



EXECUTIVE SUMMARY

INTRODUCTION

Throughout this document, a series of questions addressing commonly expressed concerns are found in the boxes with blue background. They generally precede a focused technical summary of the Purpose and Need for the project, alternatives analysis, or affected environmental resources. This format is intended to quickly disclose public concerns while providing a more structured source of resource description, impacts, and design information.

The *I-70/E-470 Interchange Complex Environmental Assessment (EA)* evaluates the impact of the proposed interchange improvements to the Interstate 70 (I-70) and E-470 interchange and the addition of Harvest and Picadilly interchanges along I-70. This three-interchange configuration has been termed "The I-70/E-470 Interchange Complex." The purpose for this proposed action is the extensive residential, commercial, and industrial development that is occurring now, and is planned to continue in the interchange area. The lead agency for this study is the Federal Highway Administration (FHWA); the study is sponsored by the Colorado Department of Transportation (CDOT), the E-470 Public Highway Authority (E-470 Authority), and the City of Aurora.

The National Environmental Policy Act (NEPA) requires that a reasonable range of alternatives, including the No-Action Alternative, be presented and evaluated. This EA will evaluate environmental, social, and economic impacts of the proposed action.

This EA presents information about the projected impacts of a No-Action Alternative and a Preferred Alternative. The Preferred Alternative (Alternative 9) involves constructing new system-to-system (freeway-to-freeway) interchange ramps between E-470 and I-70. It also includes two system-to-service (freeway-to-arterial) interchanges along I-70. One replaces the existing partial interchange at I-70 and Colfax with a new full interchange at Picadilly Road, and the other is a new full interchange at I-70 and Harvest Road. Once complete, this would preclude the need for the current I-70 and Gun Club Road interchange, which would be closed.

37

Why can't the Gun Club interchange stay where it is?

Because of the need to preserve system-to-system movements, it is essential that the I-70/E-470 interchange be upgraded to allow for higher speed and higher capacity movements between the freeway and tollway systems. Alternatives were examined that would maintain the existing local I-70 access at Gun Club Road by integrating local access with the improved freeway-tollway directional ramps. Those alternatives were eliminated because local access would compromise safety and operations of the freeway-tollway interchange. Specifically, the integrated local and freeway-tollway interchange would lead to large concentrations of traffic at I-70 exit and entrance points, non-standard spacing between driver decision points, and unacceptable signing. AASHTO's Policy on Geometric Design of Highways and Streets provides a rule of thumb of one mile for minimum spacing between interchanges. Gun Club and the E-470 interchanges would be spaced less than a quarter mile apart.

A decision document will incorporate public and agency comments, responses to comments, document the decision on a preferred alternative, and commit to mitigation.

Project History. The concept of a circumferential beltway around the Denver metropolitan area was originally conceived in the 1950s. The original Interstate Highway System for Colorado included such a route. The route was subsequently removed from the Interstate System by the State of Colorado. In the 1980s, the concept of an eastern bypass in the form of the E-470 Toll Highway was revived. The Colorado General Assembly enacted the "Public Highway Authority Law" in 1987, and the E-470 Authority was established in 1988. The first segment of E-470 between I-25 and Parker Road was opened in 1991. The final segment of the 47-mile toll highway was completed in 2003.

As a cost saving measure, E-470 has used an existing interchange with I-70 at Gun Club Road for an interim period. This has always been thought of as a temporary situation. The primary concern is safety because drivers on E-470 are not expecting signals. As traffic increased, the eventual construction of a



1 system-to-system interchange was planned for the
2 future.

3 A flyby has recently been opened to carry the main
4 lanes of E-470 over I-70 to bypass the current signal-
5 ized intersections. Also, Ramp H, a ramp to connect
6 northbound E-470 to westbound I-70, is included in
7 the current construction. Recognizing the need for a
8 full interchange at E-470 and I-70, the E-470 Author-
9 ity, in cooperation with the City of Aurora and
10 CDOT, commenced 1601 system-level and project-
11 level feasibility studies in 2003 as required by
12 CDOT for any new interchanges on the interstate
13 system. The study examined a number of potential
14 interchange concepts preserving local access to I-70
15 at Gun Club Road and providing new ramps for the
16 connecting movements between I-70 and E-470.

17 Under the latest 1601 procedures, CDOT has elimi-
18 nated the need for duplication of reports. CDOT has
19 agreed that the Interstate Access Request and the EA
20 will satisfy most of the 1601 requirements. A sepa-
21 rate draft financial plan has been prepared, and
22 CDOT, the E-470 Authority, and the City of Aurora
23 have executed an Intergovernmental Agreement
24 (IGA) to carry out the initial steps of project imple-
25 mentation which included a phased approach,
26 equally sharing of the cost of the environmental
27 study, and a capital construction funding strategy.
28 Because of the complexity of the combined inter-
29 change, the parties agreed in 2004 to expand the
30 study area to consider the possibility of alternative
31 interchanges to provide access to I-70 separated
32 from the E-470 interchange. According to the agree-
33 ment, the expanded study area is part of the analysis
34 completed for this EA.

35 FHWA approved the Interstate Access Request on
36 February 9, 2006. The CDOT Transportation Com-
37 mission approved the 1601 System Level Study on
38 March 16, 2006.

39 This Executive Summary highlights the major find-
40 ings of this EA related to:

- 41 ▶ Purpose and Need
- 42 ▶ Alternatives Considered

43 ▶ Affected Environment

44 ▶ Public and Agency Coordination

45 **PURPOSE AND NEED**

46 The primary purpose of the I-70/E-470 project is to
47 efficiently and safely connect the freeway and toll-
48 way systems, I-70 and E-470, while maintaining and
49 improving local access for existing and planned
50 roadways and future travel demand.

51 Basic goals are to:

- 52 ▶ Improve regional mobility and safety, and to
53 serve forecasted future travel demands.
- 54 ▶ Correct roadway deficiencies associated with
55 substandard ramps and insufficient inter-
56 changes.
- 57 ▶ Increase access for adjacent land uses (both
58 existing and planned).

59 Improve Regional Mobility

60 Traffic counts based on 2004 and 2005 data show I-
61 70 traffic volumes at roughly 29,000 vehicles per
62 day (vpd) east of the E-470 interchange and 39,000
63 vpd west of the E-470 interchange. However, the I-
64 70/E-470 study area is located within a rapidly
65 developing part of the Denver-Aurora metropolitan
66 area. According to the Denver Regional Council of
67 Governments (DRCOG), the population in the area
68 is forecasted to almost quadruple by the year 2030.
69 Such a drastic increase in population would trans-
70 late into an equally drastic rise in travel demand. As
71 the area is rapidly developing, traffic volumes are
72 forecasted to increase east of E-470 from 29,000
73 vpd to 77,000 vpd with the No-Action Alternative
74 and to 94,000 vpd with the Preferred Alternative;
75 while west of E-470, traffic volumes are predicted to
76 increase from 39,000 vpd to 102,000 vpd with the
77 No-Action Alternative and to 109,000 vpd with the
78 Preferred Alternative. The reason that there will be
79 more vehicles per day with the Preferred Alternative
80 is because it provides additional access points on I-
81 70, so there is additional traffic on I-70 segments
82 that are adjacent to E-470.

1 Correct Roadway Deficiencies

2 Currently, E-470 in the study area has ramp move-
3 ments passing through the closely spaced signalized
4 intersections. These signalized intersections do not
5 meet American Association of State Highway and
6 Transportation Officials (AASHTO) standards for
7 freeway-to-freeway connections. The flyby, cur-
8 rently under construction, will grade separate the
9 through E-470 roadway from Gun Club Road. Ramp
10 H will also provide a direct connection from north-
11 bound E-470 to westbound I-70. However, other
12 substandard ramp connections are not yet being
13 updated because the remaining ramp connections
14 are the subject of the alternatives analyzed in this
15 EA. I-70 in the study area has interchange deficien-
16 cies, including substandard weaving distances, a
17 non-standard two-lane left exit ramp from I-70 west-
18 bound to Colfax, and substandard ramp accelera-
19 tion and deceleration lanes at the Gun Club/E-470
20 interchange. Presently, I-70/Colfax (US 40) has a
21 partial interchange, which is missing the westbound
22 entrance ramp to I-70. These interchange deficien-
23 cies on both E-470 and I-70 will contribute to
24 increased safety risks as traffic volumes increase.

25 Increase Access

26 DRCOG's *2030 Metro Vision Regional Transporta-*
27 *tion Plan* forecasts a substantial amount of new
28 development in the study area and surrounding
29 areas. It is anticipated that the demand on the exist-
30 ing arterial network will be a lot greater than the
31 existing arterial network capacity.

32 Planned transportation projects within the study
33 area include a widening of E-470 to six lanes, new
34 interchanges, and improvements to local roads. In
35 addition, the Regional Transportation District (RTD),
36 as part of the FasTracks program, plans to expand its
37 bus network, FastConnects, through the study area.
38 Also planned is a design to accommodate a future
39 transit line (for light rail, express bus, or bus rapid
40 transit type of service) in the E-470 median and two
41 new freight tracks to the Union Pacific Railroad line.

42 **ALTERNATIVES CONSIDERED**

43 Nine main alternatives were developed and evalu-
44 ated during the EA process. The general public and
45 local, state, and federal agencies were involved dur-
46 ing alternatives development and screening. Alter-
47 natives evaluated included a wide range of
48 improvements to the roadway system, construction
49 of directional ramps, and new full-movement inter-
50 changes.

51 The two alternatives fully evaluated in this EA are
52 the No-Action Alternative and the Preferred Alterna-
53 tive. The No-Action Alternative is the base line to
54 which all alternatives are measured. It would not
55 meet the demands of the 2030 traffic projections
56 nor would it improve the substandard and incom-
57 plete ramps at I-70/Colfax. There would be seven
58 missing system-to-system interchange ramps
59 between I-70 and E-470, and future interchanges
60 identified in local and regional plans would not be
61 constructed. The No-Action Alternative would not
62 meet the project's Purpose and Need.

63 The Preferred Alternative for the I-70/E-470 com-
64 plex consists of a package of three separate inter-
65 changes. This includes additional ramps for
66 freeway-to-freeway access between I-70 and E-470,
67 a full interchange at Picadilly Road that replaces the
68 partial interchange at Colfax, and a new, full inter-
69 change at Harvest Road. New interchanges for I-70
70 at Picadilly Road and at Harvest Road are included
71 in both the *DRCOG 2030 Metro Vision Regional*
72 *Transportation Plan* and the *City of Aurora Compre-*
73 *hensive Plan, 2003*. There are several major ele-
74 ments included with this package that would
75 accommodate the anticipated increase in traffic vol-
76 ume in the area and access to adjacent land uses.
77 The build alternatives, including the No-Action
78 Alternative, are discussed in detail in Chapter 2.

79 **ENVIRONMENTAL CONSEQUENCES**

80 The major environmental impacts of the Preferred
81 Alternative are:



- 1 ▶ The Preferred Alternative would influence the 45
2 location of the ongoing development in this 46
3 largely undeveloped rural area. However, such 47
4 development is already occurring consistent 48
5 with local and regional land use plans and is 49
6 supported by local planning and zoning agencies, such as DRCOG and the City of Aurora. 50
7
- 8 ▶ From a social and economic perspective, construction of the Preferred Alternative would 51
9 result in improved local and regional accessibility. Reduced travel times and improved mobility 52
10 for local residents to regional destinations is expected to occur. 53
11
- 12 ▶ As mentioned, extensive growth and development in the area is expected to occur whether 54
13 or not the Preferred Alternative is constructed. The City of Aurora has zoned the area around 55
14 the I-70/E-470 intersection for land uses that include retail/commercial uses (hotels, restaurants, shops), as well as light industrial and 56
15 open space/park uses. However, construction of the Preferred Alternative could cause an 57
16 increase in economic enterprise within the area. 58
- 17 ▶ The Preferred Alternative would not require the displacement or relocation of any residence or 59
18 business in the study area. However, temporary impacts to residents of the Foxridge Farm 60
19 Mobile Home Park and the residence near the intersection of I-70 and Colfax would include 61
20 an increase in dust, dirt, noise, and traffic during the construction period. Both minority and non- 62
21 minority populations will equally experience these impacts. Therefore, these impacts would 63
22 not be disproportionately high and adverse because they would not be predominately 64
23 borne by minority populations, nor would they be appreciably more severe or greater in magnitude 65
24 than the impacts borne by non-minority populations. New right-of-way to be required 66
25 consists of approximately 235 acres from 13 67
26 parcels mostly located at the proposed Picadilly 68
27 Road and Harvest Road interchanges. 69
- 28 ▶ Increases in traffic-related noise, pollution, traffic, and a decrease in visual quality would occur 70
29 at the Candle Lite Motel and the adjacent single- 71
30 family residence. 72
- 31 ▶ The Preferred Alternative would impact First 73
32 Creek. Permanent modification to the stream 74
33 would be necessary. Additionally, while the 75
34 Preferred Alternative would not directly impact 76
35 wetlands, it would impact the jurisdictional 77
36 portion of the First Creek swale adjacent to I-70. A 78
37 Nationwide Section 404 Permit would be 79
38 required for this impact. Finally, the floodplain 80
39 of First Creek would be impacted by the Preferred 81
40 Alternative. 82
- 41 ▶ The Preferred Alternative would result in the 83
42 loss of tree groves in the northeast quadrant of 84
43 the I-70/E-470 interchange that provide nesting 85
44 and roosting sites for birds. Undeveloped lands 86
45 that provide wildlife habitat would be 87
46 impacted. 88
- 47 ▶ A required bridge replacement for E-470 would 89
48 span the Kansas Pacific/Union Pacific Railroad 90
49 grade, a historic railroad. However, because the 91
50 pier replacement would essentially replicate the 92
51 piers that are currently in place, there would be 93
52 no adverse impact to the historic character of 94
53 the railroad. The State Historic Preservation 95
54 Officer (SHPO) concurred in a letter dated July 96
55 12, 2006. 97
- 56 ▶ Cumulative impacts to noise and wildlife have 98
57 been identified. Although there would be no 99
58 direct impacts to wetlands under the Preferred 100
59 Alternative, extensive growth and development 101
60 in the area has generated concern for wetland 102
61 resources. Therefore, cumulative impacts to 103
62 wetlands were analyzed and identified under 104
63 the Preferred Alternative. The proposed action 105
64 would contribute to the ongoing development 106
65 of the area. The incremental impact of the Preferred 107
66 Alternative would not cause major 108
67 impacts to any of the environmental areas of 109
68 concern or result in effects that cause an unacceptable 110
69 deterioration in the human quality of 111
70 life. 112
- 71 ▶ Specific mitigation measures for the above-mentioned 113
72 impacts are included in Chapter 3 of this EA. 114

1 Along with required mitigation, through CDOT's
2 environmental stewardship, Best Management Prac-
3 tices (BMPs) will be employed. These include:

- 4 ▶ Good communication during design and con-
5 struction will be implemented with emergency
6 services, local businesses, government agen-
7 cies, and residents regarding traffic delays and
8 access changes.
- 9 ▶ Measures will be taken to protect against ero-
10 sion of soil, extensive water runoff, the quality
11 of water runoff, and disturbance to vegetation.
- 12 ▶ In compliance with the Federal Emergency
13 Management Agency (FEMA) regulations and
14 criteria, the design of all roadway, drainage, and
15 structural features will protect against distur-
16 bance of the drainage system.
- 17 ▶ Retention of large trees where possible, and use
18 of temporary and permanent erosion controls
19 are measures that will be employed to safeguard
20 wildlife and offset impacts due to increased sur-
21 face runoff.

22 PUBLIC AND AGENCY COORDINATION

23 This project has been carried out with extensive
24 involvement from the public and from agencies.
25 Public coordination has involved meetings with citi-
26 zens, property owners, businesses, developers, and
27 elected officials. This coordination involves written
28 communication, meetings with small groups and
29 homeowners associations, and public meetings.

30 Agency coordination has occurred on a regular
31 basis through scoping meetings and quarterly coor-
32 dination meetings. Agencies that have provided
33 input are Arapahoe County, Adams County, Denver
34 International Airport (DIA), the U.S. Environmental
35 Protection Agency, utility companies, water and
36 sanitation districts, and the Union Pacific Railroad.
37 Additionally, meetings with DRCOG have occurred
38 throughout the planning and preliminary design
39 process, and monthly team coordination meetings,
40 occurred between CDOT, FHWA, E-470, Aurora,
41 and the consultant team.

42 PUBLIC INVOLVEMENT FOLLOWING 43 COMPLETION OF EA

44 Once this EA has been completed and signed, a 30-
45 day public and agency document review and com-
46 ment period will begin. This comment period will
47 be officially announced through a notice published
48 in local newspapers, and sent to all on the project
49 mailing list. Flyers will be hand delivered to the res-
50 idents located in the Environmental Justice areas.
51 During this period, a public hearing will be held to
52 explain the Preferred Alternative to agencies and the
53 public and to obtain their input. Any comments
54 received during the comment period will be
55 addressed in the decision document. The decision
56 document will also include a project description, a
57 summary of mitigation measures, the project coordi-
58 nation process, any clarification to the EA, and
59 either selection of the Preferred Alternative, or a
60 Notice of Intent to prepare an Environmental Impact
61 Statement.