☐	☐	
Contains evidence of consultation with the State and/or local agency responsible for water quality.	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Impacts any sole source aquifer(s).	☐	☐	
Coordination occurred between the highway agency and the EPA (letter required).	☐	☐	
Discusses any impacts on wellhead protection area(s).	☐	☐	
Identifies Section 402 or Section 404 permit requirements.	☐	☐	
Wetlands/Waters of the U.S. (23 CFR Part 777, page 26 of TA, NEPA-404 MOU Guidance Papers) The text needs to indicate whether waters of the U.S. are in the project area, and if so, whether any of the alternatives affect waters of the U.S.			
If waters of the U.S. are not in the project area			
States that waters of the U.S. are not in the project area.	☐	☐	
Refers to the Affect Environment discussion for detail.	☐	☐	
References the draft EIS location of the Corps letter.	☐	☐	
If waters of the U.S. are in the project area but are not affected by any of the project alternatives			
Includes a copy of a Corps letter concurring that, based on the information provided, none of the project alternatives under consideration affect waters of the U.S. and/or that a section 404 will not be required for the project.	☐	☐	
Provides the basis for and concludes none of the project alternatives under consideration affect waters of the U.S.	☐	☐	
States a section 404 permit will not be required for the project.	☐	☐	
References the draft EIS locations of the Corps letter and the exhibit(s) depicting the waters of the U.S., special aquatic sites, and associated sensitive species habitat in the project area.	☐	☐	
If all project alternative involvements with waters of the U.S. are nationwide 404 permit situations			
Resource description.			
Describes the location, extent, and quality of waters of the U.S. and special aquatic sites in the project area.	☐	☐	
Includes a copy of a Corps letter or letters (a) verifying the delineations of the waters of the U.S. and the special aquatic sites, and (b) concurring, based on the information provided, that all project alternative involvements with waters of the U.S. are likely to meet the conditions for nationwide 404 permits.	☐	☐	
If any of the alternatives affect or could affect special aquatic sites, includes a delineation of each involved special aquatic site at a 1:1200 scale relative to the alternative(s).	☐	☐	
References exhibit(s) depicting the waters of the U.S., special aquatic sites, and associated sensitive species habitat.	☐	☐	
Includes a description of the function and values of the affected waters of the U.S. and special aquatic sites, identifying which functions are performed and the value of those functions.	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
In conjunction with the associated EIS evaluations of upland wildlife habitat and vegetative communities, the text discussions and exhibits of waters of the U.S., special aquatic sites, and associated sensitive species habitat utilize mapping units of a recognized classification system or systems, and cite the source(s).	☐	☐	
Impact evaluation.			
Identifies the location(s) and extent of modifications to waters of the U.S. and special aquatic sites for each alternative under consideration.	☐	☐	
Includes an assessment of the project impacts, including the type of impact (e.g., habitat removal, fragmentation, introduction of exotic species), its magnitude, and how the project will affect the continued performance of the identified functions.	☐	☐	
Provides the basis for and concludes that all project alternative involvements with waters of the U.S. are nationwide 404 permit situations.	☐	☐	
If a wetland assessment methodology was utilized as part of the wetland impact evaluation, it is identified.	☐	☐	
Compensatory mitigation.			
A summary of the pertinent factors from the feasibility study of candidate mitigation sites which demonstrates that conditions at mitigation sites under consideration would make a successful mitigation effort likely--particularly groundwater, hazardous wastes, historic/archaeological resources, and easements/land ownership (see NEPA 404 MOU Guidance Papers page 27 for the feasibility study factors).	☐	☐	
A summary description of the general mitigation plan concepts developed to date:			
Habitat types and approximate hectares of impact.	☐	☐	
Plant communities and habitat to be replaced.	☐	☐	
Functions and values to be enhanced or created by the mitigation.	☐	☐	
Plant species to be used.	☐	☐	
Cost estimate.	☐	☐	
Mitigation success criteria.	☐	☐	
Monitoring criteria for evaluation of the mitigation.	☐	☐	
Agency Concurrence. If any of the alternatives will likely impact special aquatic sites or impact more than two hectares (five acres) of waters of the U.S., the draft EIS text documents coordination with the EPA and FWS, during scoping regarding the appropriateness of processing the section 404 permit(s) as nationwide permit(s).	☐	☐	
If any of the project alternative involvements with waters of the U.S. are individual 404 permit situations			
Resource description.			
Describes the location, extent, and quality of waters of the U.S. and special aquatic sites in the project area.	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
References a copy of a Corps letter included in the EIS which verifies the delineations of the waters of the U.S. and the special aquatic sites.	☐	☐	
If any of the alternatives affect or could affect special aquatic sites, includes a delineation of each involved special aquatic site at a 1:1200 scale relative to the alternative(s).	☐	☐	
References exhibit(s) depicting the waters of the U.S., special aquatic sites, and associated sensitive species habitat.	☐	☐	
Includes a description of the functions and values of the affected waters of the U.S. and special aquatic sites, identifying which functions are performed and the value of those functions.	☐	☐	
In conjunction with the associated EIS evaluations of upland wildlife habitat and vegetative communities, the text discussions and exhibits of waters of the U.S., special aquatic sites, and associated sensitive species habitat utilize mapping units of a recognized classification system or systems, and cite the source(s).	☐	☐	
The draft EIS includes descriptive information for each exhibit mapping unit that provides:			
The distribution of the unit within the study area.	☐	☐	
An estimate of the total number of acres present.	☐	☐	
The dominant plant species.	☐	☐	
The relative sensitivity of the vegetation.	☐	☐	
All plant and animal taxa encountered during site visits are listed by vegetation type in an appendix to the draft EIS, and this listing is referenced in the draft EIS text.	☐	☐	
Impact evaluation.			
Identifies the location(s) and extent of modifications to waters of the U.S. and special aquatic sites for each alternative under consideration.	☐	☐	
Includes an assessment of the project impacts, including the type of impact (e.g., habitat removal, fragmentation, introduction of exotic species), its magnitude, and how the project will affect the continued performance of the identified functions.	☐	☐	
These effects are evaluated in a regional and, if appropriate, a local context.	☐	☐	
If a wetland assessment methodology was utilized as part of the wetland impact evaluation, it is identified.	☐	☐	
Compensatory mitigation.			
A summary of the pertinent factors from the feasibility study of candidate mitigation sites which demonstrates that conditions at mitigation sites under consideration would make a successful mitigation effort likely – particularly groundwater, hazardous wastes, historic/archaeological resources, and easements/land ownership (see NEPA-404 MOU Guidance Papers page 27 for the feasibility study factors).	☐	☐	
A summary description of the general mitigation plan concepts developed to date:			
Habitat types and approximate hectares of impact.	☐	☐	
Plant communities and habitat to be replaced.	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Functions and values to be enhanced or created by the mitigation.	☐	☐	
Plant species to be used.	☐	☐	
Cost estimate.	☐	☐	
Mitigation success criteria.	☐	☐	
Monitoring criteria for evaluation of the mitigation.	☐	☐	
A draft 404 Alternatives Analysis is contained in a separate section of the draft EIS (e.g., an EIS Appendix) and is referenced in the draft EIS 404 ext. (The content of a draft 404 Alternatives Analysis is outlined in the NEPA-404 MOU Guidance Papers, pages 21 to 23).	☐	☐	
Agency Concurrence:			
Includes written documentation from the Corps, EPA, FWS, stating their agreement on:			
The project purpose and need.	☐	☐	
The project alternatives to be evaluated in draft EIS.	☐	☐	
The preliminary preferred alternative (if known).	☐	☐	
Any involvement as a cooperating agency.	☐	☐	
References this documentation in the waters of the U.S./section 404 draft EIS text.	☐	☐	
Wildlife (pages 28-29 of TA)			
Discusses impacts to fish and wildlife including any sensitive species resulting from the loss of degradation or modification of aquatic or terrestrial habitat.	☐	☐	
Documents coordination with state, local agencies and FWS under the Fish and Wildlife Coordination Act of 1958.	☐	☐	
Floodplain (pages 29-30 of TA and 23 CFR 650 Subpart A)			
Identifies and evaluates longitudinal/transverse encroachments of project alternatives on flood plains.	☐	☐	
Includes summary of the “Location Hydraulic Study.”	☐	☐	
Reflects coordination with the Federal Emergency Management Agency (FEMA) and appropriate State and Local government agencies for each floodway encroachment.	☐	☐	
Includes a discussion of the consistency of the project with the regulatory floodway.	☐	☐	
Evaluates and discusses practicable alternatives if it has been determined that there is a significant encroachment.	☐	☐	
Wild and Scenic Rivers (page 30 of TA)			
Indicates that the “National Inventory of Wild and Scenic Rivers” has been reviewed.	☐	☐	
Summarizes the coordination between the highway agency and the National Park Service, if appropriate.	☐	☐	
Threatened or Endangered Species (pages 31-33 of TA and 50 CFR Part 402.)			

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Documents coordination with FWS.	☐	☐	
Identifies whether any threatened or endangered species and/or designated or proposed critical habitat may be impacted in the project area; including exhibits depicting habitat and avoidance alternatives.	☐	☐	
Discusses biological assessment and documented FWS coordination of Section 7 consultation.	☐	☐	
(r.c.) Ensures that either the FHWA or the State DOT only made the written request to the FWS for listed or proposed species and/or critical habitat in the project area. The FWS responded in writing. A copy of the FWS letter must be included in the appendix and referenced in both the "affected" and "consequences" sections of the endangered species discussion.	☐	☐	
Historic and Archaeological Preservation (pages 33-34 of TA)			
References the Historic Property Survey Report (HPSR) as necessary.	☐	☐	
Describes in qualitative and quantitative detail the potential effects for **each** alternative on each NRHP property.	☐	☐	
Discusses and documents all coordination efforts the SHPO under Section 106 regarding eligibility and effects under each alternative and included a reference to the SHPO letter in appendix.	☐	☐	
(r.c.) Indicates whether archaeological sites warrant preservation in place or are only significant for their data. If preservation is warranted, then Section 4(f) applies.	☐	☐	
Hazardous Waste (page 34 of TA)			
Includes a map identifying the location of the site(s) in relation to the alternatives.	☐	☐	
Includes information on the number and types of sites/structures, extent of contamination, and alternative treatment/disposal measures with relative costs.	☐	☐	
Includes justification for not avoiding waste sites, if warranted.	☐	☐	
Discusses results of coordination with resource agency, state and local agencies including description of clean-up plans.	☐	☐	
Includes statement on how hazardous wastes will be handled if encountered during construction activities.	☐	☐	
Visual (pages 34-35 of TA)			
Discusses impacts to potential viewers of and from the project.	☐	☐	
Uses a federally accepted visual assessment methodology.	☐	☐	
Energy (page 35 of TA)			
Discusses cost/benefit analysis of reasonable alternatives for major projects.	☐	☐	
Construction (pages 35-36 of TA)			
Discusses related safety, air, noise, water, traffic congestion, and potential detours.	☐	☐	
Discusses the development of sedimentation and erosion control plans.	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Includes impacts of borrow or disposal of waste material.	☐	☐	
Cumulative Impacts			
Identifies reasonably foreseeable future projects.	☐	☐	
Assesses impact to resources of concern.	☐	☐	
Provides conclusion regarding significance of impact.	☐	☐	
The Relationship Between Local Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity (page 36 of TA)	☐	☐	
Any Irreversible and Irretrievable Commitments of Resources Which Would be Involved in the Proposed Action (pages 36-37 of TA).	☐	☐	
List of Preparers (page 37 of TA).			
Summarizes the credentials of all preparers except for FHWA reviewer.	☐	☐	
List of Agencies, Organizations, and Persons to Whom Copies of the EIS are Sent (page 37 of TA)	☐	☐	
(r.c.) Check for correct mailing addresses and phone numbers.	☐	☐	
Comments and Coordination (pages 37-38 of TA)			
Discusses scoping meetings and other meetings.	☐	☐	
(r.c.) Summarizes key issues from the public and government.	☐	☐	
(r.c.) References and includes copy of Notice of Intent and cooperating agencies' requests.	☐	☐	
(r.c.) Removes FHWA from the mailing list and any letters from FHWA and the State DOT.	☐	☐	
Index (page 38 of TA)	☐	☐	
(r.c.) Includes accurate page numbers.	☐	☐	
Appendices (page 38 of TA)	☐	☐	
Includes all coordination letters from agencies.	☐	☐	
(r.c.) Includes plan and profile drawings or aerial photographs.	☐	☐	
Draft Section 4(f) Evaluation (pages 44-46 of TA, 23 CFR 771.135, FHWA Section 4(f) Policy Paper)			
Identifies and depicts on map, all 4(f) or 6(f) resources in project corridor to show relationship of resource to project.	☐	☐	
Discusses actual use on each 4(f) resource for each alternative. Includes discussion on the types of activities affected.	☐	☐	
Discusses avoidance alternative(s) which avoid each and all 4(f) properties.	☐	☐	
Discusses any proximity impacts on each 4(f) resource not actually used under each alternative.	☐	☐	

Checklist for Environmental Documents
(See FHWA Technical Advisory (TA) T6640.8A October 30, 1987, pages as referenced)
[r.c. means recurring comments made on environmental documents]

	SATISFACTORY	INADEQUATE	NOT APPLICABLE
Includes detailed discussion with maps and photographs of any proximity impacts such as noise, visual and access.	☐	☐	
Ensures that proper noise abatement criteria are applied depending on types of activities impacted.	☐	☐	
Discusses all possible mitigation measures to minimize harm.	☐	☐	
Discusses results of coordination efforts with jurisdictional parties over the 4(f) properties and with National Park Service (NPS) for 6(f) properties.	☐	☐	
(r.c.) Need to clearly indicate whether a property is a 4(f) resource or it is not. "Potential" 4(f) resources do not exist.	☐	☐	
(r.c.) Any planned parks and recreation trails are subject to Section 4(f) evaluation and must be identified.	☐	☐	
(r.c.) For potential constructive use issues, ensure that regulations at 23 § 771.135(p) are complied with and any compliance with Section 4(f) based on joint planning must be carefully documented.	☐	☐	
General Comments			
(r.c.) Uses the term "Significant" correctly and not as a descriptive term.	☐	☐	
(r.c.) Satisfies State requirements with a separate section or appendix in the document.	☐	☐	
(r.c.) Provides enough information and data to support the conclusion made for each subject.	☐	☐	
(r.c.) References specific technical reports and summarizes contents as appropriate.	☐	☐	
(r.c.) Uses photographs, illustrations, and other graphics as appropriate.	☐	☐	
(r.c.) Includes a key for figures and tables that are easily understandable.	☐	☐	
(r.c.) Includes a statement that the project will conform to the American Disabilities Act (ADA) of 1990.	☐	☐	
(r.c.) Discusses cumulative impacts: substantial, foreseeable, induced secondary impacts for each alternative – in particular to air, water quality, and wetlands.	☐	☐	
(r.c.) Uses a table summarizing total project mitigation.	☐	☐	
(r.c.) Ensures that the consultants' names do not appear on the binding, cover, and title page of the EIS except under the List of Preparers.	☐	☐	
(r.c.) Checks that names of the preparers of technical reports are not in the narrative of the subject discussions but listed under List of Preparers.	☐	☐	

APPENDIX B

FORM 1

DEIS Chapter / Section	Section Author / Date	Resource Lead Review / Date	QA Lead Review / Date	EIS Manager (Wallach)	Technical Editor (Delli-Bovi)	DEIS Director (McAfee)	CDOT (_____)
Executive Summary							
Chapter 1.0: Purpose and Need							
Chapter 2.0: Alternatives							
2.1 Transit							
2.2 Highway							
Chapter 3.0: Affected Environment, Environmental Consequences and Mitigation Measures							
3.1 Land Use and Zoning							
3.2 Social							
3.3 Environmental Justice							
3.4 Economic Conditions							
3.5 Right-of-Way							
3.6 Air Quality							
3.7 Noise and Vibration							
3.8 Water Resources and Water Quality							
3.9 Wetlands							
3.10 Floodplains							
3.11 Vegetation, Wildlife and Threatened, Endangered and State Sensitive Species							
3.12 Visual Quality							
3.13 Historic							
3.14 Hazardous Materials							

Form 1 (Continued)

DEIS Chapter / Section	Section Author / Date	Resource Lead Review / Date	QA Lead Review / Date	EIS Manager (Wallach)	Technical Editor (Delli-Bovi)	DEIS Director (McAfee)	CDOT (_____)
3.15 Utilities							
3.16 Parks and Recreation Resources							
3.17 Section 6(f)?							
3.18 Farmland							
3.19 Geology and Soils							
3.20 Energy							
3.21 Public Safety and Security							
3.22 Construction							
3.23 Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity							
3.24 Irreversible and Irretrievable Commitment of Resources							
3.25 Cumulative Impacts							
3.26 Permits Required							
3.27 Summary of Direct Impacts							
3.28 Summary of Mitigation Measures							
Chapter 4.0: Transportation Impacts							
Chapter 5.0: Section 4(f) Evaluation							
Chapter 6.0: Financial Analysis							
Chapter 7.0: Summary of Impacts by Components							
Chapter 8.0: Comments and Coordination							

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ATTACHMENT 2
NORTH MEADOWS EXTENSION TO US 85 AND I-25 EA
QUALITY ASSURANCE/QUALITY CONTROL PLAN

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Quality Assurance/Quality Control Plan for the North Meadows Extension to US 85 and I-25

February 2008

Prepared for:

Town of Castle Rock
Public Works Department
4175 N. Castleton Court
Castle Rock, CO 80109

Douglas County
Public Works
100 Third Street
Castle Rock, CO 80104

Colorado Department of Transportation
Region 1
18500 East Colfax Avenue
Aurora, Colorado 80011

Prepared by:

Felsburg Holt & Ullevig
6300 S. Syracuse Way, Suite 600
Centennial, CO 80111

FHU Reference No. 07-113

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1.0 INTRODUCTION

The Felsburg Holt & Ullevig (FHU) team is strongly committed to sound engineering design, good science, and the production of quality documents. The Quality Assurance/Quality Control Plan (QAQCP) for the North Meadows Extension to US Highway 85 (US 85) and Interstate 25 (I-25) Environmental Assessment (EA) is designed to provide a functional and easily understood set of guidelines to maintain and ensure quality during the preparation of National Environmental Policy Act (NEPA) documents. These documents are reviewed by the general public, 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, and to provide full and honest disclosure.

This purpose of the QAQCP is to provide a framework to ensure that:

- Quality work is consistently performed and that quality deliverables are consistently produced
- Environmental and design attributes meet established industry or agency standards and comply with applicable agency requirements
- Multi-disciplinary data acquisition and design efforts are coordinated and addressed
- Design is sufficiently complete to produce a planning-level cost estimate for the purposes of project funding and to supporting the impact and mitigation analysis in the EA
- Project continuity occurs in record keeping and document review
- Orderly procedures are established to provide quality control for engineering design and scientific calculations, drawings, and specifications
- Project documents have undergone the necessary technical, grammar, punctuation, and spelling proofread, and editorial process prior to certification

1.1 List of Reports and Technical Memoranda

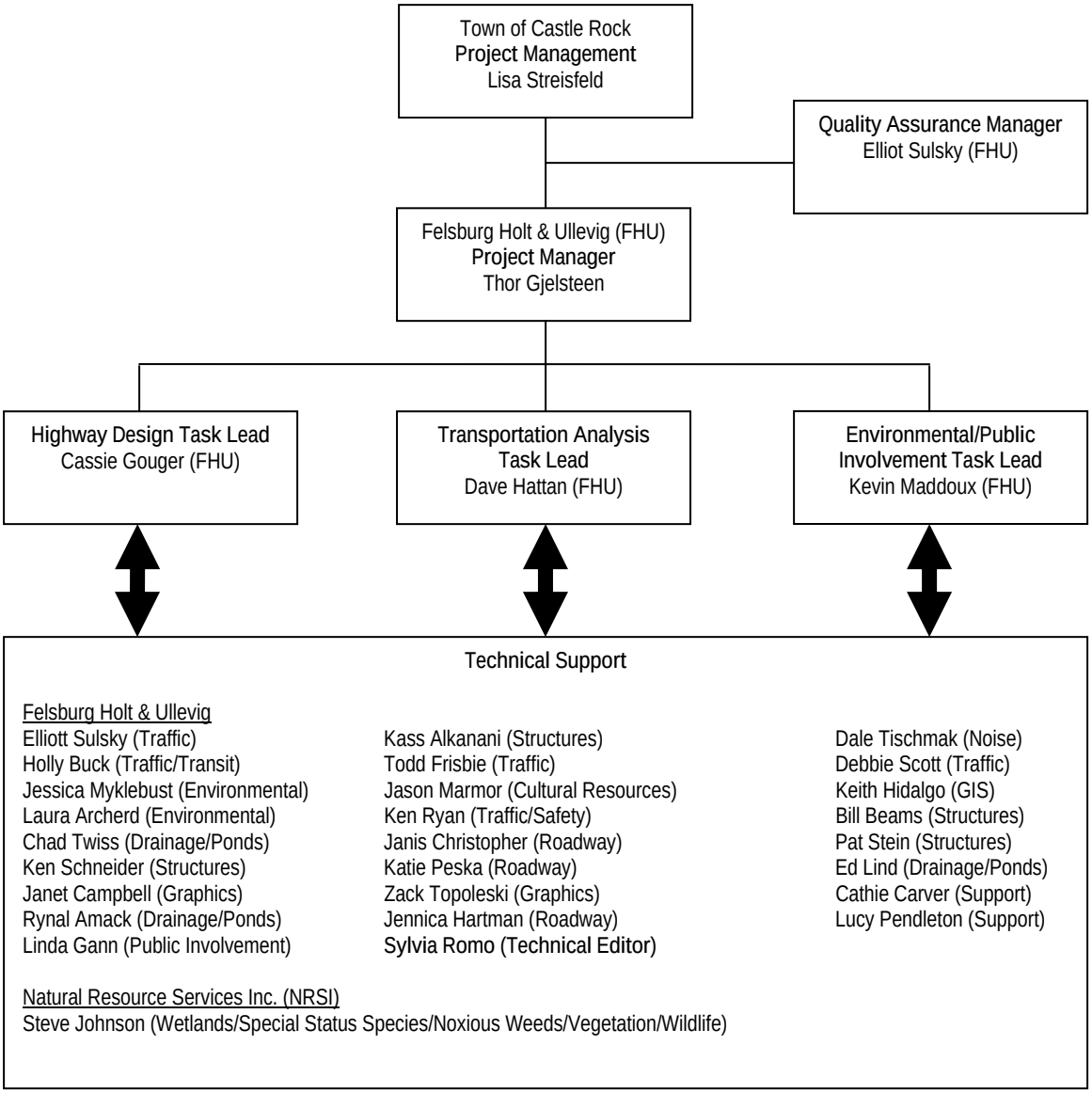
The following reports and technical memoranda will be prepared as part of the North Meadows Extension to US and I-25 EA.

- North Meadows Extension to US 85 and I-25 EA
- Transportation Analysis Report (s)
- Bicycle and Pedestrian Mobility Technical Memorandum
- Utilities Technical Memorandum
- Railroads Technical Memorandum
- Environmental Justice Evaluation Technical Memorandum
- Historical Resources Survey
- Archaeological Resources Survey
- Paleontological Survey
- Air Quality Assessment Report

- Traffic Noise Assessment Report
- Water Resources, Floodplains, and Drainage Assessment
- Ecological Assessment Technical Memorandum
- Biological Assessment (if necessary)
- Wetland Delineation
- Wetland Finding
- Integrated Noxious Weed Management Plan
- Modified Phase I Environmental Site Assessment
- Visual Resources and Aesthetics Technical Memorandum
- Cumulative Impacts Technical Memorandum
- Section 4(f)/6(f) Documentation (if necessary)
- Decision Document

2.0 PROJECT TEAM

The project leadership organization is shown below:



2.1 Project Team Contact

The contact for the project team is:

Thor Gjelsteen
Project Manager

Felsburg, Holt and Ullevig
6300 South Syracuse Way, Suite 600
Centennial, CO 80111

(303) 721-1440
thor.gjelsteen@fhueng.com

2.2 Project Team Contact List

All FHU personnel can be contacted at:

Felsburg, Holt and Ullevig
6300 South Syracuse Way, Suite 600
Centennial, CO 80111

Phone: (303) 721-1440
Facsimile: (303) 721-0832

Personnel	Email Contact
Elliott Sulsky	elliott.sulsky@fhueng.com
Dave Hattan	dave.hattan@fhueng.com
Thor Gjelsteen	thor.gjelsteen@fhueng.com
Cassie Gouger	cassie.gouger@fhueng.com
Kevin Maddoux	kevin.maddoux@fhueng.com

NRSI personnel can be contacted at:

P.O. Box 19332
Boulder, CO 80308-2332
(303) 915-3211
Steve C. Johnson stevej@nrsiservices.com

2.3 Project Team Responsibilities

Project team members are responsible to follow the procedures outlined in this document and work efficiently with one another during the preparation of the NEPA documents. Specific positions and associated responsibilities are summarized below.

2.3.1 FHU Project Manager

The FHU Project Manager shall:

- Prepare monthly project schedule updates in Microsoft Project and email to project team in Adobe PDF format
- Hold internal staff meetings as necessary to keep the project on schedule
- Communicate with the Quality Assurance Manager and Highway Design, Transportation Analysis, and Environmental/Public Involvement Task Leads
- Organize monthly Project Management Team (PMT) meetings, prepare agenda, and prepare meeting notes in consultation with a PMT representative
- Prepare “to do” action item lists
- Develop and maintain a project files to document the NEPA process and important decisions
- Prepare monthly invoicing
- Notify Town of Castle Rock immediately when tasks beyond the scope may be necessary

2.3.2 Quality Assurance Manager

The Quality Assurance Manager shall:

- Maintain and ensure product quality during preparation of the NEPA documents
- Track when and how technical reviews have occurred
- Ensure that QA processes have been followed

2.3.3 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 four previously developed alternatives that will generally satisfy current and projected transportation needs
- Coordinate between roadway, structures, and drainage/ponds design team members for refinement of four previously developed alternatives and the Build Alternative

2.3.4 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 four previously developed alternatives that will generally satisfy current and projected transportation needs

2.3.5 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 transportation analysis 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 Build Alternative and the No-Action Alternative in the EA
- Facilitate preparation of the EA and associated technical reports/technical memoranda
- 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 Town of Castle Rock and Douglas County

2.3.6 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

3.0 PROJECT FILE

In accordance with the American Association of State Highway and Transportation Officials (AASHTO) Practioner'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.

3.1 Filing

Maintaining an accurate and up-to-date project file is an important task in any NEPA study. The project file allows the project team to locate important documents quickly, which reduces inefficiency and duplication efforts, while also reducing the risk of overlooking information. The project file also enables an agency, such as the Town of Castle Rock, Douglas County, CDOT, and FHWA, to respond to document requests under the Freedom of Information Act (FOIA) and similar State public records laws.

FHU will manage the project file. Thor Gjelsteen, FHU Project Manager, and the Task Leads, Cassie Gouger (Highway Design Task Lead), Dave Hattan (Transportation Analysis Task Lead), and Kevin Maddoux (Environmental/Public Involvement Task Lead) will be responsible for managing the administrative record and project file, searching existing documents, and extracting information as necessary to streamline workflow and acquire important information.

The project file will be maintained in the central file at FHU. The central file will include the following files:

- Project Management – This file will include documents related to project management, such as monthly invoices, progress reports, sub-consultant agreements, etc.
- Scope of Work – The final scope of work for the project will be filed here.
- Project Reports – This file will consist of the final copies of the EA, Decision Document, and all associated technical memoranda and technical reports.
- Public Scoping – This file will include information related to the public scoping meetings conducted as part of the System Level Study and EA.
- Agency Scoping – This file will consist of documentation from the agency scoping meeting conducted for the EA.
- Transmittals – A large volume of transmittals are generated over the course of a NEPA study, as documents are provided for agency review. Copies of transmittals will be stored here.
- Miscellaneous Correspondence – This file will include letters, memorandums, telephone logs and other miscellaneous correspondence related to the project. Hard copies of e-mails will not be included.
- Agency Correspondence – This file will consist of the information that will be included in Appendix A *Agency Coordination* of the EA and will contain correspondence between

FHWA, CDOT, Douglas County, the Town of Castle Rock, and the various participating and cooperating agencies.

- Public Correspondence – This file will include public correspondence received over the course of the project prior to release of the EA and the public comment period. To protect the privacy of individuals, this information will not be included in Appendix B *Public Involvement* of the EA.
- Meeting Minutes – This file will contain copies of the meeting minutes prepared for the Project Management Team meeting and meetings with the various participating and cooperating agencies.
- Comment/Response Matrices – A cd-rom with an electronic copy of the submittal, comments received from between FHWA, CDOT, Douglas County, the Town of Castle Rock, and the various participating and cooperating agencies, and the response to comments will be maintained in this file.

Additional files will be added as necessary.

3.2 Electronic Files

The electronic files for the North Meadows Extension to US 85 and I-25 project are located on the L:\drive on the FHU server. Within that directory, there is a folder titled “07-113.” This information is backed up regularly as part of the system maintenance process to ensure safe keeping. The project folder contains these sub-directories:

- Emails (Stored using the AskSam database software program)
- ACAD
- Correspondence
- EA Report
- EA Scoping
- Environmental Tech Reports
- GIS
- Graphics
- Meeting Minutes
- Planning
- Project Management
- Public Involvement
- QA QC Plan
- Right of Entry
- Submittals
- Traffic

Additional sub-directories will be added as necessary.

3.3 Audit

Following the public hearing for the EA, the Quality Assurance Manager or his designee will audit the project file to verify that copies of the EA and associated technical reports have been included in the project file. This audit will be documented in a memorandum to Project Manager and the file. A cd-rom of the electronic project file, including the audit, will be submitted to the Town of Castle Rock Project Manager.

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4.0 QUALITY ASSURANCE PROCESSES

Field activities and environmental analysis tasks will follow this process:

- Discuss data collection and environmental analysis methodologies with CDOT Region 1, CDOT Environmental Programs Branch (wetlands, historic properties, water quality, noise, air quality), and outside agencies as approved by CDOT and FHWA
- Check field notes for accuracy and data gaps (by Resource Specialist)
- Review field documents for quality, readability, and completeness (by Resource Specialist)
- Check environmental analyses for accuracy, data gaps, quality, and completeness (by Resource Specialist)
- Check engineering design calculations, drawings, and specifications for completeness and accuracy (by Highway Design and Transportation Analysis Task Leads)
- Review technical memoranda and reports (by Resource Specialist, Environmental/Public Involvement Task Lead, and Project Manager)
- Provide technical memoranda and reports after verification by Project Manager to Lisa Streisfeld (Town of Castle Rock)

The process to be followed for the technical memoranda/reports is as follows:

- The Resource Specialist prepares the Technical Reports/Memoranda.
- The Technical Editor, the Environmental/Public Involvement Task Lead and/or the Project Manager reviews each Technical Report/Memoranda and return comments to the Resource Specialist.
- The Resource Specialist responds to comments received.
- The Environmental/Public Involvement Task Lead verifies the comments have been responded to and provides a draft copy to the Town of Castle Rock Project Manager to check and provide to the Project Management Team and appropriate FHWA and CDOT reviewers.
- The Town of Castle Rock Project Manager submits the draft copy to the Project Management Team, and appropriate FHWA and CDOT staff review the Technical Report/Memoranda.
- The Resource Specialist responds to comments received from Town of Castle Rock Project Manager, Project Management Team, and appropriate FHWA and CDOT staff review.
- The Environmental/Public Involvement Task Lead verifies the comments have been responded to and provides a final copy to the Town of Castle Rock Project Manager for provision to the Project Management Team and appropriate FHWA and CDOT recipients.

The process to be followed for the EA/Decision Document is as follows:

- The Environmental/Public Involvement Task Lead coordinates preparation of the EA/Decision Document.
- The Resource Specialists and/or the Project Manager review the EA/Decision Document and return comments to the Environmental/Public Involvement Task Lead.
- The Environmental/Public Involvement Task Lead responds to comments received.
- The Technical Editor reviews the EA/Decision Document and return comments to the Environmental/Public Involvement Task Lead.
- The Environmental/Public Involvement Task Lead responds to comments received.
- The Project Manager verifies the comments have been responded to and provides a draft copy to the Town of Castle Rock Project Manager for provision to the Project Management Team and appropriate FHWA and CDOT reviewers.
- The Town of Castle Rock Project Manager, Project Management Team, and appropriate FHWA and CDOT staff review the Technical Report/Memoranda.
- The Environmental/Public Involvement Task Lead prepares the EA/Decision Document and responds to comments received from Town of Castle Rock Project Manager, Project Management Team, and appropriate FHWA and CDOT staff review.
- The Environmental/Public Involvement Task Lead verifies the comments have been responded to and provides a final copy to the Town of Castle Rock Project Manager for provision to the Project Management Team and appropriate FHWA and CDOT recipients.
- The Consultant Project Manager will provide a certification statement that the EA/Decision Document and associated technical reports have undergone the necessary technical, grammar, punctuation and spelling proofread, and editorial process.

This process will be followed for each of the two review cycles for the EA/Decision Document.

5.0 GEOGRAPHIC INFORMATION SYSTEM (GIS) DATA MANAGEMENT

Geographic information systems (GIS) data can come from many sources, many platforms, and in a variety of formats. It is important to define standards for incoming GIS data so that these data sets can be merged into a centralized data warehouse. Without standards for quality assurance (i.e. source, accuracy, projection, units, scales), the confidence level of the data and the decisions based upon that data may be in question. Coordinating efforts for GIS data creation and compilation will eliminate duplicative efforts, increase data accuracy, streamline project reviews, and document the history of design/construction data.

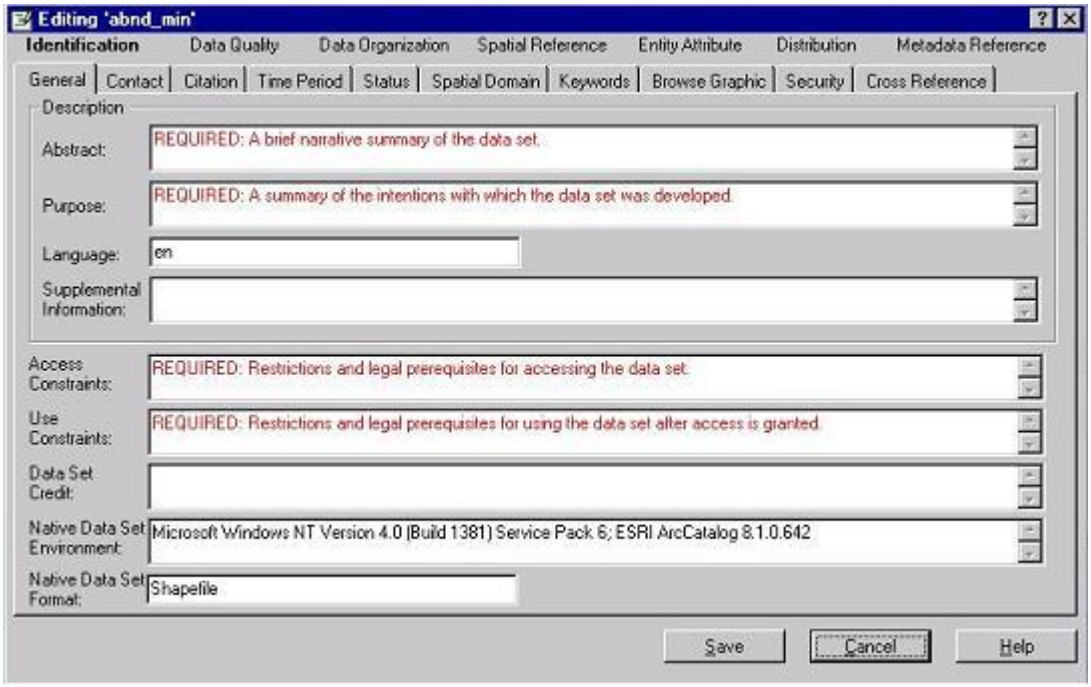
The FHU GIS staff will coordinate and manage an electronic data warehouse for the project area containing environmental data, alternative alignments, land ownership, rights-of-way, contours, utilities, aerial photography, traffic data, and any other data that may be collected through the planning process. Corridor geographic data acquisition and compilation will be used for planning, environmental issues development, and to support the environmental permitting process.

A key element of maintaining a functional GIS system is the identification of the coordinate system to be used for the project. The FHU GIS staff will use Colorado Central State plane (NAD83) coordinates for storage of all GIS information, the same projection used in Town of Castle Rock's GIS system. Data included from surveys in modified ground coordinates will be scaled back to State plane coordinates using the specifications included in the survey control diagram, unique to each survey. Field data captured for the project will either be obtained using Trimble GeoXM global positioning system (GPS) units in conjunction with ArcPad software or through other field surveys. Data captured through Trimble GPS units will be converted to State plane coordinates to from UTM, Zone 13, NAD83 coordinates with an accuracy level of 1-3 meters without post-processing. With post-processing of the data, the accuracy generally can be increased to sub-meter accuracy. Features digitized from aerial photography will be captured at an appropriate zoom level to produce data at a specified accuracy level. All line features will connect properly and contain no "overshoots" or "undershoots" (dangles). All polygon features will be closed. All data layers will have the appropriate topology created.

The data gathered for the project will be assembled into an ESRI ArcGIS version 9.2 Personal Geodatabase for data management purposes. The determination of alternative footprint impacts performed in GIS will be automated through the construction of a geospatial data model in ArcGIS ModelBuilder. This "flowchart-like" model will not only automate the determination of impacts, but will also serve to document what layers and spatial processes were used to determine a given impact. This model is transferable and will be provided as an ArcGIS toolbox as a final deliverable, along with the Personal Geodatabase with the associated project data layers. A copy of the GIS data will be provided to the Town of Castle Rock Project Manager at project closeout.

Metadata unique to each spatial dataset will be constructed in order to document data source, accuracy, projection, units, and currency of data. The Federal Geographic Data Committee (FGDC) metadata style sheet will be used to construct metadata in ArcCatalog. This metadata

will be stored in XML and HTML formats for each dataset, allowing viewing for non-GIS users. The example below is a sample of the FGDC style sheet interface in ArcCatalog:



6.0 ENGINEERING DESIGN AND TRANSPORTATION ANALYSIS

The QA process for engineering design and transportation analysis will be governed by the FHU Quality Control Manual (FHU 1992), which is based on the National Society of Professional Engineers (NSPE)/Professional Engineers in Private Practice (PEPP) Quality Control Manual. The guidelines contained in the FHU Quality Control Manual are intended as a guide for conducting engineering assignments and are not intended to be comprehensive or essential to good professional practice.

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7.0 REFERENCES

American Association of State Highway and Transportation Officials (AASHTO). 2006. Practioner's Handbook 01 Maintaining A Project File And Preparing An Administrative Record For A NEPA Study. June.

Felsburg Holt & Ullevig (FHU). 1992. Quality Control Manual. January.

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APPENDIX G
FORMS

CDOT Form 1180

COLORADO DEPARTMENT OF TRANSPORTATION

STANDARDS CERTIFICATION AND PROJECT PLANS, SPECIFICATIONS & ESTIMATE APPROVAL

Project Number	Project Code
Route Number	STIP Number
Location	

STANDARDS CERTIFICATION

☐ CDOT Oversight – 23 USC 106 (b) (1), 3R on the Interstate

☐ CDOT Oversight – NHS, Non-Interstate; 23 USC 106 (b) (2) – Non-NHS funding

I certify that this project will meet or exceed the standards approved by the Secretary of Transportation under Section 109 (c) Title 23 of the United States Code, as listed in 23 CFR 625.4, with the exception of any approved variances.

Project Manager	Date

BUSINESS OFFICE REVIEW

I have reviewed the appropriate project budget and by signing verify that on this date there were sufficient funds for obligation.

Business Manager	Date

PLANS, SPECIFICATIONS & ESTIMATES APPROVAL

In accordance with 23 CFR 630.205, I approve the PS&E on the above project. Please obligate construction funds.

I have reviewed the final set of Plans, Specifications and Estimate for the above project and have determined them sufficient in detail to facilitate the construction and contract control of the project. If this project is constructed by the force account construction method, appropriate affirmative Findings-in-the-Public-Interest are on file. The conditions for authorization to advertise as set forth in 23 CFR 635.309 will be completed prior to advertising.

I find the estimate reflects the anticipated cost of the project in sufficient detail to provide a prediction of financial obligations incurred by CDOT and FHWA.

☐ The construction * cost estimate for this project is less than the project budget.
☐ The construction * cost estimate exceeds current budget, the additional source of funding to cover the estimate is:

☐ Pool	Type of funds	_____	$ _____
☐ Project	Project code	_____	$ _____
☐ Other	Source	_____	$ _____

*Total construction cost estimate for this project is: $_____

* Construction phase only (NOT TOTAL)

Program Engineer	Region	Date

Previous editions are obsolete and may not be used **CDOT Form #1180 4/06**

Instructions: Use this form for all projects that do not require FHWA approval or oversight of PS&E. (See Stewardship Agreement.)

Distribution: Original to Region Business Office then to Office of Financial Management and Budget (Federal Funds Manager)
Copies to Project file and FHWA (NHS projects)

CDOT Form 463

COLORADO DEPARTMENT OF TRANSPORTATION

DESIGN DATA

❑ **Metric** ❑ **English**

Page 1 of 2

Orig. date:	
Rev. date:	
Revision #	
Region #	

Status: ❑ Preliminary ❑ Final ❑ Revised

Prepared by:	Revised by:
Date:	Date:
Submited by Project Manager:	Approved by Preconstruction Engineer:
Date:	

Project code # (SA#)	STIP #
Project #	

PE project code	PE project #

Project description

County1	County2	County3

Municipality

System code: ❑ IM ❑ NHS ❑ STP ❑ Other

Oversight by: ❑ CDOT ❑ FHWA ❑ Other

Planned length:

Geographic location

Type of terrain ❑ level ❑ plains ❑ rolling ❑ urban ❑ mountainous

Description of proposed construction/improvement (attach map showing site location)

1 Traffic (Note: use columns A, B, and/or C to identify facility described below)

	Current year:_____			Future year:_____		Facility location			
Facility	ADT	DHV	DHV % trucks	ADT	DHV	Industrial	Commercial	Residential	Other
A						❑	❑	❑	❑
B						❑	❑	❑	❑
C						❑	❑	❑	❑

2 Rdwy class

	Route	Refpt	Endrefpt	Functional classification	Facility type	Rural code
1.						
2.						
3.						

3 Design standards (identify substandard items with an * in 1st column & clarify in remarks)

	A=				B=				C=			
	Standard	Existing	Proposed	Ultimate	Standard	Existing	Proposed	Ultimate	Standard	Existing	Proposed	Ultimate
Surface type												
Typical section type												
# of travel lanes												
Width of travel lanes												
Shoulder width lt./median												
Shoulder width rt./outside												
Side slope dist. ("z")												
Median width												
Posted speed												
Design speed												
Max. superelevation												
Min. radius												
Min. horizontal SSD												
Min. vertical SSD												
Max grade												

Project under ❑ 1R ❑ 3R ❑ 4R ❑ Other:_____criteria

❑ Variance in minimum design standards required

❑ Justification attached ❑ Request to be submitted

❑ Bridge (see item 4) ❑ See remarks

❑ Safety project

not all standards addressed

❑ Stage construction (explain in remarks)

Resurfacing projects

❑ Recommendations concerning safety aspects attached

Existing guardrail

meets current standards: ❑ yes ❑ no

Comments:

Project code # (SA#)	Project #	Revise date

4 Major structures

S= to stay, R= to be removed, P= proposed new structure

Structure ID#	▼	Length	Ref. point	Feature intersected	Standard width	Structure Rdwy	load	Horizontal clearance	Vertical clearance	Year built

Proposed treatment of bridges to remain in place (address bridge rail, capacity, and allowable surfacing thickness)

5 Project characteristics (proposed)

- ❑ Lighting
- ❑ Handicap ramps
- ❑ Curb and gutter
- ❑ Curb only
- ❑ Sidwalk width=
- ❑ Bikeway width=
- ❑ Parking lane width=
- ❑ Detours
- ❑ Landscaping requirements: (description)

Median (type): ❑ depressed ❑ painted ❑ raised ❑ none

- ❑ Traffic control signals ❑ Striping
- ❑ Left-turn slots ❑ continuous width=
- ❑ Right-turn slots ❑ continuous width=
- Signing ❑ construction ❑ permanent
- ❑ Other: (description)

6 Right of Way

	Yes	No	Est. #
ROW &/or perm. easement required:	❑	❑	
Relocation required:	❑	❑	
Temp. easement required:	❑	❑	
Changes in access:	❑	❑	
Changes to connecting roads:	❑	❑	

7 Utilities (list names of known utility companies)

8 Railroad crossings

of crossings:

Recommendations

9 Environmental

Type:	Approved on:	under Project Code:	Project #

Comments

10 Coordination

- ❑ Withdrawn lands (power sites, reservoirs, etc.) cleared thru BLM or forest service office — Irrigation ditch name:
- ❑ New traffic ordinance required ❑ Modify schedule of existing ordinance — Municipality:
- Other:

11 Construction method

Advertised by: ❑ State ❑ Local ❑ None

noAd Reason: ❑ Design ❑ P.O. ❑ Study ❑ CDOT F/A ❑ Local F/A ❑ RR F/A ❑ Utility F/A ❑ Miscellaneous

Entity/Agency contact name:

Phone #:

12 Remarks (include additional pages if needed)

Original to Central Files - **Copies to**: Region Files, Region Environmental Program Manager, Staff ROW, Staff Bridge or other when appropriate.

CDOT Form 1048a

COLORADO DEPARTMENT OF TRANSPORTATION

PROJECT SCOPING/CLEARANCE RECORD

Construction Project #	Project Code	PE Project #	PE Project Code	STIP #
Project Location		County	City	
Begin point	End point	Region Program Engineer		Region
Who requested this project? For what reason?				
What is the proposed improvement/scope of work? (Note changes as project develops)				

Phase descriptions: (see Procedural Directive 512.1 for further information/instructions)

Phase I-
Implementation to Statewide Transportation Improvement Program (STIP). As a project is included in the STIP, these activities should be reviewed for scoping the project, identifying concerns and determining future budget requirements.

Phase II-
Design Scoping Review (DSR) – Takes place in the year before Preliminary Engineering (PE) is budgeted or immediately when PE is budgeted, to re-evaluate original scope. May be combined with pre-survey conference.

Phase III-
Field Inspection Review (FIR) – Before or during the FIR, all project development and design needs identified in the scoping process must be resolved. The scope should not be changed after the FIR.

Comments:

1) The Form 1048a is to be used in conjunction with the Project Development Manual.
2) The Resident Engineer typically delegates project management responsibilities to other positions based on the type of project and available expertise.
3) Documentation or activity sign-off date indicates clearance. All certification boxes require concurrence before project may be advertised. Use N/A if not applicable.
4) Blanks may be filled in a variety of ways. N/A = Not Applicable.
Check ☐ when item is completed. If activity is applicable, show date completed and initial.
Check "clear box as each activity is cleared.
5) ???=Not yet determinable.

Activity

Section 1 Scoping, budgeting and programming	**Phase I** Implementation to STIP	**Phase II** Design Scoping Review	**Phase III** Field Inspection Review	CLEAR	**Certification/clearance** Responsible party or reviewer	Documentation or activity sign-off date
1.01 Existing typical section						
1.02 Proposed typical section						
1.03 Consistent with STIP ☐ Public Involvement						
1.04 Maintenance input						
1.05 Estimated total project cost (PE, ROW, Util., Const., etc.)	$	$	$			
1.06 Funding sources / resource allocation (State, federal, local, etc.)						
1.07 Project finances (ProMIS budget actions and phase obligation)				☐	Resident Engineer	
1.08 Field survey required ☐Yes ☐No Date requested:		Completed date		☐	Region Survey Coordinator	
1.09 Design Data (Form 463a)		Preliminary: Date:	Final: Date:	☐	Resident Engineer	
1.10 Request for Design Exception (Form 464a) (Attach to Form 463a)		☐ N/A ☐ Applicable	☐ N/A ☐Sent	☐	Resident Engineer	
1.11 Project schedule prepared		☐ Yes ☐No Date:	☐ Up-to-date Date:	☐	Resident Engineer	

Section 2 Environmental	**Phase I** Implementation to STIP			**Phase II** Design Scoping Review			**Phase III** Field Inspection Review	CLEAR	**Certification/clearance**	
									Responsible party or reviewer	Documentation or activity sign-off date
	Yes	No	Check	Yes	No	Check	Status:			
2.01 Route location approval a. Major Intermediate certification b. Minor Compliance (Form 128)	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐		☐	Region Planning / Environmental Manager (shaded area below)	
2.02 Public involvement	☐	☐	☐	☐	☐	☐		☐		
2.03 Alternative modes of transportation Travel demand management	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐		☐		
2.04 Section 4(f) Section 6(f)	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐		☐		
2.05 Historic clearances	☐	☐	☐	☐	☐	☐		☐		
2.06 Historic bridges	☐	☐	☐	☐	☐	☐		☐		
2.07 Archaeology (effects determination)	☐	☐	☐	☐	☐	☐		☐		
2.08 Paleontology (effects determination)	☐	☐	☐	☐	☐	☐		☐		
2.09 Floodplains	☐	☐	☐	☐	☐	☐		☐		
2.10 Farmland protection	☐	☐	☐	☐	☐	☐		☐		
2.11 Wetlands	☐	☐	☐	☐	☐	☐		☐		
2.12 Division of Wildlife (SB40)	☐	☐	☐	☐	☐	☐		☐		
2.13 Threatened and endangered species	☐	☐	☐	☐	☐	☐		☐		
2.14 Hazardous waste and materials ☐ Contaminated soils	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐ ☐		☐		
2.15 Noise analysis	☐	☐	☐	☐	☐	☐		☐		
2.16 Air quality	☐	☐	☐	☐	☐	☐		☐		
2.17 401 Certification	☐	☐	☐	☐	☐	☐		☐		
2.18 402 Permit	☐	☐	☐	☐	☐	☐		☐		
2.19 404 Permit	☐	☐	☐	☐	☐	☐		☐		
2.20 NPDES Permit	☐	☐	☐	☐	☐	☐		☐		
2.21 Erosion control	☐	☐	☐	☐	☐	☐		☐	Landscape Architect (shaded area below)	
2.22 Landscaping	☐	☐	☐	☐	☐	☐		☐		
2.23 Seeding				☐	☐	☐		☐		
2.24 Irrigation systems				☐	☐	☐		☐		
2.25 Wildflowers				☐	☐	☐		☐		
2.26 Noxious weeds				☐	☐	☐		☐		
aa. Wetlands mitigation				☐	☐	☐		☐		

Section 3 Traffic	**Phase I** Implementation to STIP	**Phase II** Design Scoping Review	**Phase III** Field Inspection Review	CLEAR	**Certification/clearance**	
					Responsible party or reviewer	Documentation or activity sign-off date
			Status:			
3.01 Traffic data (Form 463a and title sheet)		Available? ☐ Yes ☐ No		☐	Resident Engineer	
3.02 Request / analyze crash data Hazard index:	☐ Yes ☐ No	Status:		☐	Region Traffic	
3.03 Request turning movements from DTD ☐Shown on the plans		☐ Yes ☐ No		☐	Resident Engineer	
3.04 Signal warrants ☐ On file				☐	Region Traffic	
3.05 Traffic movement diagram Intersection layout req'd ☐ Yes ☐ No Interchange layout req'd ☐ Yes ☐ No		☐ Requested ☐ Requested		☐	Resident Engineer	
3.06 Intersection / interchange design ☐ Yes ☐ No	Required?	Required? Requested		☐	Resident Engineer	
3.07 Traffic signal plan		☐ Yes ☐ No		☐	Project Traffic Engineer	
3.08 Lighting plan		☐ Yes ☐ No		☐	Resident Engineer	
3.09 Permanent signing and pavement marking		Required? ☐ Yes ☐ No		☐	Project Traffic Engineer	
3.10 Construction traffic control plans (signing, signals and pavement marking)		☐ Yes ☐ No		☐	Project Traffic Engineer	

Section 4 Structures	**Phase I** Implementation to STIP			**Phase II** Design Scoping Review			**Phase III** Field Inspection Review	CLEAR	**Certification/clearance**	
									Responsible party or reviewer	Documentation or activity sign-off date
	Yes	No	Check	Yes	No	Check	Status:			
4.01 Major structure - bridge	☐	☐	☐	☐	☐	☐		☐	Project Structural Engineer	
4.02 Major structure --culvert	☐	☐	☐	☐	☐	☐		☐	Project Structural Engineer	
4.03 Major structure - unusual	☐	☐	☐	☐	☐	☐		☐	Project Structural Engineer	
4.04 Pedestrian overpass / underpass	☐	☐	☐	☐	☐	☐		☐	Project Structural Engineer	
4.05 Architectural / aesthetic treatment	☐	☐	☐	☐	☐	☐		☐		
4.06 Foundation investigation and recommendation				☐	☐	☐		☐	Project Structural Engineer	
4.07 Structure selection report				☐	☐	☐		☐	Project Structural Engineer	
4.08 Retaining walls				☐	☐	☐		☐	Project Structural Engineer	
4.09 Noise walls				☐	☐	☐		☐	Project Structural Engineer	
4.10 Analysis of structures to be resurfaced				☐ Req'd ☐ Requested				☐	Project Structural Engineer	
4.11 Determine existing structural adequacy				OK ☐	N/A ☐	Check ☐		☐	Project Structural Engineer	
4.12 Crashworthy bridge rail				OK ☐	N/A ☐	Check ☐		☐	Project Structural Engineer	
4.13 Vertical clearance of structure				OK ☐	N/A ☐	Check ☐		☐	Resident Engineer	

Section 5 Materials	**Phase I** Implementation to STIP	**Phase II** Design Scoping Review	**Phase III** Field Inspection Review	CLEAR	**Certification/clearance**	
					Responsible party or reviewer	Documentation or activity sign-off date
			Status:			
5.01 Pavement analysis / distress	Type:	Type:	Type:	☐	Region Materials Engineer	
5.02 Foundation investigation and drilling		Yes ☐ No ☐ Request ☐	Status:	☐	Resident Engineer	
5.03 Geotechnical studies		Yes ☐ No ☐ Request ☐	Status:	☐	Geology Program	
5.04 Pit option		Yes ☐ No ☐ Check ☐	Status:	☐	Resident Engineer	
5.05 Pit reclamation requirements			Yes ☐ No ☐ Check ☐	☐	Resident Engineer	
5.06 Pavement justification report			Status:	☐	Region Materials Engineer	
5.07 Alternate pavement design (life cycle cost analysis)			Status:	☐	Region Materials Engineer	
				☐		
				☐		
				☐		

Section 6 Right of Way and Utilities	**Phase I** Implementation to STIP	**Phase II** Design Scoping Review	**Phase III** Field Inspection Review	CLEAR	**Certification/clearance**	
					Responsible party or reviewer	Documentation or activity sign-off date
6.01 Right-of-way involvement Access control? Easement acquisition required? Relocation assistance Trespass permit required? Advertising signs (commercial) ☐Illegal ☐ Legal Existing easements Identify _____ Clearance	Yes ☐ No ☐ Type _____ ☐ ☐ _____	Yes ☐ No ☐ Check ☐ ☐ ☐ # =_____ ☐ ☐ # =_____ ☐ ☐ # =_____ ☐ ☐ Type: ☐ ☐ Type:	Status: _____ _____ _____ _____ Yes ☐ No ☐ # _____	☐ ☐	ROW Manager	
6.02 Permits req'd to work on govt. land Forest Service Bureau of Land Management 1. _____ 2. _____	Yes ☐ No ☐ ??? ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Yes ☐ No ☐ Check ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Status:	☐ ☐ ☐ ☐	Resident Engineer	
6.03 Utility involvement Existing utility easements? Visual inspection Request locates Clearance	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐ Status: Date:	Status: ☐ Yes ☐ No	☐	Region Utility Engineer	
6.04 Railroad involvement 1. _____ 2. _____	Yes ☐ No ☐ ??? ☐ ☐ ☐ ☐	Yes ☐ No ☐ Check ☐ ☐ ☐ ☐	Status:	☐ ☐	Resident Engineer	
				☐		
				☐		
				☐		

Section 7 Agreements, Justifications and Approvals	**Phase I** Implementation to STIP	**Phase II** Design Scoping Review	**Phase III** Field Inspection Review	CLEAR	Certification/clearance	
					Responsible party or reviewer	Documentation or activity sign-off date
7.01 Safety rest areas	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Status:	☐	Resident Engineer	
7.02 Detour design	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Status:	☐	Resident Engineer	
7.03 Frontage road design	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Status:	☐	Resident Engineer	
7.04 Railroad design RR company _____ RR flagging and insurance requirements ☐ RR facilities ☐ RR standards reviewed	Yes ☐ No ☐ ??? ☐ ☐ ☐ ☐ ☐ Yes ☐ No ☐ Yes ☐ No	Yes ☐ No ☐ Check ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Status:	☐ ☐ ☐ ☐	Resident Engineer	
7.05 Airport / heliport clearances	Req'd ☐ ??? ☐ Yes ☐ No	Yes ☐ No ☐ Check ☐	Status:	☐	Resident Engineer	
7.06 Americans With Disabilities Act standards	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Status:	☐	Resident Engineer	
7.07 Bicycle and pedestrian facilities Standards reviewed	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Status:	☐	Resident Engineer	
7.08 Transit accommodations	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Status:	☐	Resident Engineer	
7.09 Safety review (including clear zone decisions)		Applicable ☐ Yes ☐ No	Status:	☐	Resident Engineer	
7.10 Resurfacing project safety letter			Date:	☐	Resident Engineer	
7.11 Guardrail/ barrier design and review		Need ☐ ??? ☐ Yes ☐ No	Yes ☐ No ☐ Check ☐	☐	Resident Engineer	
7.12 Hydraulic design ☐ Erosion control ☐ Stormwater quality management		Yes ☐ No ☐ Check ☐ ☐ ☐ ☐	Status:	☐	Hydraulics Engineer	
7.13 Culverts other than Bid Items 617 and 624			☐ Justified Status:	☐	Resident Engineer	
7.14 Climbing and passing lanes		Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	☐	Resident Engineer	
7.15 Stockpass and machine pass		Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	☐	Resident Engineer	
7.16 Alternate bids		Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	☐	Program Engineer	
7.17 Consolidated projects			Applicable ☐ Yes ☐ No	☐	Resident Engineer	
7.18 Special provisions ☐ Reviewed by			Yes ☐ No ☐ Check ☐	☐	Resident Engineer	
7.19 Consultant selection and contracting process	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Status:	☐	Agreements	
7.20 Entity agreement (local agency, intergovernmental, interagency, public, private) 1. _____ 2. _____	Yes ☐ No ☐ ??? ☐ ☐ ☐ ☐	Yes ☐ No ☐ Check ☐ ☐ ☐ ☐	Status:	☐	Agreements	
7.21 Irrigation company agreement 1. _____ 2. _____	Yes ☐ No ☐ ??? ☐ ☐ ☐ ☐	Yes ☐ No ☐ Check ☐ ☐ ☐ ☐	Status:	☐	Region Utility Engineer	

Section 8 General	**Phase I** Implementation to STIP	**Phase II** Design Scoping Review	**Phase III** Field Inspection Review	CLEAR	**Certification/clearance**	
					Responsible party or reviewer	Documentation or activity sign-off date
8.01 Force account and FIPI ☐ (Form 895)	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Yes ☐ No ☐ Date	☐	Region Program Engineer	
8.02 Method of construction	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Yes ☐ No ☐ Date	☐	Resident Engineer	
8.03 Work by others (with federal aid)	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Yes ☐ No ☐ Date	☐	Resident Engineer	
8.04 Work by state forces	Yes ☐ No ☐ ??? ☐	Yes ☐ No ☐ Check ☐	Yes ☐ No ☐ Date	☐	Resident Engineer	
8.05 Value Engineering		Yes ☐ No ☐ Check ☐	Yes ☐ No ☐ N/A ☐	☐	Resident Engineer	
8.06 Stage construction (future capacity considerations)		Yes ☐ No ☐ Check ☐	Yes ☐ No ☐ Check ☐	☐	Resident Engineer	
8.07 Experimental items		Yes ☐ No ☐ Check ☐	Yes ☐ No ☐ Date	☐	Region Program Engineer	
8.08 Mandatory source of materials		Yes ☐ No ☐ Check ☐	Yes ☐ No ☐ Date	☐	Resident Engineer	
8.09 Design Scoping Review		Date:		☐	Resident Engineer	
8.10 Field Inspection Review ☐ Combined FIR/FOR			Date(s):	☐	Resident Engineer	
8.11 Design Office Review			Date(s):	☐	Resident Engineer	
8.12 **Final Office Review			Date(s):	☐	Resident Engineer	
8.13 Design decision letter Applicable ☐ Yes ☐ No		Date(s):	Date(s):	☐	Resident Engineer	
8.14 Disposal of excess materials off project site			Yes ☐ No ☐ Date	☐	Resident Engineer	
8.15 Use of materials furnished by a public agency			Yes ☐ No ☐ Date	☐	Region Program Engineer	
8.16 Propriety items			Yes ☐ No ☐ Date	☐	Region Program Engineer	
8.17 **On-the-job trainee approval ☐ Force account ☐ Special reviewed			Yes ☐ No ☐ Date	☐	Region EEO/Civil Rights Specialist	
8.18 **Disadvantaged Business Enterprise goals			Yes ☐ No ☐ Status	☐	Region EEO/Civil Rights Specialist	
8.19 **Project control data (Form 859a)			Status:	☐	Region Program Engineer	
8.20 **PS&E approval			Date: Date:	☐	Resident Engineer	
8.21 **Federal-aid program data (Form 418)				☐	OFMB	
8.22 **Bid package reviewed ☐ Region ☐ FHWA			Date:	☐	Resident Engineer	
8.23 **Advertisement				☐	Resident Engineer	
8.24 **PS&E revisions under ad Approved ☐ Yes ☐ No			Date:	☐	Resident Engineer	
8.25 **Re-advertisement				☐	Region Program Engineer	
8.26 **Estimate Review by Eng. Estimating				☐	Engineer Estimating	

**Report status in Phase III column, activity usually falls after FIR.