

**CDOT PROJECT IM 0703-294
I-70/32ND AVENUE INTERCHANGE**

ENVIRONMENTAL ASSESSMENT

Submitted Pursuant To
23 USC 138, 42 USC 4332 (2) (c) and 49 USC 303

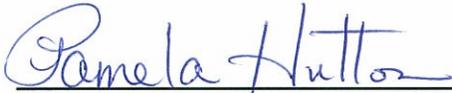
By The

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

and

COLORADO DEPARTMENT OF TRANSPORTATION

Submitted by:



Pamela A. Hutton, P.E.
Region 6 Transportation Director
Colorado Department of Transportation

10-11-06

Date

Concurred by:



Craig Siracusa, P.E.
Chief Engineer
Colorado Department of Transportation

10-11-06

Date

Approved by:



FOR _____
David A. Nicol, P.E.
Division Administrator, Colorado Division
Federal Highway Administration

10-22-06

Date

TABLE OF CONTENTS

	<u>Page</u>
Abbreviations and Acronyms -----	vii
Glossary -----	xi
Executive Summary -----	ES-1
1.0 Purpose and Need -----	1-1
1.1 Study Location and Description-----	1-1
1.2 Project History-----	1-5
1.3 Purpose of the Proposed Action-----	1-6
1.4 Need for the Proposed Action-----	1-6
1.5 Objectives for the Proposed Action-----	1-7
2.0 Alternatives -----	2-1
2.1 Public and Agency Involvement-----	2-1
2.2 Alternatives Considered-----	2-2
2.3 No-Action Alternative-----	2-23
2.4 Proposed Action-----	2-26
2.5 Funding and Phasing-----	2-46
3.0 Transportation Analysis -----	3-1
3.1 Existing Conditions-----	3-1
3.2 Future Travel Demand-----	3-5
3.3 Street and Highway Operations-----	3-10
3.4 Street and Highway Safety-----	3-16
3.5 Transit Access-----	3-17
3.6 Pedestrian and Bicycle Facilities-----	3-17
3.7 Emergency Vehicles and Goods Access-----	3-18
3.8 Traffic Impacts on Residential Areas-----	3-18
3.9 Proposed Development Access-----	3-20
4.0 Affected Environment and Environmental Consequences -----	4-1
4.1 Land Use, Socio-Economics, and Community-----	4-3
4.2 Right-of-Way and Displacements-----	4-24
4.3 Parks and Recreation-----	4-30
4.4 Air Quality-----	4-35
4.5 Traffic Noise and Vibration-----	4-48
4.6 Historic and Archaeological Resources-----	4-68
4.7 Paleontology-----	4-80
4.8 Soils and Geology-----	4-84
4.9 Farmlands-----	4-87
4.10 Water Resources, Floodplains, and Water Quality-----	4-88
4.11 Vegetation and Wildlife-----	4-96
4.12 Noxious Weeds-----	4-101
4.13 Special Status Species-----	4-105
4.14 Wetlands and Other Waters of the U.S.-----	4-114

TABLE OF CONTENTS (Continued)

	<u>Page</u>
4.15 Hazardous Materials-----	4-123
4.16 Visual Character-----	4-132
4.17 Construction Impacts-----	4-140
4.18 Utilities-----	4-144
4.19 Permits-----	4-146
4.20 Cumulative Impacts-----	4-148
4.21 Summary of Environmental Consequences and Mitigation Measures-----	4-160
5.0 Section 4(f) De Minimis Impact Documentation-----	5-1
5.1 Coordination-----	5-2
5.2 Proposed Action-----	5-2
5.3 Parks and Recreational Resources-----	5-4
5.4 Historic Properties-----	5-8
6.0 Public and Agency Involvement-----	6-1
6.1 Public Involvement Approach-----	6-1
6.2 Outreach Logistics/Information Dissemination-----	6-1
6.3 Agency Coordination-----	6-4
6.4 Public Input-----	6-5
6.5 Special Outreach to Low-income and Minority Populations-----	6-11
6.6 Future Public Involvement-----	6-11
7.0 References-----	7-1
Appendix A Agency Coordination	
Appendix B Public Involvement	
Appendix C Screening Matrix	
Appendix D Wetland Findings	

LIST OF FIGURES

	<u>Page</u>
Figure ES-1 Project Location-----	ES-2
Figure ES-2 Study Area -----	ES-3
Figure ES-3 Operational Deficiencies-----	ES-7
Figure ES-4 Proposed Action -----	ES-10
Figure ES-5 Proposed Cabela Drive Typical Section-----	ES-12
Figure ES-6 32 nd Avenue Pedestrian/School Improvements-----	ES-14
Figure ES-7 Interchange Signing Plan-----	ES-15
Figure ES-8 Transportation Improvements Cost Segregation-----	ES-26
Figure ES-9 Transportation Improvements Construction Timeline -----	ES-28
Figure 1-1 Project Location-----	1-2
Figure 1-2 Study Area -----	1-3
Figure 1-3 Operational Deficiencies-----	1-8
Figure 2-1 No-Action Alternative -----	2-24
Figure 2-2 Proposed Action -----	2-28
Figure 2-3 Eastbound Hook Ramps & Youngfield Street Intersection Detail -----	2-30
Figure 2-4 27 th Avenue Hook Ramp Location Screening -----	2-31
Figure 2-5 Proposed Pedestrian Bridge Alignment -----	2-32
Figure 2-6 Proposed I-70 Westbound On-Ramp -----	2-34
Figure 2-7 32 nd Avenue Typical Sections -----	2-35
Figure 2-8 32 nd Avenue/Youngfield Street Intersection Detail-----	2-36
Figure 2-9 Proposed Cabela Drive Typical Sections -----	2-38
Figure 2-10 Cabela Drive at Railroad Bridge-----	2-39
Figure 2-11 44 th Avenue/Cabela Drive Intersection Detail -----	2-40
Figure 2-12 Pedestrian/Bicycle/Trail Facilities -----	2-42
Figure 2-13 32 nd Avenue Pedestrian/School Improvements-----	2-44
Figure 2-14 Interchange Signing Plan-----	2-45
Figure 2-15 Transportation Improvements Cost Segregation-----	2-47
Figure 2-16 Transportation Improvements Construction Timeline -----	2-49
Figure 3-1 Existing (2004-2005) Traffic Data -----	3-2
Figure 3-2 Existing (2004-2005) Freeway Levels of Service -----	3-4
Figure 3-3 Existing (2004-2005) Intersection Levels of Service -----	3-6
Figure 3-4 No-Action 2030 Traffic Forecasts -----	3-7
Figure 3-5 Proposed Action 2030 Traffic Forecasts -----	3-9

LIST OF FIGURES (Continued)

	<u>Page</u>
Figure 3-6	No-Action 2030 Freeway Levels of Service ----- 3-11
Figure 3-7	Proposed Action 2030 Freeway Levels of Service----- 3-13
Figure 3-8	No-Action 2030 Intersection Levels of Service ----- 3-14
Figure 3-9	Proposed Action 2030 Intersection Levels of Service ----- 3-15
Figure 4-1	Project Area-----4-2
Figure 4-2	Surrounding Land Uses-----4-5
Figure 4-3	Study Area Traffic Analysis Zones-----4-7
Figure 4-4	Community Facilities ----- 4-11
Figure 4-5	Community Study Area ----- 4-18
Figure 4-6	Low-Income Population by Block Group ----- 4-22
Figure 4-7	Parks and Recreational Trails----- 4-32
Figure 4-8	Noise Sensitive Areas along Study Corridors----- 4-49
Figure 4-9	Typical Noise Levels----- 4-51
Figure 4-10	Noise Measurement Locations----- 4-54
Figure 4-11	Noise Model Receiver Locations ----- 4-55
Figure 4-12	Noise Impacted Areas from Existing Conditions Model ----- 4-56
Figure 4-13	Noise Impacted Areas from 2030 No-Action Alternative Model ----- 4-60
Figure 4-14	Noise Impacted Areas from 2030 Proposed Action Model ----- 4-62
Figure 4-15	Replacement Barrier for I-70 Hook Ramps ----- 4-63
Figure 4-16	Locations of Noise Mitigation Barriers Evaluated ----- 4-66
Figure 4-17	Historic Resources Identified Within the Area of Potential Effects----- 4-72
Figure 4-18	Salter Farm (5JF3803)----- 4-73
Figure 4-19	Farm at 2800 Youngfield Street (5JF3803)----- 4-74
Figure 4-20	Maple Grove Grange Building (5JF4327) ----- 4-75
Figure 4-21	Truelson Farmhouse/Shadow Valley Farm (5JF4328) ----- 4-76
Figure 4-22	Surficial Geology of the Study Area ----- 4-82
Figure 4-23	Existing Floodplain and Irrigation Map----- 4-90
Figure 4-24	Potential Ute Ladies'-tresses orchid and Colorado Butterfly Plant Habitat --- 4-113
Figure 4-25	Overview of Jurisdictional and Non-Jurisdictional Wetlands in the Study Area----- 4-118
Figure 4-26	Jurisdictional and Non-jurisdictional Wetlands Near McIntyre Street ----- 4-119
Figure 4-27	Jurisdictional and Non-jurisdictional Wetlands Near Eldridge Street----- 4-120
Figure 4-28	Jurisdictional and Non-jurisdictional Wetlands Near I-70/Ward Road ----- 4-121

LIST OF FIGURES (Continued)

	<u>Page</u>
Figure 4-29 Sites with Potential and Recognized Environmental Conditions Impacted by the Proposed Action -----	4-129
Figure 4-30 Visual Resources Within the Project Area Along State Highway 58 -----	4-133
Figure 4-31 Visual Resources within the Project Area Vicinity of the I-70/32 nd Avenue Interchange -----	4-134
Figure 4-32 Cumulative Impacts Study Area -----	4-150
Figure 4-33 City of Wheat Ridge Urban Renewal Area -----	4-153
Figure 5-1 Chester Portsmouth Park -----	5-5
Figure 5-2 Clear Creek Trail -----	5-7
Figure 5-3 Maple Grove Grange Property -----	5-9
Figure 6-1 Mass Mailing Area -----	6-3

LIST OF TABLES

	<u>Page</u>
Table ES-1 Summary of Direct and Indirect Impacts -----	ES-17
Table ES-2 Summary of Mitigation Measures -----	ES-20
Table ES-3 Project Implementation Responsibilities -----	ES-25
Table 2-1 Initial, Second-Level and Third-Level Screening Results -----	2-6
Table 2-2 Fourth-Level Screening Results -----	2-22
Table 2-3 27 th Avenue Hook Ramp Location Screening Summary -----	2-29
Table 2-4 Project Implementation Responsibilities -----	2-48
Table 4-1 Existing and 2030 Population and Employment -----	4-8
Table 4-2 Industry Profiles for the City of Wheat Ridge, Unincorporated Jefferson County, and the City of Lakewood -----	4-14
Table 4-3 Demographics of the Community Study Area – 2000 -----	4-20
Table 4-4 Low-Income Households -----	4-21
Table 4-5 Property Acquisitions -----	4-26
Table 4-6 Displacements -----	4-27
Table 4-7 Parks and Recreational Facilities -----	4-31
Table 4-8 Summary of Parks and Recreational Trails Impacts -----	4-33
Table 4-9 National Ambient Air Quality Standards -----	4-35

LIST OF TABLES (Continued)

	<u>Page</u>
Table 4-10	Study Area Intersection Levels of Service ----- 4-38
Table 4-11	Maximum Modeled Carbon Monoxide Concentrations ----- 4-39
Table 4-12	Noise Abatement Criteria----- 4-51
Table 4-13	Noise Measurement Results ----- 4-53
Table 4-14	Impacted Receivers from Noise Models----- 4-57
Table 4-15	Noise Mitigation Barrier Summary ----- 4-67
Table 4-16	Noise Mitigation Reductions from Recommended Barriers ----- 4-68
Table 4-17	Historic and Archaeological Resources Identified within the Project Area of Potential Effects ----- 4-71
Table 4-18	Noxious Weed Species Identified in the Project Area ----- 4-103
Table 4-19	Presence/Absence Status of Evaluated Special Status Species ----- 4-109
Table 4-20	Physical Characteristics of Wetlands Delineated ----- 4-116
Table 4-21	Sites with Potential & Recognized Environmental Conditions Associated with the Proposed Action & Recommendations for Additional Assessment-- 4-128
Table 4-22	Road Corridors within the Project Area ----- 4-135
Table 4-23	Permits, Notifications, and Concurrences----- 4-147
Table 4-24	Maximum Modeled Carbon Monoxide Concentrations ----- 4-156
Table 4-25	Cumulative Impervious Surfaces ----- 4-159
Table 4-26	Summary of Direct and Indirect Impacts ----- 4-161
Table 4-27	Summary of Mitigation Measures ----- 4-164
Table 6-1	List of Participants in the Project Committee ----- 6-5
Table 6-2	Summary of Open Houses ----- 6-6
Table 6-3	Summary of Community Presentations ----- 6-10

ABBREVIATIONS AND ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ac	acres
ADA	Americans with Disabilities Act
ADT	average daily traffic
APE	area of potential effect
AST	above ground storage tank
ASTM	American Society for Testing and Materials
BMP	Best Management Practice
BNSF	Burlington Northern Santa Fe Railroad
CCR	Code of Colorado Regulations
CDOT	Colorado Department of Transportation
CDOW	Colorado Division of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CEQ	Council on Environmental Quality
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHS	Colorado Historical Society
CLOMR	Conditional Letter of Map Revision
CNHP	Colorado Natural Heritage Program
CO	carbon monoxide
Coors	Coors Brewing Company
CORRACTS	RCRA corrective action database
CRS	Colorado Revised Statutes
dB	decibels
dBA	A-weighted decibels
DCA	dichloroethane
DOLA	Department of Local Affairs
DRCOG	Denver Regional Council of Governments
EA	Environmental Assessment
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
EOS	Environmental Overview Study
ERNS	Emergency Response Notification System
FEMA	Federal Emergency Management Agency
FHU	Felsburg Holt & Ullevig
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
ft	feet
HAPS	hazardous air pollutants
HUD	U.S. Department of Housing and Urban Development
I-70	Interstate 70

IRIS	Integrated Risk Information System
ISA	initial site assessment
Leq	equivalent continuous sound level
LOMR	Letter of Map Revision
LOS	level of service
LUST	leaking underground storage tank
MBTA	Migratory Bird Treaty Act
MESA	Modified Environmental Site Assessment
mi ²	square mile
µg/m ³	micrograms per cubic meter
µm	micrometers
MS4	Municipal Separate Storm Sewer System
MSAT	mobile source air toxics
MTBE	methyl tertiary butyl ether
NAAQS	National Ambient Air Quality Standard
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O ₃	ozone
OAHP	Office of Archaeology and Historic Preservation
OPS	Colorado Department of Labor and Employment, Division of Oil and Public Safety
OSHA	Occupational Safety and Health Administration
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
PM _{2.5}	particulate matter less than 2.5 microns
PM ₁₀	particulate matter less than 10 microns
ppm	parts per million
PSI	preliminary site investigation
PUC	Public Utilities Commission
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
RTD	Regional Transportation District
RTP	Regional Transportation Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SH 58	State Highway 58
SHPO	State Historic Preservation Officer
SRHP	State Register of Historic Places
SWANCC	Solid Waste Agency of Northern Cook County
SWMP	Stormwater Management Plan
TAZ	traffic analysis zone
TCA	trichloroethane
TCE	trichloroethylene
TIP	Transportation Improvement Plan
TMDL	total maximum daily load

TNM	Traffic Noise Model
UDFCD	Urban Drainage and Flood Control District
URA	Urban Renewal Authority
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Department of Interior Fish and Wildlife Service
USGS	U.S. Department of Interior Geological Survey
UST	underground storage tank
VCUP	CDPHE voluntary clean-up program
VOC	volatile organic compound
VMT	vehicle miles traveled
vpd	vehicles per day
WQCD	CDPHE Water Quality Control Division

THIS PAGE INTENTIONALLY LEFT BLANK

GLOSSARY

Access – entry to or exit from a roadway.

Accident rates – measures of the number and frequency of accidents for the volume of traffic on a roadway section.

Auxiliary lane – additional lane, usually between interchanges, to improve traffic flow of on- and off-ramp vehicular traffic.

Braided ramps – a method of providing direct access to a roadway which separates on- and off-ramp traffic to produce more efficient ingress and egress. The term “braided” refers to the visual appearance of the ramps from an aerial view.

CDOT noise abatement criteria – noise levels specified in CDOT’s formal adopted policy that determine when abatement measures will be considered.

Collector-distributor – a one-way road parallel to the main traffic lanes providing access to or from more than one ramp; collects traffic from on-ramps or the main lanes, and distributes traffic to off-ramps or back to the main lanes; minimizes the number of interactions with thru traffic, which can increase capacity and safety.

Congestion – state of overcrowding on a roadway, making movement slow or difficult.

Delay – the difference in travel times between congested and non-congested traffic conditions.

Environmental justice – a 1994 Presidential Executive Order 12898 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.

Hook ramp - a method of ingress and egress between two parallel roadways in which a travel lane transitions with a curved movement from one roadway to the other.

Hot-spot analysis – air quality analysis at an individual intersection.

Level of service – the standard used to evaluate traffic operating conditions of the transportation system and a measure of congestion (delay per vehicle). The scale varies from A (free flow of traffic) to F (severe congestion or breakdown of traffic flow).

No-Action Alternative – a future scenario in which the subject facility is left in its existing condition. The No-Action Alternative may include safety and maintenance actions that are required to maintain roadway operation.

Noise abatement – reduction of noise levels by use of a noise barrier or other means.

Peak hour – a continuous 60 minute period that experiences the highest volume of the day. Urban roadways typically experience these peaks in volumes during the morning and evening commute hours.

Right-of-Way – real property and rights that are used for the construction, operation, or maintenance of a transportation or related facility.

Riparian habitat – habitats including hydrologic, geologic, and vegetative features associated with a waterway (stream or river).

Slip ramp – a method of ingress and egress between two parallel roadways in which a travel lane transitions horizontally from one roadway to the other, seemingly allowing vehicles to “slip” from one to the other.