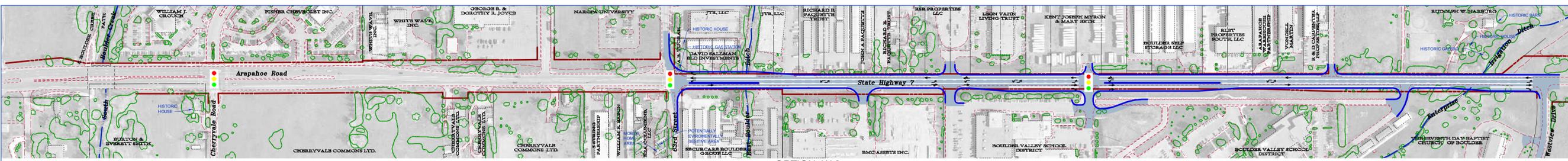


# STATE HIGHWAY 7 POSSIBLE IMPROVEMENT OPTIONS CHERRYVALE ROAD TO WESTVIEW DRIVE

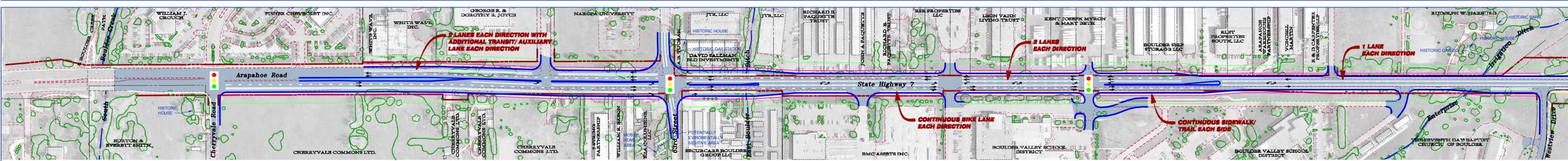
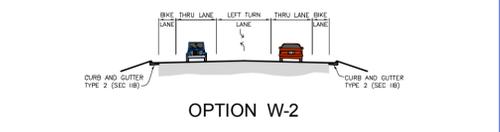


OPTION W-1  
NO BUILD



OPTION W-2  
2-LANE SECTION WITH LEFT TURN AND RIGHT TURN LANES, AS REQUIRED

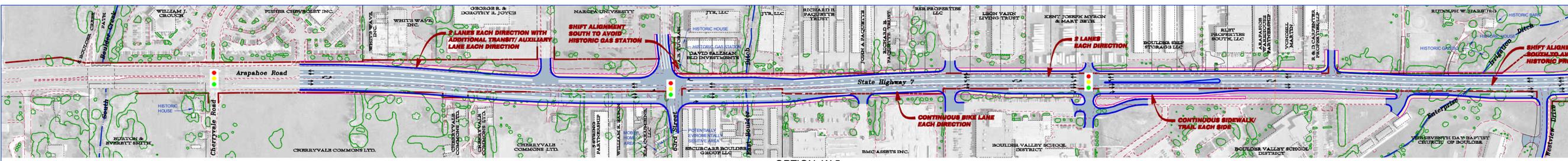
## TYPICAL SECTIONS



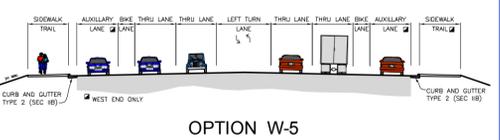
OPTION W-3  
6-LANE URBAN SECTION (INCL. TRANSIT/AUXILIARY LANE IN EACH DIRECTION) - CHERRYVALE TO 63RD  
4-LANE URBAN SECTION - 63RD TO VO-TEC ACCESS  
2-LANE URBAN SECTION - VO-TEC TO WESTVIEW



OPTION W-4  
4-LANE URBAN SECTION WITH CONTINUOUS AUXILIARY TRANSIT LANE WEST OF VOTEC SCHOOL



OPTION W-5  
6-LANE URBAN SECTION (INCL. TRANSIT/AUXILIARY LANE IN EACH DIRECTION) - CHERRYVALE TO 63RD  
4-LANE URBAN SECTION - 63RD TO WESTVIEW  
ALIGNMENT CONFIGURED TO AVOID NATIONAL HISTORIC REGISTER ELIGIBLE PROPERTIES



DATE: JUN 11, 2024 TIME: 11:01 AM  
NAME: P:\31-021-06\_SH\_7\_ENV\BARD-WEST-2024.dwg

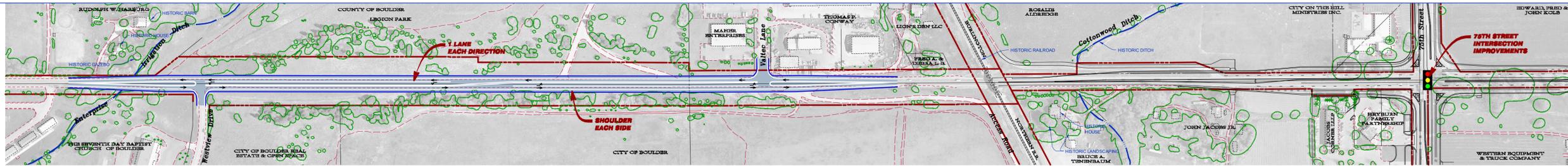
# STATE HIGHWAY 7 POSSIBLE IMPROVEMENT OPTIONS WESTVIEW DRIVE TO 75TH STREET

**Legend**

- RIGHT-OF-WAY
- EXISTING EDGE OF PAVEMENT
- EXISTING DITCH
- PROPOSED IMPROVEMENTS
- PROPOSED CURB AND GUTTER
- PROPOSED LANE STRIPING
- SIDEWALK/ TRAIL
- SIGNALIZED INTERSECTION

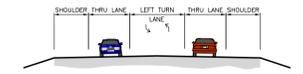


**OPTION E-1**  
NO BUILD

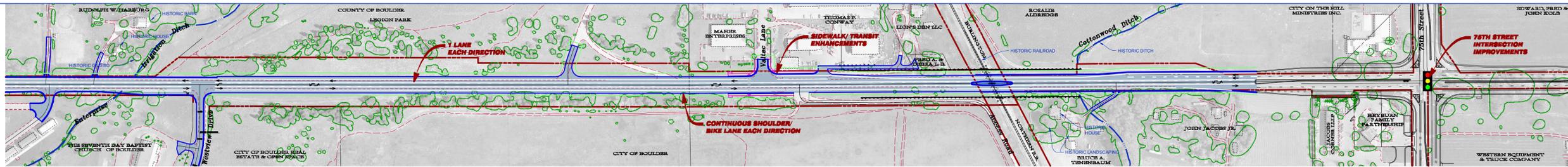


**OPTION E-2**  
INTERSECTION SAFETY IMPROVEMENTS AT WESTVIEW DR. AND VALTEC LN.

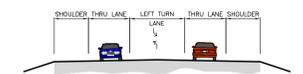
**TYPICAL SECTIONS**



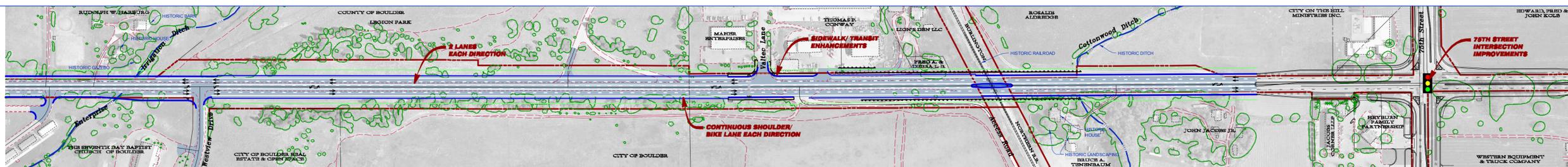
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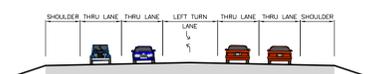
**OPTION E-3**  
2-LANE RURAL SECTION WITH SHOULDERS AND TURN LANES



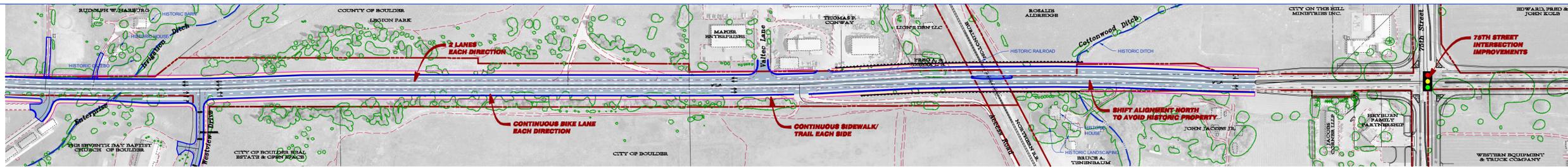
**OPTION E-3**



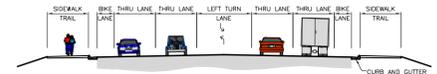
**OPTION E-4**  
4-LANE RURAL SECTION WITH SHOULDERS AND TURN LANES



**OPTION E-4**

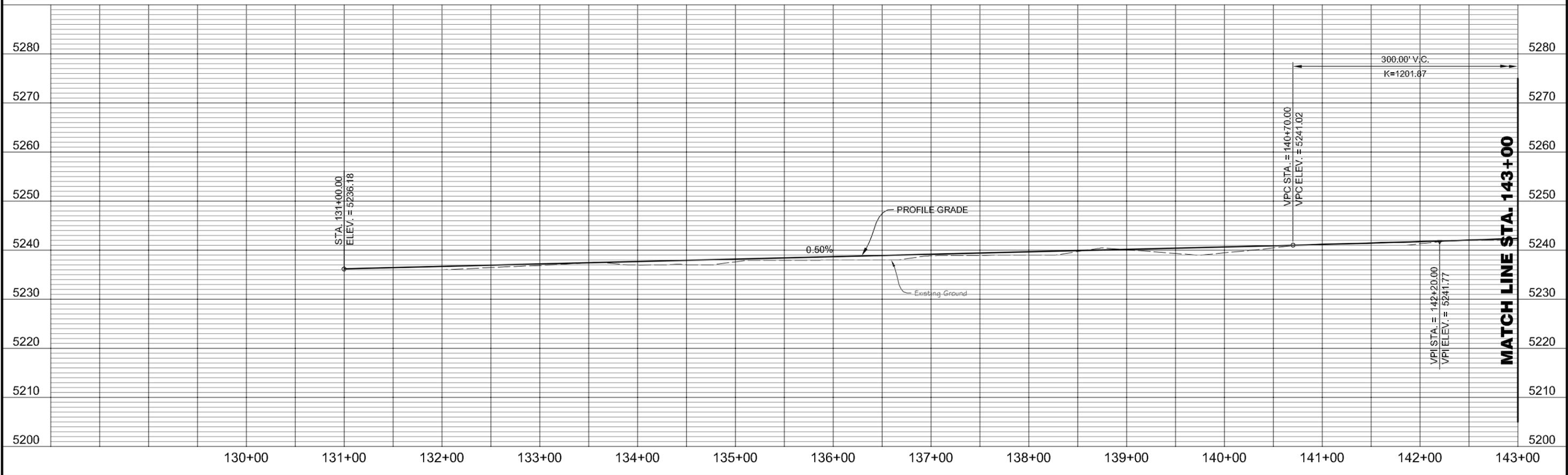
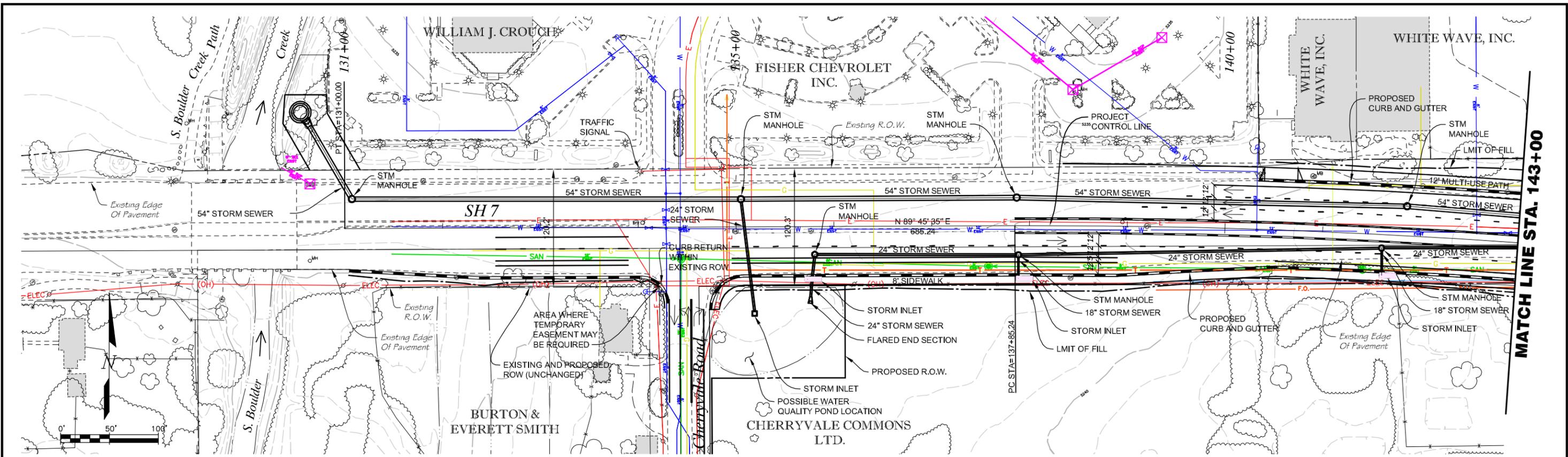


**OPTION E-5**  
4-LANE URBAN SECTION WITH BIKE LANES AND SIDEWALK/ TRAIL  
ALIGNMENT CONFIGURED TO AVOID NATURAL HISTORIC REGISTER ELLIGIBLE PROPERTIES



**OPTION E-5**

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Acad Ver. 2000i	Scale: 1:50 Units: English

Sheet Revisions	

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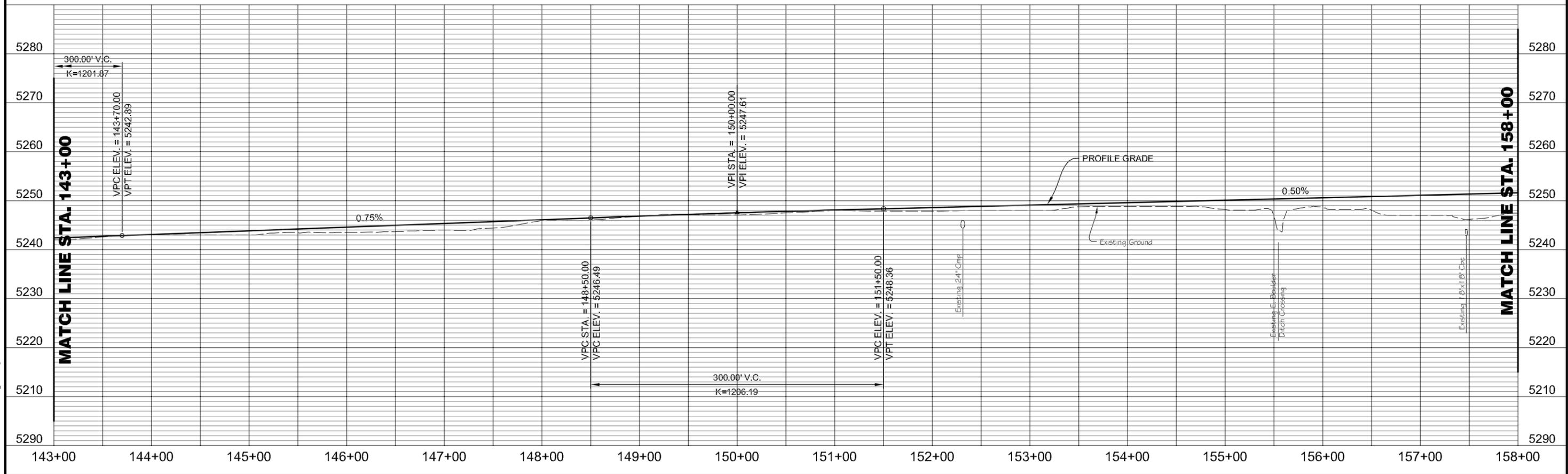
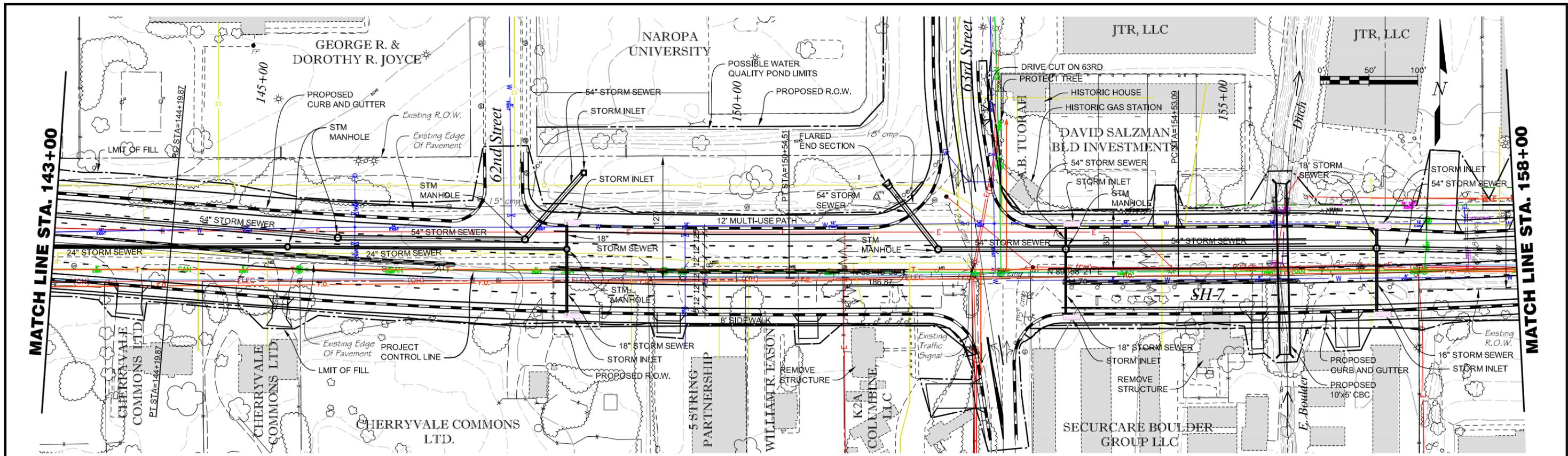
 1050 LEE HILL ROAD  
 BOULDER, CO. 80302  
 Phone: (303) 546-5662  
 Fax: (303) 444-0740  
**REGION 4 MHG**

As Constructed
No Revisions:
Revised:
Void:

**ALTERNATIVE 2**  
**SH7 (PREFERRED ALTERNATIVE)**  
**STA. 131+00 TO STA. 143+00**

Designer:	LRP	Structure Numbers	
Detailer:	RKL		
Sheet Subset:	ROADWAY	Subset Sheets:	1 of 7

Project No./Code
STA 0072-010
11873
Sheet Number:



DATE: OCT 11, 2005 TIME: 1:41 AM  
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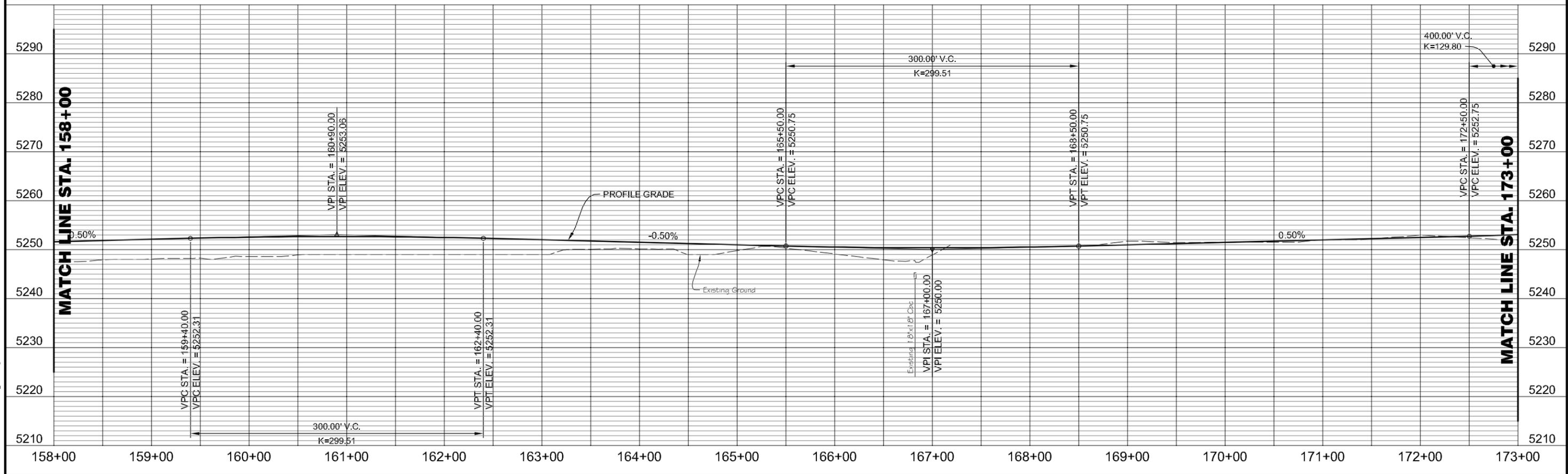
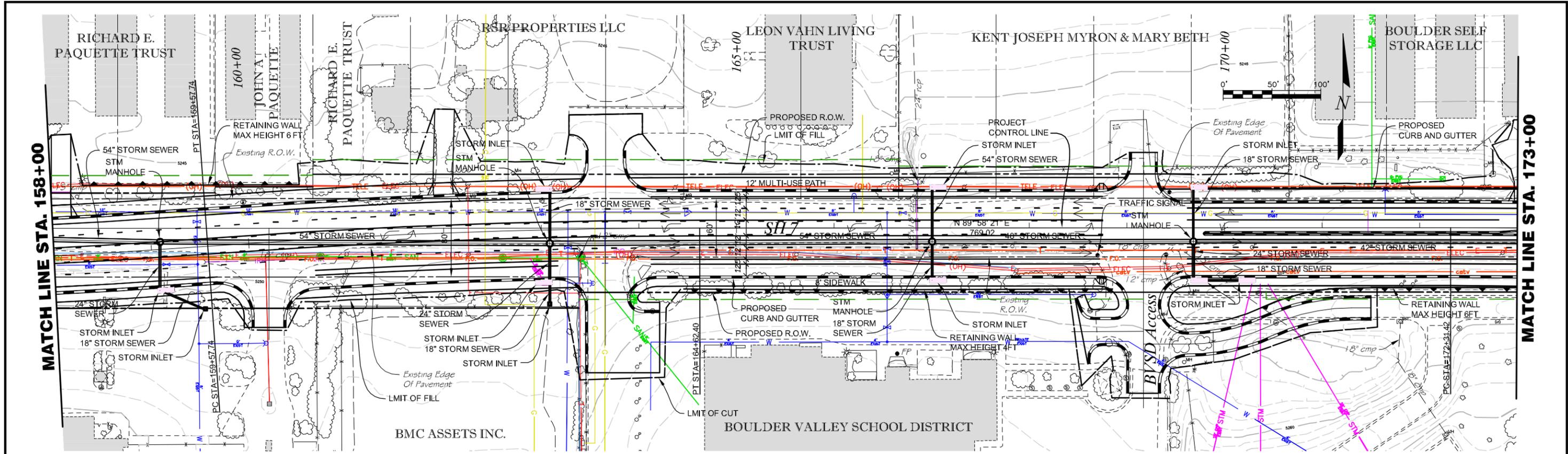
**Colorado Department of Transportation**

1050 LEE HILL ROAD  
BOULDER, CO. 80302  
Phone: (303) 546-5662  
Fax: (303) 444-0740

IRONGATE 4, SUITE 100  
777 S. WADSWORTH BLVD.  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**REGION 4 MHG**

As Constructed	ALTERNATIVE 2 SH7 (PREFERRED ALTERNATIVE) STA.143+00 TO STA. 158+00		Project No./Code
No Revisions:	Designer: LRP	Structure Numbers	STA 0072-010
Revised:	Detailer: RKL		11873
Void:	Sheet Subset: ROADWAY	Subset Sheets: 2 of 7	Sheet Number:



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Acad Ver. 2000i	Scale: 1:50 Units: English

Sheet Revisions	

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LAKEWOOD, COLORADO 80226  
(303) 988-4939

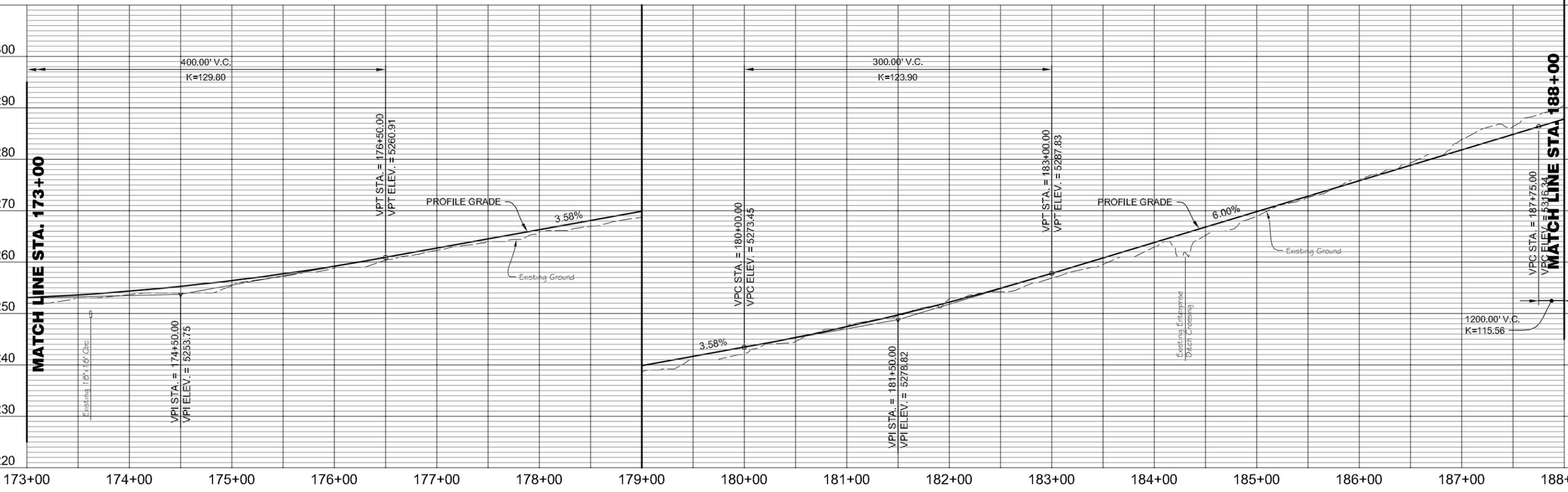
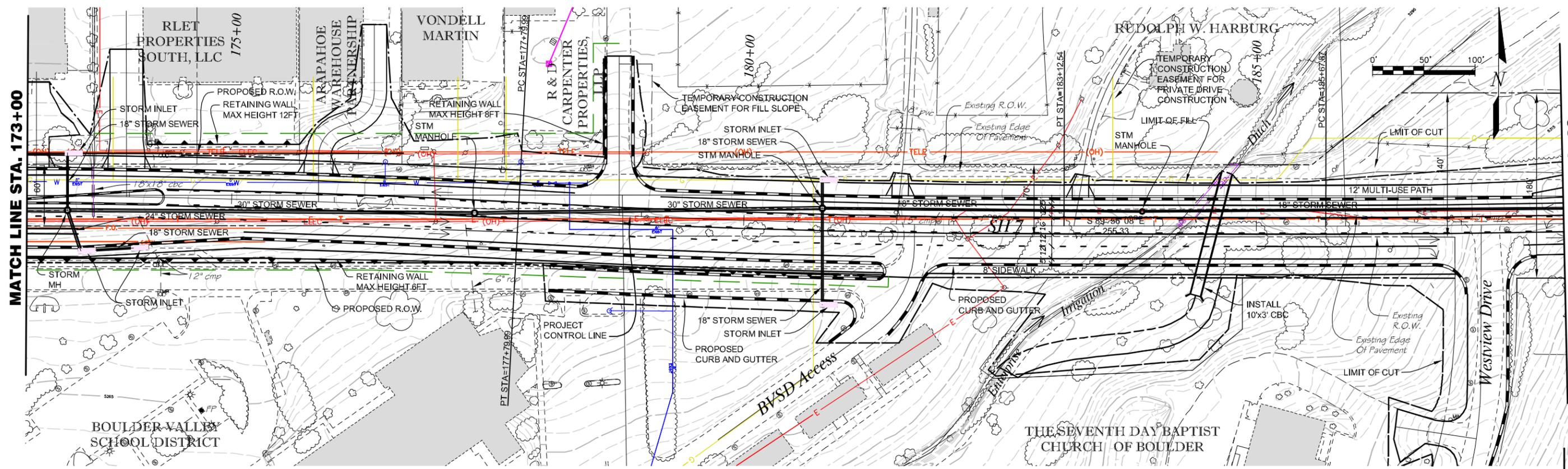
**MULLER**

REGION 4 MHG

As Constructed	
No Revisions:	
Revised:	
Void:	

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Designer:	LRP	Structure Numbers
Detailer:	RKL	
Sheet Subset:	ROADWAY	Subset Sheets: 3 of 7

Project No./Code	
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	11873
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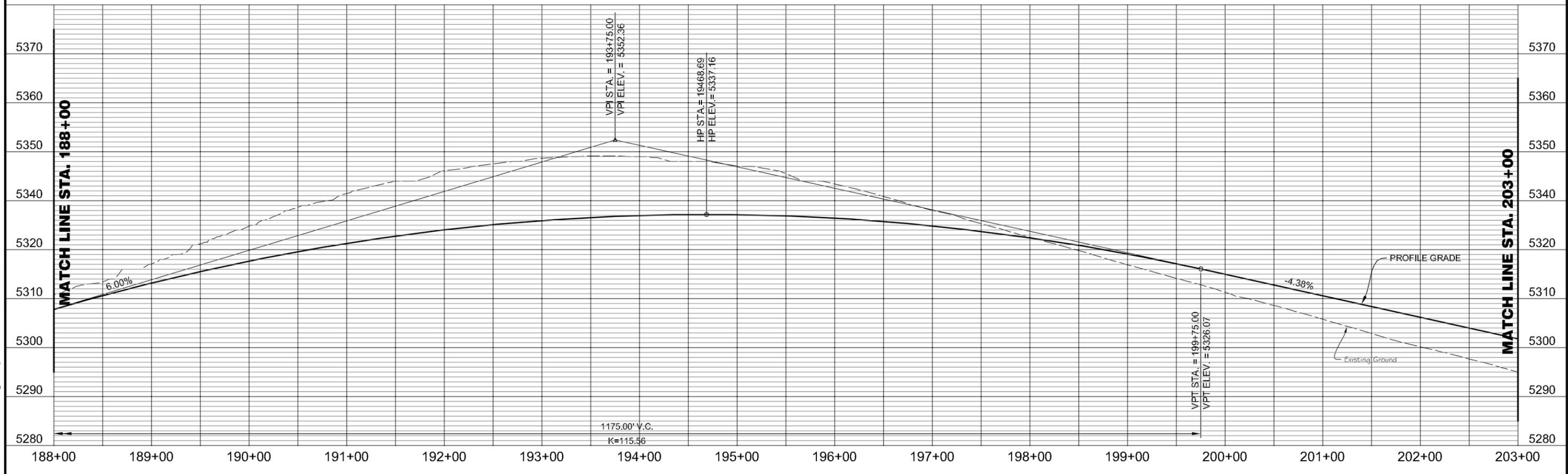
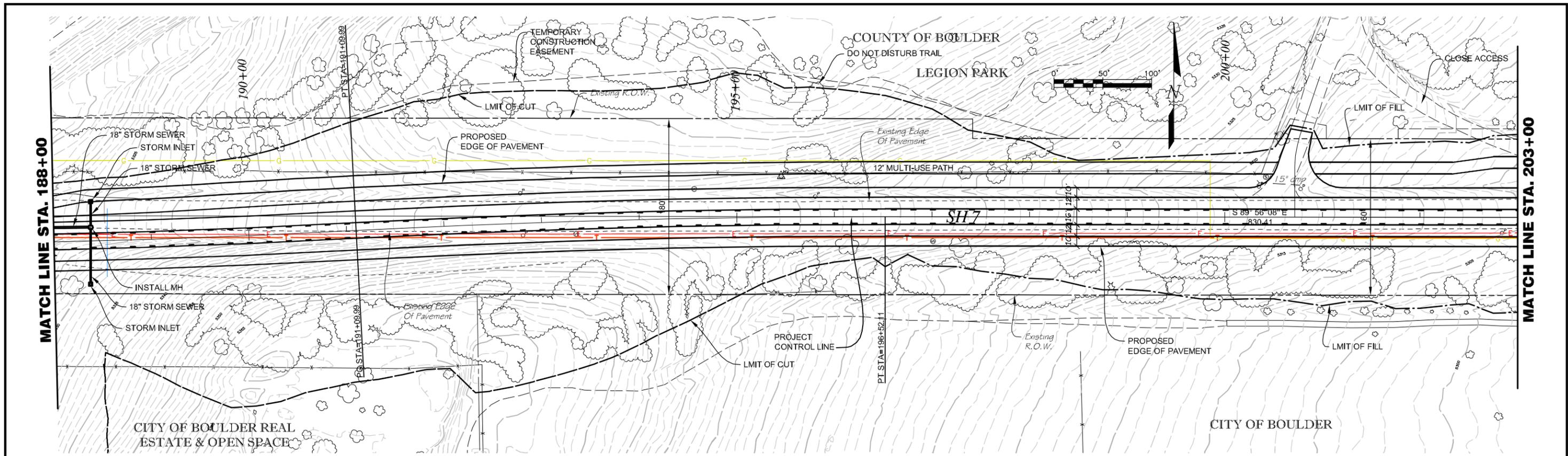
**Colorado Department of Transportation**

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BOULDER, CO. 80302  
Phone: (303) 546-5662  
Fax: (303) 444-0740

IRONGATE 4, SUITE 100  
777 S. WADSWORTH BLVD.  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**REGION 4 MHG**

As Constructed	ALTERNATIVE 2 SH7 (PREFERRED ALTERNATIVE) STA. 173+00 TO STA. 188+00		Project No./Code
No Revisions:	Designer: LRP	Structure Numbers	STA 0072-010
Revised:	Detailer: RKL		11873
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Units:	English

Sheet Revisions	

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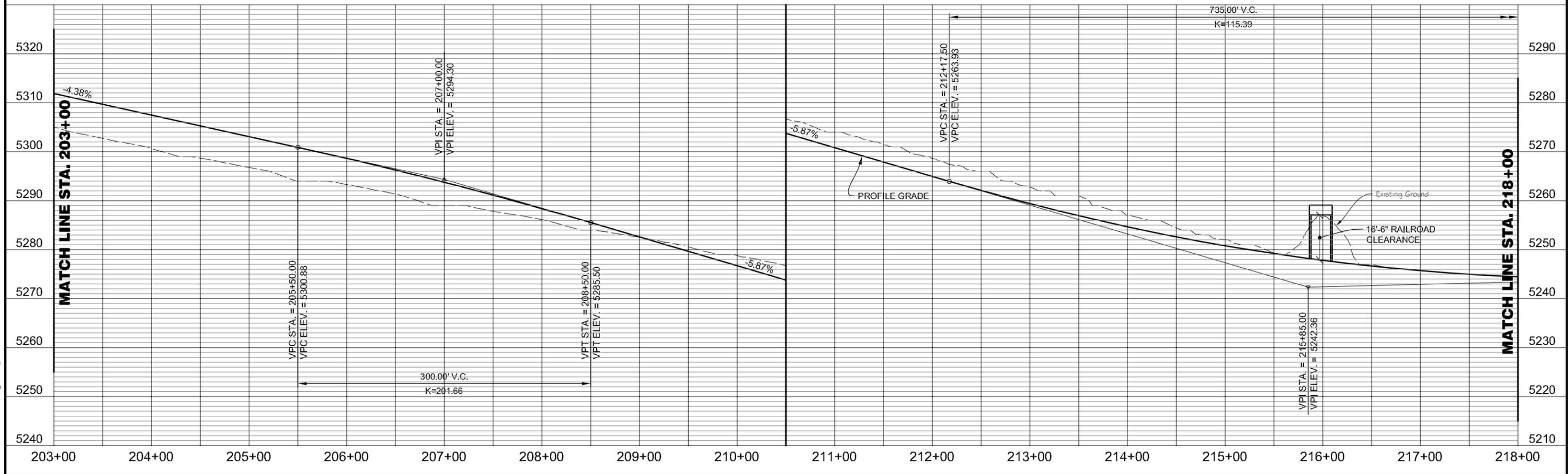
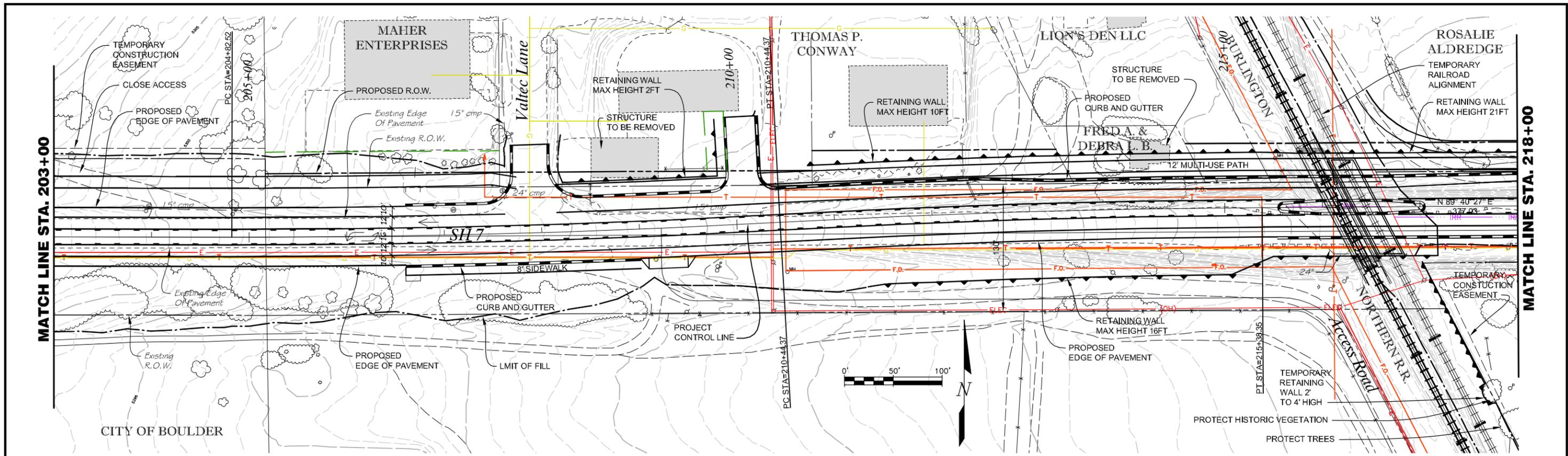
IRONGATE 4, SUITE 100  
777 S. WADSWORTH BLVD.  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

**REGION 4 MHG**

As Constructed
No Revisions:
Revised:
Void:

ALTERNATIVE 2 SH7 (PREFERRED ALTERNATIVE) STA. 188+00 TO STA. 203+00		
Designer:	LRP	Structure Numbers
Detailer:	RKL	
Sheet Subset:	ROADWAY	Subset Sheets: 5 of 7

Project No./Code
STA 0072-010
11873
Sheet Number:



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Units:	English

Sheet Revisions	

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Fax: (303) 444-0740

IRONGATE 4, SUITE 100  
777 S. WADSWORTH BLVD.  
LAKEWOOD, COLORADO 80226  
(303) 988-4939

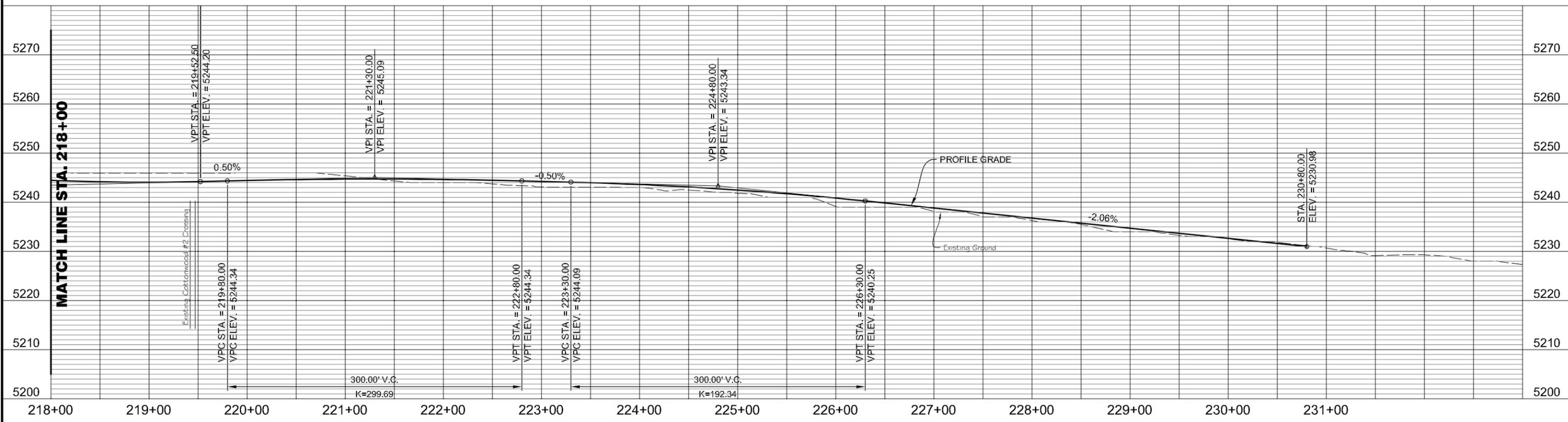
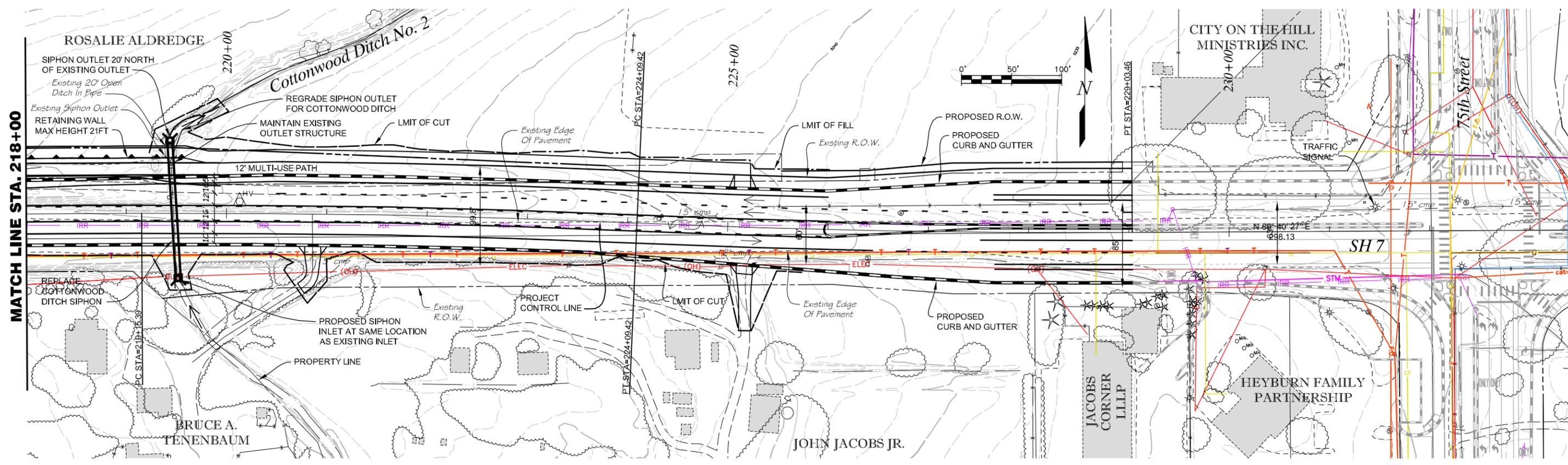
**MULLER**

**REGION 4 MHG**

As Constructed
No Revisions:
Revised:
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Detailer:	RKL	
Sheet Subset:	ROADWAY	Subset Sheets: 6 of 7

Project No./Code
STA 0072-010
11873
Sheet Number:



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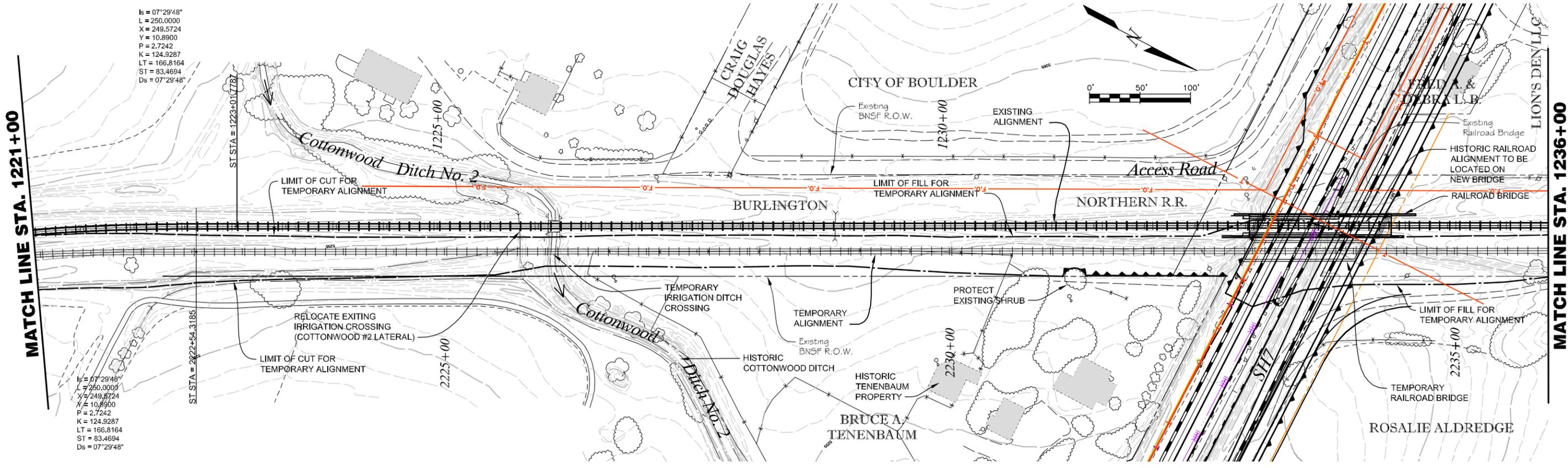
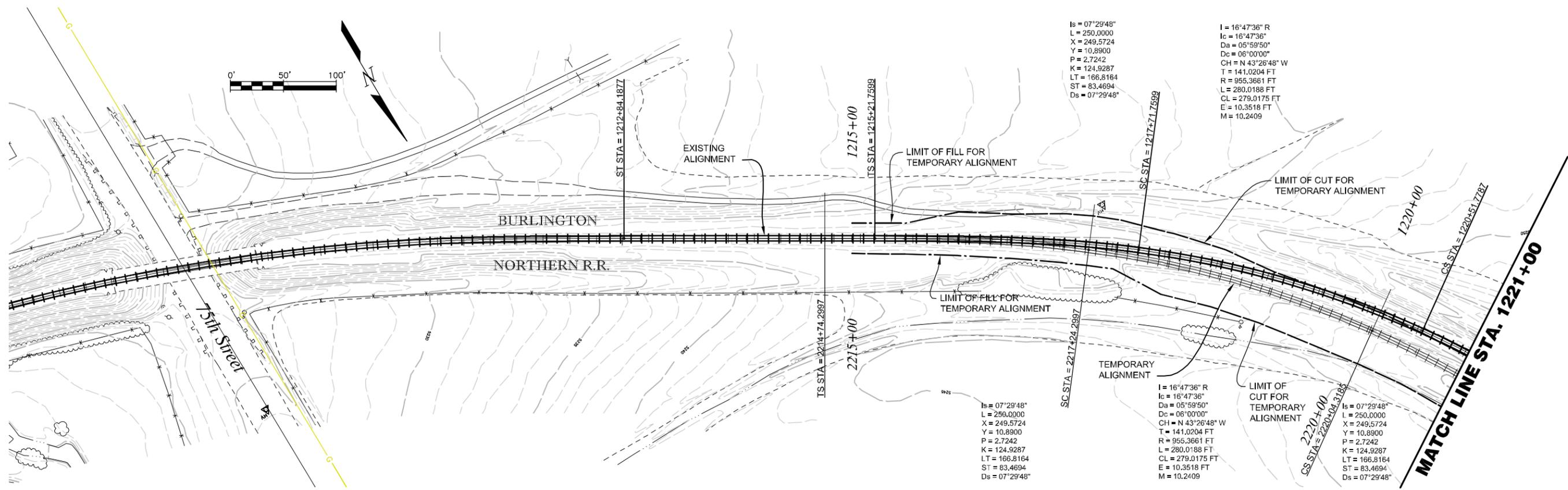
Colorado Department of Transportation  

 1050 LEE HILL ROAD BOULDER, CO. 80302  
 Phone: (303) 546-5662  
 Fax: (303) 444-0740  
 IRONGATE 4, SUITE 100  
 777 S. WADSWORTH BLVD.  
 LAKEWOOD, COLORADO 80226  
 (303) 988-4939  
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Revised:	
Void:	

ALTERNATIVE 2 SH7 (PREFERRED ALTERNATIVE) STA. 218+00 TO STA. 229+03.46		
Designer:	LRP	Structure Numbers
Detailer:	RKL	
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Project No./Code	
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	11873
	Sheet Number:



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Sheet Revisions	

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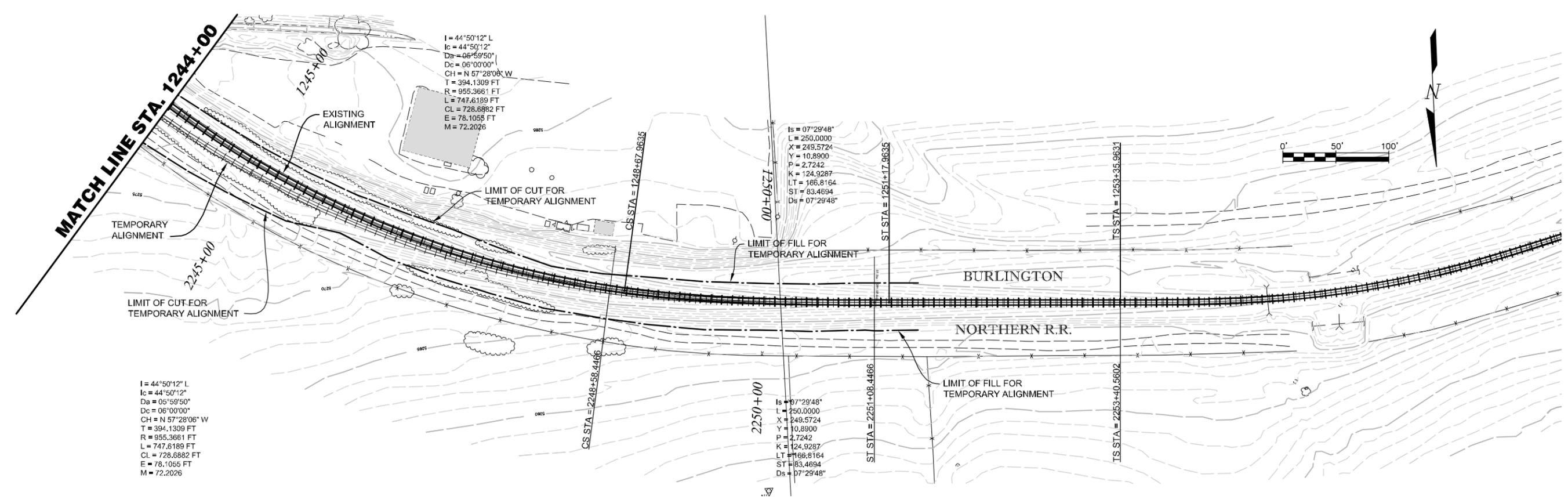
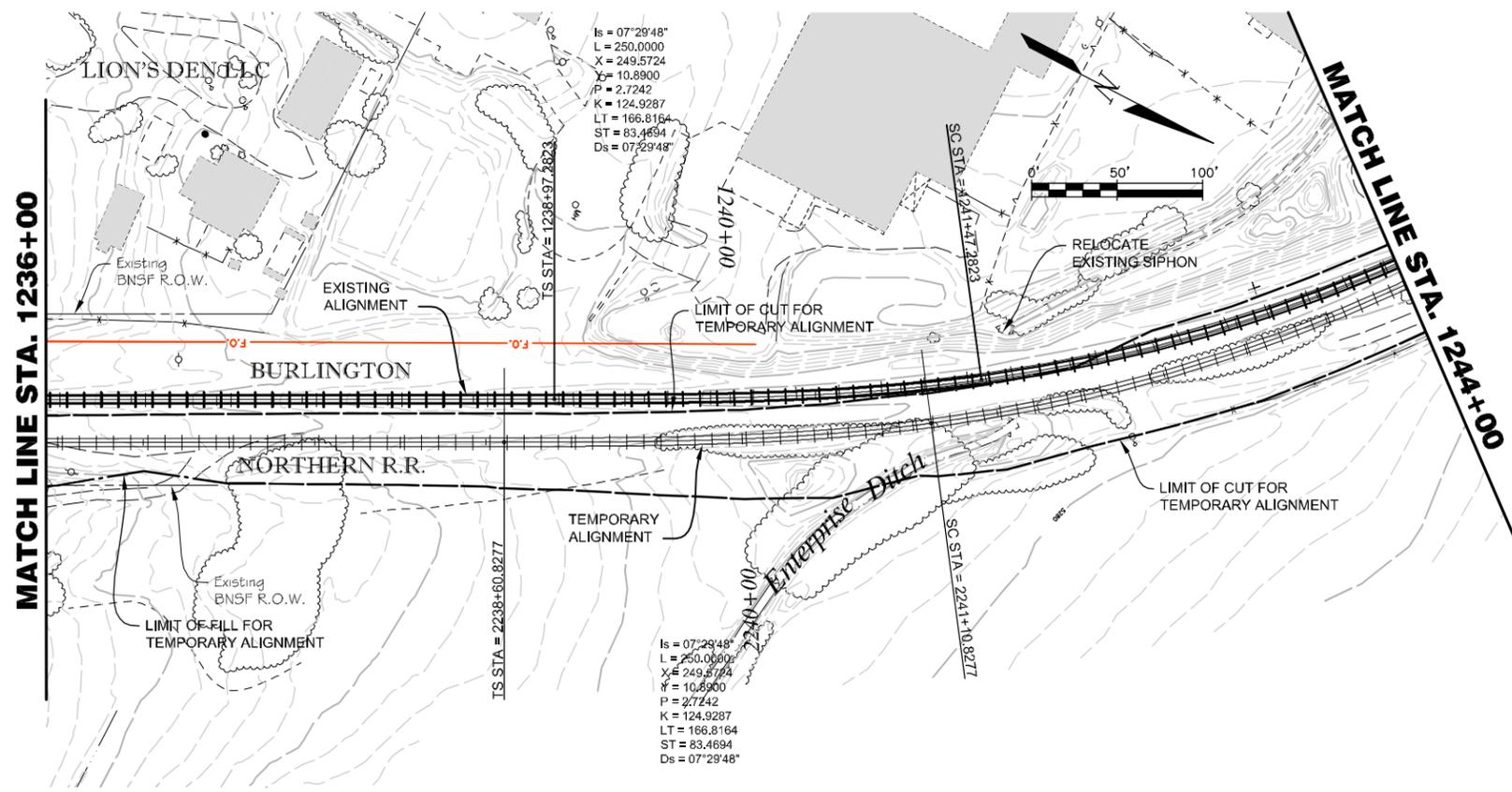
 1050 LEE HILL ROAD  
 BOULDER, CO. 80302  
 Phone: (303) 546-5662  
 Fax: (303) 444-0740  
**REGION 4 MHG**

IRONGATE 4, SUITE 100  
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 (303) 988-4939  


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No Revisions:
Revised:
Void:

BNSF RAILROAD PLAN	
STA. 1212+84.19 TO STA. 1236+00	
Designer:	LRP
Detailer:	RKL
Sheet Subset:	ROADWAY

Project No./Code
STA 0072-010
11873
Sheet Number:



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Acad Ver.	2000i
Scale:	1:50
Units:	English

Sheet Revisions	

Colorado Department of Transportation

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IRONGATE 4, SUITE 100  
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LAKEWOOD, COLORADO 80226  
(303) 988-4939

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REGION 4 MHG

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Void:

BNSF RAILROAD PLAN STA. 1236+00 TO STA. 1253+53.96		
Designer:	LRP	Structure Numbers
Detailer:	RKL	
Sheet Subset:	ROADWAY	Subset Sheets: 2 of 2

Project No./Code
STA 0072-010
11873
Sheet Number:

**WETLAND FINDING  
TECHNICAL MEMORANDUM  
STATE HIGHWAY 7 PROJECT**

**C&B PROJECT NO.: 070702.400.1.0001**

*Prepared for:*

**MULLER ENGINEERING**

**and**

**COLORADO DEPARTMENT OF TRANSPORTATION  
REGION 4  
GREELEY, COLORADO**

*Prepared by:*

**CARTER & BURGESS, INC.  
216 16<sup>TH</sup> STREET MALL, SUITE 1700  
DENVER, COLORADO 80202**

**February 22, 2002**  
*Revised February 13, 2006*

February 2006

**State Highway 7 Highway Improvement Project**, Boulder, Colorado; prepared November 26, 2001; Revised November 29, 2005.

This Wetland Finding has been written in compliance with Executive Order 11990, "Protection of Wetlands," and is in accordance with 23 CFR 771, 23 CFR 777, and Technical Advisory T6640.8A.

### **Project Location and Description**

The project is located east of Boulder, Colorado (Mile Post 54.9 to 57.0) on State Highway 7 (Arapahoe Road) between approximately Cherryvale Road and 75<sup>th</sup> Street at the boundaries between Sections 27 and 34 west ½, Sections 26 and 35, and Sections 25 and 36, T1N, R70W in Boulder County (Figure 1), and is located on the Niwot United States Geological Survey (USGS) Quad Map.

The Colorado Department of Transportation has proposed transportation improvements including highway capacity, level of service, and safety. Transportation improvements including the widening of SH 7 between Cherryvale Road and 75<sup>th</sup> Street to incorporate additional turn lanes, shoulders, and in some locations additional through lanes. Bike lanes and sidewalks are also included for the entire project. The project will require the replacement of the existing BNSF railroad bridge over SH7.

The primary purpose of improvements of SH 7 (Cherryvale Road to 75<sup>th</sup> Street) include reducing congestion and enhancing safety. The improvements are also intended to improve mobility for multiple modes of transportation.

Traffic accidents related to substandard roadway conditions are occurring within the study area. Approach grades to the hill in the middle of the project are steep and the sight distance over the hill is substandard. Existing paved shoulders are 2 to 3 feet in width. The roadway section provides little room to pass an incapacitated vehicle or to easily maneuver past a turning vehicle. Right and left turn lanes are substandard or non-existent.

Existing conditions in the study area reduce the desirability for multiple modes of transportation. Buses utilize the same lanes as general traffic and congestion along the corridor creates a reduced level of service for transit operation. Transit stops are on gravel shoulders or dirt areas adjacent to the highway. Sidewalk facilities exist along the north side of SH 7 between Cherryvale Road and 63<sup>rd</sup> Street. Within the project area, there are no other sidewalks or pedestrian facilities nor do bike lanes exist.

A wide range of alternatives were developed and evaluated during the EA process. The public and local, state and federal agencies were involved during the alternative development and evaluation. Alternatives evaluated included a wide range of roadway build options, multi-modal enhancements, intersection enhancements, and congestion management options. Alternatives were also evaluated for the Burlington Northern Santa Fe railroad alignment that crosses SH 7 since roadway build alternatives require the reconstruction of the BNSF railroad bridge over SH 7.

The alternatives evaluated in detail are the No-Action Alternative and two build alternatives (Alternative 2 – the Preferred Alternative and Alternative 2 – the Optional

February 2006

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Alternative). The No-Action alternative includes intersection improvements at the 75<sup>th</sup> Street intersection including four through lanes of traffic along SH 7 with on-street bike lanes and sidewalks. In addition, the City of Boulder has funding for intersection improvements for transit operations along SH 7 from Cherryvale Road to east of 63<sup>rd</sup> Street. The US 36 Environmental Impact Statement (EIS) is evaluating multi-modal transportation improvements between Denver and Boulder. As part of the US 36 study, improvements including commuter rail are being considered along the existing BNSF railroad corridor that crosses SH 7. In addition to possible commuter rail service, a potential park-n-Ride is being considered in the vicinity of the SH 7 and 63<sup>rd</sup> Street intersection.

The Preferred Alternative (Alternative 2) has two through lanes in each direction from Cherryvale Road to the Boulder Valley School District (BVSD) entrance. Westbound, from west of 75<sup>th</sup> Street to the BVSD, the preferred alternative has one through lane in each direction. Eastbound, from Westview Drive to 75<sup>th</sup> Street, there is also one lane in each direction. The proposed improvements feature curb and gutter with storm sewer for the west portion of the project and shoulders and roadside ditches for the east portion of the project.

The Optional Alternative (Alternative 3) has the same elements of the Preferred Alternative outlined above, with the exception of the number of through travel lanes for the ¾ mile segment between the BVSD intersection and west of 75<sup>th</sup> Street. The Optional Alternative provides two lanes in each direction to 75<sup>th</sup> Street with deceleration lanes at Westview Drive and Valtec Lanes.

### **Wetland Delineation Methods**

The project area was surveyed for wetlands on June 12 and 15, 2001 by Laura Backus of Carter and Burgess. Wetland survey limits of the project area were:

- 60 meters (200 feet) west of Cherryvale Street to 600 meters (2000 feet) east of 75<sup>th</sup> Avenue, including 300 meters (1000 feet) north and south of SH 7 along 75<sup>th</sup> Avenue,
- 180 meters (600 feet) north and south along 63<sup>rd</sup> Avenue,
- the BNSF Railroad grade from 75<sup>th</sup> Avenue to north of Legion Park.

A wetland re-evaluation was conducted in February 2005 to determine if the location, size, and extent of previously mapped wetlands were still consistent of field work conducted in 2001. No changes to any of the previously identified wetland areas were observed during the 2005 re-evaluation.

Wetlands were delineated in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual. Data were collected on wetland parameters of vegetation, hydrology, and soils. A wetland was determined to be present at a site if at least one positive indicator of each wetland parameter was observed.

Central Plains Wetland Indicator Status was assigned for each plant species from Porter et al., 1996:

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- Obligate Wetland Plants (OBL) – species that almost always (>99% probability) occur in wetlands.
- Facultative Wetland Plants (FACW) – species that usually (67 to 99% probability) occur in wetlands.
- Facultative Plants (FAC) – species that are equally likely (33 to 67% probability) to occur in wetlands or uplands.
- Facultative Upland Plants (FACU) – species that usually (67 to 99% probability) occur in uplands.
- Not Listed (NL) – species with no designated wetland indicator status and assumed to be upland.
- No Indicator (NI) – species for which insufficient information was available to determine an indicator status, or species that were not considered by the review panel.
- \* – tentative assignment based on limited information or conflicting review.

Wetlands were mapped using a Trimble ProXR Global Positioning System Receiver.

### **Wetland Descriptions**

Emergent and scrub/shrub broad-leaved deciduous wetlands were present in and adjacent to irrigation ditches, roadside ditches, BNSF Railroad, and a constructed basin (Figure 2). All wetland areas were within unincorporated Boulder County. Total wetland area adjacent to anticipated SH 7 improvements is approximately 0.66 acre. Very small areas of wetland vegetation (fewer than 1.8 square meters [20 square feet]) which were not considered to function as wetlands were excluded from mapping (per Jeff Manuel, Colorado Department of Transportation, Region 4). Wetlands are grouped by wetland type (e.g., roadside ditch, irrigation ditch) and generally numbered from west to east. Wetland areas and US Corps of Engineers jurisdictional determination are presented in Table 1, located in the Project Impacts section of this report. Wetland delineation forms are in Appendix 1.

### **Wetland 1 - East Boulder Ditch**

Wetland 1 is emergent wetland bands adjacent to East Boulder Ditch on the north side of SH 7 (Photograph 1, Map 1). Total wetland area is 0.004 acre. The ditch drains north to the Hillcrest portion of Valmont Reservoir and is jurisdictional. Dominant vegetation is a cow parsnip (*Heracleum sphondylium* subsp. *montanum*, FACW) with a vegetative sedge (probably *Carex emoryi*, OBL or *C. lanuginosa*, OBL) and minor smooth brome (*Bromopsis inermis*, FACU\*). On the east side of the ditch, cow parsnip extends up the slope for approximately 1.5 meters (5 feet). Soils were too rocky to permit soil probe sampling. Wetland hydrology is supplied by ditch flows, two stormwater drain pipes, and probably by runoff from adjacent parking lots. Wetland functions include stormwater storage, bank stabilization, and sediment and pollutant trapping. Ditch bank vegetation on the south side of SH 7 did not meet wetland parameters.

**Wetland 2 - SH 7, roadside drainage ditches, west of Hoover Hill**

Wetlands 2a, 2b, 2c, and 2d are emergent wetland areas with patches of scrub-shrub wetland in the roadside drainage ditches adjacent to the south side of SH 7 from just east of 63<sup>rd</sup> Street to the east side of the Boulder Valley Arapahoe Campus Technical Education Center (Photograph 2, Map 1). Total combined wetland area is 0.286 acre. Wetlands 2a and 2b drain west to East Boulder Ditch. Wetlands 2c and 2d each drain in separate pipes under SH 7 to the north and outlet separately on the south side of the BNSF railroad. These wetlands are non-jurisdictional.

For Wetlands 2a and 2b, dominant vegetation is spikerush (*Eleocharis palustris*, OBL), threesquare bulrush (*Schoenoplectus pungens*, OBL), and quackgrass (*Elytrigia repens*, FAC) with clumps of smooth brome. Soils were light brownish gray (2.5YR 6/2) clay with common yellowish brown (10YR 6/8) and dark grayish brown (2.5YR 4/2) mottles and were saturated to the surface. Wetland hydrology is provided by runoff from parking lots to the south and from the highway. Wetlands 2a and 2b flow into a storm drain at the west end of 2a which appears to empty into East Boulder Ditch on the north side of SH 7.

For Wetlands 2c and 2d, dominant herbaceous species are broad-leaved cattail (*Typha latifolia*, OBL), spikerush, threesquare bulrush with areas of foxtail barley (*Critesium jubatum*, FACW), fescue (*Festuca pratensis*, FAC), redtop (*Agrostis stolonifera*, FACW), curly dock (*Rumex crispus*, FACW), scouring rush (*Hippochaete hymenalis*, FACW), Emory's sedge (*Carex emoryi*, OBL), and wooly sedge (*C. lanuginosa*, OBL). Small, intermittent patches of sandbar willow (*Salix exigua*, OBL) and seedling to sapling plains cottonwood (*Populus deltoides* subsp. *monilifera*, FAC) were present. Some areas were infested with Canada thistle (*Breca arvensis*, FACU) and a small stand of leafy spurge (*Tithymalus esula*, NL) was present near Boulder Valley Arapahoe Campus Technical Education Center. Hydric soils were assumed since the dominant species are OBL and FACW and the boundary is abrupt. Flowing water was present in 2c and 2d and enters a cross-drain under SH 7 north of the campus. Wetland hydrology is provided by runoff from the highway and areas of irrigated side slopes.

Wetland functions include stormwater storage, bank stabilization, and sediment and pollutant trapping. Wetlands 2c and 2d were higher quality wetlands with greater plant diversity. Wetlands 2a and 2b were in less distinctly defined roadside ditches and of lower function.

Additionally, a small non-jurisdictional north-south ditch (Wetland 2e, Map 1) is present east of the traffic light. Total area is 0.006 acre. Dominant vegetation is narrow-leaved cattail (*Typha angustifolia*, OBL) with fescue. Hydric soils were assumed since the dominant species is OBL and the boundary is abrupt. Wetland hydrology is probably provided by parking lot and road runoff. Water was flowing in the ditch at the time of the survey. Wetland functions include stormwater storage, bank stabilization, and sediment and pollutant trapping.

**Wetland 3 – Detention Basin south of SH 7**

An emergent wetland is present in a basin at Boulder Valley Arapahoe Campus Technical Education Center (Map 1). Total area is 0.075 acre. The wetland stormdrain connects to Wetland 2d, and the wetland is non-jurisdictional. Dominant vegetation is redtop and

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fescue with cattail and foxtail barley. Soils were very dark gray (10YR 3/1) clay with common yellowish-brown (10YR 5/8) mottles. Soils were saturated and standing water in the wetland center was present at the time of the survey. Additionally, areas of cracked mud and 20 centimeter (8 inch) deep vehicle tracks were present. Wetland hydrology appears to be provided by runoff from adjacent parking lots and slopes. Wetland functions include stormwater storage, wildlife habitat, food chain support, and sediment and pollutant trapping.

#### **Wetland 4 - Enterprise Ditch**

The Enterprise Ditch is present in the project area adjacent to SH 7 on the west side of Hoover Hill and to the BNSF Railroad north of Legion Park. At both locations, narrow emergent and scrub-shrub wetland bands are present adjacent to the ditch (Maps 2 and 3). The ditch drains north to Valmont Reservoir, and is jurisdictional. Wetland functions include bank stabilization, wildlife habitat, food chain support, and sediment and pollutant trapping.

Wetland 4a is west of Hoover Hill (Photograph 3). Total wetland area adjacent to SH 7 is 0.025 acre. Dominant vegetation is Emory's sedge with scouring rush (*Hippochaete hymenalis*, FACW), a vegetative forb, showy milkweed (*Asclepias speciosa*, FAC), and virgin's creeper (*Parthenocissus inserta*, FAC). Adjacent to the wetland bands the upper banks are vegetated with plum (*Prunus americana*, UPL), Siberian elm (*Ulmus pumila*, UPL), and Wood's rose (*Rosa woodsii*, FACU). A minor infestation of Canada thistle is present. Soils approximately 1 meter (3 feet) from the edge of the ditch were very dark grayish brown (10YR 2/3) sandy clay loam with common yellowish brown (10YR 5/6) mottles. Wetland hydrology is supplied by ditch flows, and water was flowing in the ditch at the time of the survey.

Wetland 4b is north of SH 7 and west of the BNSF Railroad. Total area is 0.006 acre. Wetland bands in the area of ditch lined with metal are dominated by sandbar willow, woolly sedge, and arctic rush (*Juncus arcticus*, FACW) with curly dock and showy milkweed. Hydric soils were assumed since the dominant species is OBL and the boundary is abrupt. Wetland hydrology is provided by ditch flows.

#### **Wetland 5 - Wetlands adjacent to BNSF Railroad embankment**

A series of isolated, non-jurisdictional wetlands are present adjacent to both sides of the toe of the BNSF Railroad embankment (Map 2). Wetland functions include wildlife habitat, food chain support, and sediment and pollutant trapping.

Wetland 5a is an emergent wetland area north of the BNSF Railroad embankment (Photograph 4). Wetland area is 0.015 acre. Dominant vegetation is clustered field sedge (*Carex praegracilis*, FACW), arctic rush, and a vegetative sedge (probably *C. emoryi*, OBL). Soils are 10 YR 2/1 and were saturated to the surface. Wetland hydrology appears to be supplied by slope runoff.

South of the railroad, Wetland 5b is an emergent and scrub-shrub wetland area dominated by sandbar willow, vegetative sedges (probably *C. emoryi*), and fescue with a large-stemmed vegetative sedge and reed canarygrass (*Phalaroides arundinacea*, FACW). Total area is 0.012 acre. On the north side of the railroad (Wetland 5c),

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dominant vegetation is emergent sedges, a vegetative forb that is probably swamp milkweed (*Asclepias incarnata*, OBL), and fescue with threesquare bulrush, showy milkweed, and Canada thistle. The wetland area within the fenceline is 0.015 acre. The wetland continues north of the fence. Soils on both sides of the railroad were mottled dark yellowish brown (10YR 4/4), and hydric soils were assumed based on the prevalence of OBL and FACW species and the boundary is abrupt. Wetland hydrology appears to be supplied by water steadily trickling out of a plastic pipe on the south slope. Soils were saturated in the vicinity of the pipe outlet.

Wetlands 5d and 5e are emergent and scrub-shrub wetlands are present in a shallow ditch on the south side of the railroad just west of the curve to SH 7 (Photograph 5). Total wetland area is 0.098 acre. Dominant vegetation is broad-leaved cattail, clustered field sedge, wooly sedge, and Emory's sedge with curly dock and Canada thistle. An area dominated by sandbar willow is present at the east end of the shallow ditch. Hydric soils were assumed since the dominant species are OBL and FACW and the boundary is abrupt. Wetland hydrology is potentially supplied by seepage from the Enterprise Ditch on the slope above and by runoff.

#### **Wetland 6 – Cottonwood Ditch**

The Cottonwood Ditch (also identified as Cottonwood Ditch #2 and Liner Cottonwood Ditch) is present in the project area adjacent to the BNSF Railroad south of the bridge over SH 7, SH 7 on the east side of Hoover Hill north of SH 7, and adjacent to the 75<sup>th</sup> Street right-of-way north of the intersection with SH 7. Narrow bands of emergent wetlands and minor areas of scrub-shrub wetlands are present adjacent to the ditch (Maps 3 and 4). Cottonwood Ditch drains north into Boulder Creek near Brownsville (per Robert Phearson, ditch company president), and Wetlands 6a, 6b, and 6d are jurisdictional. Wetland functions include bank stabilization, wildlife habitat, food chain support, and sediment and pollutant trapping.

Cottonwood Ditch side slope Wetlands 6a (Photograph 6) and 6b are present at the ditch intersection with BNSF Railroad south of the bridge over SH 7. Total wetland area is 0.023 acre. Wetland 6c is a network of non-jurisdictional feeder ditches with 0.024 acre within the BNSF Railroad right-of-way. Dominant ditch bank vegetation is wooly sedge, Emory's sedge, and reed canarygrass, with patches of sandbar willow. A minor infestation of Canada thistle is present. Hydric soils were assumed since dominant vegetation is OBL and FACW and the boundary is abrupt. Wetland hydrology is supplied by ditch flows, and water was flowing in the ditches at the time of the survey. Wetland bands appear to continue outside the right-of-way.

Wetland 6d is narrow wetland bands present adjacent to Cottonwood Ditch on the west side of 75<sup>th</sup> Street, north of the intersection with SH 7. Total wetland area adjacent to the road is 0.032 acre. Dominant ditch bank vegetation is sedges (probably *C. emoryi*), showy milkweed, and grasses.

#### **Wetland 7 - SH 7, roadside drainage ditches, east of Hoover Hill**

Wetlands 7a, 7b and 7c are emergent wetlands in SH 7 roadside drainage ditches east of the BNSF Railroad bridge (Photograph 7, Map 2). Total wetland area is 0.027 acre. Ditch flows are transferred by buried pipes to an irrigation water storage tank at the southeast

corner of SH 7 and 75<sup>th</sup> Street, and the wetlands are non-jurisdictional. Dominant species of Wetland 7a are spikerush and clustered field sedge with curly dock and threesquare bulrush. Hydric soils were assumed since the dominant species are OBL and FACW and the boundary is abrupt. Dominant species of Wetlands 7b and 7c are broad-leaved cattail, threesquare bulrush, spikerush, and redtop with foxtail barley, arctic rush, quackgrass, horsetail (*Equisetum arvense*, FAC), curly dock, vegetative ragweed (*Ambrosia* spp.), and prickly lettuce (*Lactuca serriola*, FAC). Hydric soils were assumed since the dominant species are OBL and FACW. Flowing and standing water were present in some areas of the ditch. Wetland hydrology is provided by runoff from the highway collected both east and west of the bridge and augmented at Wetland 7a and Wetland 7c from side slope seeps. The Wetland 7c seep is possibly supported by Cottonwood Ditch. Wetland functions include stormwater storage, bank stabilization, and sediment and pollutant trapping.

### **Ditch north of SH 7**

The north-south ditch on the north side of SH 7 across from the traffic light at Boulder Valley Arapahoe Campus Technical Education Center did not support wetlands within the highway right-of-way. Right-of-entry was not available for the property north of the right-of-way. Ditch banks, as viewed from the property line, appeared to be vegetated with smooth brome and thus do not meet the parameter for wetland vegetation.

### **Alternatives**

#### *Alternative 2 (Preferred Alternative)*

The Preferred Alternative has two thru lanes in each direction from Cherryvale Road to the Boulder Valley School District entrance. At Cherryvale Road, curb and gutter is added to the existing right turn deceleration lane for eastbound traffic. At 63<sup>rd</sup> Street, in the westbound direction, there is a continuous right turn acceleration/deceleration lane that also functions as a bus bypass lane from east of 63<sup>rd</sup> to Cherryvale Road. In the eastbound direction, there is a continuous right turn acceleration/deceleration lane between the business access west of the Boulder Valley School District to east of the BVSD signal. From the BVSD signal to Westview Drive there is one thru lane westbound and two thru lanes eastbound. The second eastbound thru lane is dropped as a right turn lane at Westview Drive. There is a right turn lane in the westbound direction at Valtec Lane. The two-lane section (one lane in each direction) continues past the Burlington Northern Santa Fe Railroad overpass where the roadway section widens to two lanes in each direction at the 75<sup>th</sup> Street intersection improvements.

#### *Alternative 3 (Optional Alternative)*

This alternative has all of the same elements of the Preferred Alternative outline above, with the exception of the number of through travel lanes for the  $\frac{3}{4}$  mile segment between the BVSD intersection and west of 75<sup>th</sup> Street. The Optional Alternative retains two lanes in each direction to 75<sup>th</sup> Street with deceleration lanes at Westview Drive and Valtec Lanes.

### **Project Impacts**

Wetland impacts were reduced as much as practicable during project design specifically by selection of an alternative that maintains the current alignment. Approximately 0.32

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acre of wetland impacts are anticipated to occur during construction of the Preferred Alternative (Table 1). These impacts were unavoidable due to project purpose and need.

A Section 404 Permit will be obtained, as necessary, from the US Army Corps of Engineers prior to project construction.

Impacted wetland functions and values are anticipated to include bank stabilization, sediment/toxin retention, nutrient removal/transformation, food chain support, wildlife habitat, and visual quality.

**Table 1. Wetland Jurisdictional Determination, Areas, and Permanent Impacts**

Site ID	Acres w/in Study Area	USACE Jurisdictional?	Wetland Type*	Alternative 2 (Preferred) Permanent Impacts (Acres)	Alternative 3 (Optional) Permanent Impacts (Acres)
1	<0.01	Yes	Emergent	0.002	0.002
2 a, b, c, d	0.29	No	Emergent with Scrub Shrub	0.287	0.287
3	0.08	No	Emergent	0.0	0.0
4 a, b	0.03	Yes	Emergent with Scrub Shrub	0.011	0.011
5 a, b, c, d, e	0.14	No	Emergent with Scrub Shrub	0.0	0.0
6 a, b, c, d	0.08	Yes-a, b, d; No-c	Emergent with Scrub Shrub	0.0	0.0
7 a, b, c	0.03	No	Emergent	0.022	0.022
<b>Total</b>	<b>0.66</b>			<b>0.322</b>	<b>0.322</b>

\*Cowardin, L.M. et al. 1979. Classification of Wetland and Deepwater Habitats of the United States. United States Fish and Wildlife Service, Biological Services Program; FWS/OBS-79/31

### Wetland Impact Minimization and Best management Practices

The alternative designs include avoidance and minimization of impacts to most study area wetlands. Impacts to wetlands will be avoided and minimized as much as practical during the final design process. The design shall comply with the policy of Executive Order 11990 regarding impacts to wetlands. The following specific BMPs from the *Erosion Control and Storm Water Quality Guide*, CDOT, 2002, will be required during construction to reduce the potential for wetlands to be indirectly affected by sedimentation from accelerated erosion or by hazardous materials (e.g., fuel, equipment lubricants):

- All disturbed areas will be revegetated with native grass and forb species. Seed, mulch and mulch tackifier will be applied in phases throughout construction.
- Where permanent seeding operations are not feasible because of seasonal constraints (e.g., summer and winter months), disturbed areas will have mulch and mulch tackifier applied to prevent erosion.

- Erosion control blankets will be used on slopes 3:1 or steeper, newly seeded slopes to control erosion and to promote the establishment of vegetation. Slopes should be roughened at all times.
- Temporary erosion control blankets will have flexible natural fibers.
- Erosion bales, erosion logs, silt fence or other sediment control device will be used as sediment barriers and filters adjacent to wetlands, surface waterways and at inlets where appropriate.
- To minimize the loss of sand from the road surface during winter sanding operations, sediment catch basins will be included during construction and put in place permanently with continual maintenance.
- Where appropriate, slope drains will be used to convey concentrated runoff from top to bottom of the disturbed slopes. Slope and cross-drain outlets will be constructed to trap sediment.
- Storm drain inlet protection will be used where appropriate to trap sediment before it enters the cross-drain.
- Check dams will be used where appropriate to slow the velocity of water through roadside ditches and in swales.

Additionally, the following BMPs to minimize additional wetland impacts during construction will be employed:

- All wetland areas and water bodies not impacted by the project will be protected from unnecessary encroachment by temporary fencing and will be seeded in phases throughout construction. Sediment control such as silt fence or erosion logs will also be used where needed to protect the area from sediment. Siltation control devices (e.g., fences) will be placed on the down-gradient side of construction areas to prevent soil from entering wetland areas.
- No staging of construction equipment, equipment refueling or storage of construction supplies will be allowed within 100 feet of a wetland or any water-related area.
- Standard erosion/sediment control measures will be observed and an erosion control plan will be developed prior to and for inclusion in the construction bid plans. All bare fill or cut slopes adjacent to streams or intermittent drainages will be stabilized as soon as practicable.
- No fertilizers, hydrofertilizers, or hydromulching will be allowed anywhere on the project.
- Work areas will be limited as much as possible to minimize construction impacts to wetlands.

### **Compensatory Mitigation**

Wetlands as well as their associated functions permanently impacted by project construction will be mitigated at a 1:1 ratio by purchase of credits at one of the three wetland mitigation banks within the primary service area. Wetland impacts will be reduced as much as possible during final design.

### **Conclusion**

“Based on the above considerations, it is determined that there is no practicable alternative to the proposed new construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.”

### **References**

Colorado Department of Transportation. 1999. Standard Specifications for Road and Bridge Construction.

Cowardin, L.M. et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. United States Fish and Wildlife Service. Biological services program; FWS/OBS-79/31.

Corps of Engineers. 1987. Wetlands Delineation Manual. Wetlands Research Program Technical Report Y-87-1. US Army Corps of Engineers Waterways Experiment Station.

Macbeth Division of Kollmorgen Instruments Corporation. Munsell Soil Color Charts. 1994. New Windsor, NY.

Reed, P.B., Jr. et al. 1996. National List of Vascular Plant Species that Occur in Wetlands. Fish and Wildlife Service, National Wetlands Inventory.  
<http://www.nwi.fws.gov/ecology.htm>.

Soil Conservation Service. 1975. Soil Survey of Boulder County Area, Colorado. USDA, Washington, D.C.

Weber, W.A. and R.C. Wittmann. 1996. Colorado Flora: Eastern Slope. University Press of Colorado. Boulder, CO.

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**Wetland Finding**  
State Highway 7  
Technical Memorandum

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## Appendix 1

### Wetland Delineation Forms

Routine Wetland Determination (1987 COE Wetlands Delineation Manual)

(1)

Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: CDOT - R 4 Investigator: L. Backus

Site: East Boulder ditch south of SH 7 Date: 6-15-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: development area on plains

Vegetation: Wetland vegetation present? Yes  No

Dominant species	Layer Status	Dominant species	Layer Status
<u>Reynoutria japonica</u>	<u>H FACU</u>	<u>Taraxacum officinalis</u>	<u>H FACU</u>
<u>Hemerocallis spp.</u>	<u>H FACU</u>		
<u>Salix fragilis - large mature</u>	<u>H FAC</u>		
<u>Dactylis glomerata</u>	<u>H FACU</u>		
<u>Vinca</u>	<u>H NL</u>		
<u>Vita spp.</u>	<u>H</u>		

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 18 to 5 % of dominants = OBL, FACW, FAC None (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Soils: Wetland soils present? Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes  No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
<u>12"</u>	<u>-</u>	<u>10YR 3/2</u>	<u>None</u>		

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)
- Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present? Yes  No flows in ditch

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil not saturated

Water sources: ditch, runoff

- Primary wetland hydrology indicators:
- Inundated
  - Saturated in upper 12" > 12.5% of growing season
  - Water marks
  - drift lines
  - Sediment deposits
  - Drainage pattern in wetlands

- Secondary indicators (need 2 or more):
- Oxidized root channels in upper 12"
  - Water-stained leaves
  - Local soil survey data
  - Fac-neutral test (>50% dom = OBL, FACW+, FACW)
  - Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria? Yes  No

Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: CDOT - R 4

Investigator: L. Backus

Site: ditches on south side SH 7, west of Heaven Hill

Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting:

Vegetation: Wetland vegetation present?  Yes No

Dominant species	Layer	Status	Dominant species	Layer	Status
<del>Schoenoplectus</del> pungens	H	OBL			
<del>Eleocharis</del> palustris	H	OBL			
<del>Elytrigia</del> repens	H	FAC			
Bromopsis inermis? mowed	H	FAC?			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # \_\_\_\_\_ % of dominants = OBL, FACW, FAC 75? (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

mowed

Soils: Wetland soils present?  Yes No

Map unit series and phase:

Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
12"		2.5 YR 6/2	10 YR 5/8	common	clay
			and 2.5 YR 4/2	common	

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
  - Histic epipedon
  - H2S odor
  - Aquic moisture regime
  - Fe/Mg recent concretions
  - Reducing conditions (a-a-dipyridil)
  - Gley
  - Chroma = 2/less in mottled, 1 or less in unmottled
- Salt in soil sample

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)
- Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes No Drain to west, appear to flow into SH 7 cross drain emptying into East Boulder Ditch on north side of highway

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil Surface

Water sources: runoff from highway and parking lots to south

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes No

Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: \_\_\_\_\_ Investigator: L. Backus

Site: ditches on south side SH 7, west of Hoover Hill Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No  except mowing on west end

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: developed area on plains

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Scheuchzeria palustris</u>	<u>H</u>	<u>OBL</u>	<u>Salix exigua - patches</u>	<u>S</u>	<u>OBL</u>
<u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	<u>Eleocharis palustris</u>	<u>H</u>	<u>OBL</u>
<u>Critesion jubatum</u>	<u>H</u>	<u>FACW</u>	<u>Populus deltoides subsp. monilifera</u>	<u>T</u>	<u>FAC</u>
<u>Festuca pratensis</u>	<u>H</u>	<u>FAC</u>	<u>Equisetum spp.</u>	<u>H</u>	
<u>Agrostis stolonifera</u>	<u>H</u>	<u>FACW</u>	<u>Scheuchzeria palustris</u>	<u>H</u>	<u>OBL</u>
<u>Rumex crispus</u>	<u>H</u>	<u>FACW</u>	<u>Carex emoryi</u>	<u>H</u>	<u>OBL</u>

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 2 → E % of dominants = OBL, FACW, FAC 100 (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

east of edu center traffic light

ditch wetland becomes less defined at west side & vegetation is mowed

minor Brea arvensis patches and Elaeagnus angustifolia at upper margins

Small patch of Linnaria vulgaris at east end

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list?  Yes  No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
<u>12"</u>		<u>10YR 3/2</u>	<u>mottled</u>	<u>common</u>	
<u>wetland</u>	<u>arb</u>				

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No flows from near east end to obs-c drain at storage locker's

Depth of surface water shallow flows Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: runoff, irrigated lawns

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, County, State: SH 7, Boulder CO

Site: NS ditch N of road into Educ. Center Date: 6-12-01

Applicant/Owner: CDOT R4 Investigator: L. Gachua

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting:

Vegetation: Wetland vegetation present?  Yes No

Dominant species	%	Layer	Status	Dominant species	%	Layer	Status
<u>Typha angustifolia</u>			<u>OBL</u>				
<u>T. latifolia</u>			<u>OBL</u>				

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

% of dominants = OBL, FACW, FAC \_\_\_\_\_ (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Soils: Wetland soils present?  Yes No assume

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled
- Fe/Mg recent concretions

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Hydrology: Wetland hydrology present?  Yes No

*Probably getting runoff from slopes to East also from parking lots to W*

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: \_\_\_\_\_

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

*enters CMP at northern end*

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes No

Project, City/County, State: SH 7, Boulder CO

Applicant/Owner: CDOT R4 Investigator: L. Backus

Site: detection basin at Votek Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: developed area on plains

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Agrostis stolonifera</u>	<u>H</u>	<u>FACW</u>			
<u>Typha spp.</u>	<u>H</u>	<u>OBL</u>			
<u>Critesium jubatum</u>	<u>H</u>	<u>FACW</u>			
<u>Festuca pratensis</u>	<u>H</u>	<u>FAC</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'  
Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 1 -> W % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

mowed on west side

Breca arvensis at eastern end

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
<u>12"</u>	<u>-</u>	<u>10YR 3/1</u>	<u>10YR 5/8</u>	<u>common</u>	<u>clay</u>

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Chroma = 2/less in mottled, 1 or less in unmottled

Assume soils when all dominant plants are OBL and/or FACW

areas of cracks, peeling mud  
8" deep vehicle tracks

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water standing water several inches deep in center Depth to free water in pit \_\_\_\_\_ Depth to saturated soil near surface

Water sources: runoff - probably mainly from parking lots above

Primary wetland hydrology indicators:

Secondary indicators (need 2 or more):

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

storm drain outlets near NW end + E end

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: CDOT RA

Investigator: L. Backus

Site: Enterprise Ditch - west branch

Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains

Vegetation: Wetland vegetation present?  Yes  No

Dominant species - west side	Layer	Status	Dominant species	Layer	Status
<u>Carex erorythraea</u>	<u>H</u>	<u>OBL</u>			
<u>Hippochaeris hymenalis</u>	<u>H</u>	<u>FACW</u>			
<u>Asclepias speciosa</u>	<u>H</u>	<u>FAC</u>			
<u>Rosa woodsii</u>	<u>S</u>	<u>FACU</u>			
<u>Panthenocissus inserta</u>	<u>V</u>	<u>FAC</u>			
<u>Dactylis glomerata</u>	<u>H</u>	<u>FACV</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 3 → SW % of dominants = OBL, FACW, FAC 75% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

minor Breca arvensis

Upper riparian band w/ Prunus americana, Ulmus pumila

East side private land appears similar

Soils: Wetland soils present?  Yes  No

Map unit series and phase:

Hydric soils list?  Yes  No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
<u>12"</u>	<u>—</u>	<u>10YR 3/2</u>	<u>10YR 5/6</u>	<u>common</u>	<u>sandy clay loam</u>
		<u>on upper, shrubby</u>	<u>wetland margins</u>		

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No Ditch flows

Depth of surface water — Depth to free water in pit — Depth to saturated soil damp

Water sources: Enterprise ditch, runoff

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season based on veg
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, County, State: SH 7, Boulder, CO

Site: W. Enterprise Ditch at RR bend Date: 6-15-01

Applicant/Owner: CDOT R4 Investigator: L. Backus

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling short gr prairie of Colo plains

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	%	Layer	Status	Dominant species	%	Layer	Status
<u>*Salix exigua</u>		<u>S</u>	<u>OBL</u>				
<u>*Carex laniginosa</u>		<u>H</u>	<u>OBL</u>				
<u>Rumex crispus</u>		<u>H</u>	<u>FACW</u>				
<u>*Juncus arcticus</u>		<u>H</u>	<u>FACW</u>				
<u>Arclepius opreclasa</u>		<u>H</u>	<u>FAC</u>				

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

% of dominants = OBL, FACW, FAC \_\_\_\_\_ (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

#10 → W  
#11 → E  
#9 → NW

Soils: Wetland soils present?  Yes  No Assumed - dominants are OBL + FACW

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled
- Fe/Mg recent concretions

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

bands are present adjacent to metal line & portion of ditch just w of culvert inlet under tracks  
water flowing in ditch

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: \_\_\_\_\_

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, City/County, State: SH7, Boulder, CO

Applicant/Owner: CDOT R4 Investigator: L. Backus

Site: Railroad N of SH7, north of Tracks Date: 6-15-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present? Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Carex anegroides</u>	<u>H</u>	<u>FACW</u>			
<u>Juncus arcticus</u>	<u>H</u>	<u>FACW</u>			
<u>Carex emoryi? vegetative</u>	<u>H</u>	<u>OBL</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'  
 Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # \_\_\_\_\_ % of dominants = OBL, FACW, FAC \_\_\_\_\_ (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

area at west end dominated by Brea arvensis was omitted  
Bassia stevensiana is present at wetland margins

Soils: Wetland soils present? Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
<u>0-9</u>	<u>-</u>	<u>10YR2/1</u>	<u>-</u>	<u>-</u>	
<u>9-12</u>	<u>-</u>	<u>10YR5/4</u>	<u>black</u>	<u>many</u>	

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

disturbed soils - part of RR grade

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present? Yes  No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil 6"

Water sources: runoff

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria? Yes  No

Routine Wetland Determination (1987 COE Wetlands Delineation Manual)

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Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: CDOT R4 Investigator: L. Backus

Site: RR north of SH 7, N of parked vehicles, S of tracks Date: 6-15-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of E CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Salix exigua including young</u>	<u>S</u>	<u>OBL</u>			
<u>Carex emoryi</u>	<u>H</u>	<u>OBL</u>			
<u>vegetative large carex / Scirpus</u>	<u>H</u>	<u>-</u>			
<u>Festuca pratense</u>	<u>H</u>	<u>FAC</u>			
<u>Phalaris arundinacea</u>	<u>H</u>	<u>FACW</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 7 → SW % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Soils: Wetland soils present?  Yes  No

Map unit series and phase:					Hydric soils list? Yes No
Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
<u>12"</u>	<u>-</u>	<u>10YR 4/4</u>	<u>mottled</u>	<u>common</u>	
	<u>east of</u>	<u>PVC outlet</u>			

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
  - Histic epipedon
  - H<sub>2</sub>S odor
  - Aquic moisture regime
  - Fe/Mg recent concretions
  - Reducing conditions (a-a-dipyridil)
  - Gley
  - Chroma = 2/less in mottled, 1 or less in unmottled
- disturbed soil area - RR cut

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)
- Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water — Depth to free water in pit — Depth to saturated soil Surface at PVC outlet

Water sources: Trickling flows from PVC pipe, runoff

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, City/County, State: SH 7, Boulder CO

Applicant/Owner: \_\_\_\_\_ Investigator: L. Backus

Site: RR north of SH 7, N of parked vehicles, N of tracks Date: 6-15-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer Status	Dominant species	Layer Status
<u>Carex emoryi</u>	<u>H OBL</u>		
<u>Asclepias incarnata? vegetative</u>	<u>H OBL</u>		
<u>Asclepias speciosa</u>	<u>H FAC</u>		
<u>vegetative tall grass</u>	<u>H FAC?</u>		
<u>probably Festuca proserpens</u>			
<u>Schaeoplectus pungens</u>	<u>H OBL</u>		

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 6 → W % of dominants = OBL, FACW, FAC 100? (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Brea arvensis invading  
Elaeagnus angustifolia at margin

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
<u>12"</u>	<u>—</u>	<u>10YR 4/4</u>	<u>mottled</u>	<u>common</u>	
		<u>light colored thin sand</u>	<u>layer at 6"</u>		

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
  - Histic epipedon
  - H2S odor
  - Aquic moisture regime
  - Fe/Mg recent concretions
  - Reducing conditions (a-a-dipyridil)
  - Gley
  - Chroma = 2/less in mottled, 1 or less in unmottled
- disturbed soil area?

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)
- Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: runoff, water seeping under tracks?

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

5d

Project, City/County, State: SHZ, Boulder CO

Applicant/Owner: CDOT 2-4 Investigator: L. Backus

Site: RR north of SHZ, inside curve, ditch Date: 6-15-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer Status	Dominant species	Layer Status
<u>Carex pragensis</u>	<u>H FACW</u>		
<u>Carex emoryi</u>	<u>H OBL</u>		
<u>Rumex crispus</u>	<u>H FACW</u>		

H - woody/non-wood <3.2', S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # \_\_\_\_\_ % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Vegetation is somewhat patchy

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil surface

Water sources: runoff, deep?

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Routine Wetland Determination (1987 COE Wetlands Delineation Manual)

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Project, City/County, State: SH7 Boulder CO

Applicant/Owner: CDOT R-4 Investigator: L. Backus

Site: RR north of SH7, inside curve ditch Date: 6-15-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Carex emoryi</u>	<u>H</u>	<u>OBL</u>			
<u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>			
<u>Carex lanuginosa</u>	<u>H</u>	<u>OBL</u>			
<u>C. noblescensis ? vegetative</u>	<u>H</u>	<u>OBL</u>			
<u>Salix erigona - patch at E end</u>	<u>S</u>	<u>OBL</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 8 → E % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

~6x10 disturbed area north of blue building - gravel washing into wetland veg.

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water 3-4" Depth to free water in pit \_\_\_\_\_ Depth to saturated soil Surface

Water sources: runoff, deep? extends up bank on south side

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: CDOT

Investigator: L. Backus

Site: Enterprise Ditch - west branch, S. of SH 7

Date: 6-15-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Phalaris arundinacea</u>	<u>H</u>	<u>FACW</u>			
<u>Carex lanug</u>	<u>H</u>	<u>OBL</u>			
<u>C. emeryi</u>	<u>H</u>	<u>OBL</u>			
<u>Salix exigua</u>	<u>H</u>	<u>OBL</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 18 → NC 19 → SW % of dominants = OBL, FACW, FAC (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

22 → SW  
24 → S  
Breed arvensis at upper margins

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H<sub>2</sub>S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)
- Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water 6-8" flows Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: ditch flows

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, City/County, State: SH 7, Boulder CO

Applicant/Owner: CDOT Investigator: L. Backus

Site: Enterprise Ditch - West branch, secondary ditch Date: 6-15-01  
E side of RR tracks

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present? Yes No

Dominant species	Layer Status	Dominant species	Layer Status
<u>Carex emergi</u>	<u>H OBL</u>		
<u>Phalaris arundinacea</u>	<u>H FACW</u>		

H - woody/non-woody <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'  
 Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.  
 Photo # 23 <sup>20 → SE</sup> <sub>→ SE</sub> % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Soils: Wetland soils present? Yes No

Map unit series and phase:					Hydric soils list? <u>Yes</u> No
Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%  
 Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

- |   |  |
|---|--|
| Non-sandy hydric soil indicators:<br><input type="checkbox"/> Histosol<br><input type="checkbox"/> Histic epipedon<br><input type="checkbox"/> H <sub>2</sub> S odor<br><input type="checkbox"/> Aquic moisture regime<br><input type="checkbox"/> Fe/Mg recent concretions<br><input type="checkbox"/> Reducing conditions (a-a-dipyridil)<br><input type="checkbox"/> Gley<br><input type="checkbox"/> Chroma = 2/less in mottled, 1 or less in unmottled | Sandy hydric soil indicators - add:<br><input type="checkbox"/> Aquic moisture regime<br><input type="checkbox"/> High organic content in surface layer<br><input type="checkbox"/> Streaking of subsurface horizons by organic material<br><input type="checkbox"/> Organic accretions (muck balls just below surface)<br><input type="checkbox"/> Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)<br><input checked="" type="checkbox"/> Assume soils when all dominant plants are OBL and/or FACW |
|---|--|

Hydrology: Wetland hydrology present? Yes No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: ditch flows

- |   |   |
|---|---|
| Primary wetland hydrology indicators:<br><input type="checkbox"/> Inundated<br><input checked="" type="checkbox"/> Saturated in upper 12" > 12.5% of growing season<br><input type="checkbox"/> Water marks<br><input type="checkbox"/> drift lines<br><input type="checkbox"/> Sediment deposits<br><input checked="" type="checkbox"/> Drainage pattern in wetlands | Secondary indicators (need 2 or more):<br><input type="checkbox"/> Oxidized root channels in upper 12"<br><input type="checkbox"/> Water-stained leaves<br><input type="checkbox"/> Local soil survey data<br><input checked="" type="checkbox"/> Fac-neutral test (>50% dom = OBL, FACW+, FACW)<br><input type="checkbox"/> Other: |
|---|---|

Wetland Determination: Does this sampling point meet all 3 wetland criteria? Yes No

Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: CDOT R4 Investigator: L. Backus

Site: Ditch Northside SH 7, East River bridge Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>A Eleocharis palustris</u>	<u>H</u>	<u>OBL</u>			
<u>A Carex praegracilis</u>	<u>H</u>	<u>FACW</u>			
<u>Rumex crispus</u>	<u>H</u>	<u>FACW</u>			
<u>Schrenoplectus pungens</u>	<u>H</u>	<u>OBL</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 1 → NE % of dominants = OBL, FACW, FAC \* 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)  
 #16 → NE

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)
- Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: runoff

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, City/County, State: SH7, Boulder, CO  
 Applicant/Owner: CDOT R-4 Investigator: L. Backus  
 Site: Ditch south side SH7, E of RR bridge Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No   
 Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No   
 Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	<u>Juncus arcticus</u>	<u>H</u>	<u>FACW</u>
<u>T. angustifolia</u>	<u>H</u>	<u>OBL</u>	<u>Critesium jubatum</u>	<u>H</u>	<u>FACW</u>
<u>Ambrosia spp.</u>	<u>H</u>	<u>-</u>	<u>Rumex crispus</u>	<u>H</u>	<u>FACW</u>
<u>Lactuca serriola</u>	<u>H</u>	<u>FAC</u>			
<u>Eleocharis palustris</u>	<u>H</u>	<u>OBL</u>			
<u>Agrostis stolonifera</u>	<u>H</u>	<u>FACW</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'  
 Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.  
 Photo # 16 → NE % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Soils: Wetland soils present?  Yes  No

Map unit series and phase:					Hydric soils list? Yes No
Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%  
 Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

- |  |  |
|--|--|
| Non-sandy hydric soil indicators:<br><input type="checkbox"/> Histosol<br><input type="checkbox"/> Histic epipedon<br><input type="checkbox"/> H2S odor<br><input type="checkbox"/> Aquic moisture regime<br><input type="checkbox"/> Fe/Mg recent concretions<br><input type="checkbox"/> Reducing conditions (a-a-dipyridil)<br><input type="checkbox"/> Gley<br><input type="checkbox"/> Chroma = 2/less in mottled, 1 or less in unmottled | Sandy hydric soil indicators - add:<br><input type="checkbox"/> Aquic moisture regime<br><input type="checkbox"/> High organic content in surface layer<br><input type="checkbox"/> Streaking of subsurface horizons by organic material<br><input type="checkbox"/> Organic accretions (muck balls just below surface)<br><input type="checkbox"/> Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)<br><input checked="" type="checkbox"/> Assume soils when all dominant plants are OBL and/or FACW |
|--|--|

Hydrology: Wetland hydrology present?  Yes  No standing water at west concrete storm drain and ~100' east of gravel rail pool ~20' long below Enterprise ditch  
 Depth of surface water ~4" Depth to free water in pit Enterprise ditch Depth to saturated soil surface

- |   |   |
|---|---|
| Water sources: <u>runoff</u><br>Primary wetland hydrology indicators:<br><input type="checkbox"/> Inundated<br><input checked="" type="checkbox"/> Saturated in upper 12" > 12.5% of growing season<br><input type="checkbox"/> Water marks<br><input type="checkbox"/> drift lines<br><input type="checkbox"/> Sediment deposits<br><input checked="" type="checkbox"/> Drainage pattern in wetlands | Secondary indicators (need 2 or more):<br><input type="checkbox"/> Oxidized root channels in upper 12"<br><input type="checkbox"/> Water-stained leaves<br><input type="checkbox"/> Local soil survey data<br><input checked="" type="checkbox"/> Fac-neutral test (>50% dom = OBL, FACW+, FACW)<br><input type="checkbox"/> Other: |
|---|---|

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: CDOT R 4 Investigator: L. Backus

Site: ditches west side 75th ST, north of RR bridge Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Salix exigua</u>	<u>H</u>	<u>O3C</u>			
<u>Citrusium jubatum</u>	<u>H</u>	<u>FACW</u>			
<u>Carex emoryi</u>	<u>H</u>	<u>OBL</u>			
<u>Festuca pratensis</u>	<u>H</u>	<u>FAC</u>			
<u>Juncus spp.</u>	<u>H</u>	<u>-</u>			
<u>Populus deltoides saplings</u>	<u>H</u>	<u>FAC</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # \_\_\_\_\_ % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: runoff

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Routine Wetland Determination (1987 COE Wetlands Delineation Manual)

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Project, City/County, State: SH 7, Boulder, CO

Applicant/Owner: CDOT R-4 Investigator: L. Backus

Site: Ditch west side 75th St, south of RR bridge Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer Status	Dominant species	Layer Status
<u>Typha latifolia</u>	<u>H OBL</u>		
<u>Eleocharis palustris</u>	<u>H OBL</u>		
<u>Schoenoplectus purgens</u>	<u>H OBL</u>		

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 11-7A % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil surface

Water sources: \_\_\_\_\_

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Routine Wetland Determination (1987 COE Wetlands Delineation Manual)

Garb

Project, City/County, State: SH7, Boulder, CO

Applicant/Owner: CDOT R4 Investigator: L. Rackus

Site: East side 75th St, North of RR bridge Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No

Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No

Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes  No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Schoenoplectus purgens</u>	<u>H</u>	<u>OBL</u>			
<u>Carex praegracilis</u>	<u>H</u>	<u>FACW</u>			
<u>Critesium jubatum</u>	<u>H</u>	<u>FACW</u>			
<u>Elytrogia repens</u>	<u>H</u>	<u>FAC</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'

Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.

Photo # 14-16 → SE % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)

appears to continue east to Dry Creek, band of Salix exigua at toe of R Rembankment  
one wetland a + b one area west of fence

Soils: Wetland soils present?  Yes  No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%

Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

Non-sandy hydric soil indicators:

- Histosol
- Histic epipedon
- H2S odor
- Aquic moisture regime
- Fe/Mg recent concretions
- Reducing conditions (a-a-dipyridil)
- Gley
- Chroma = 2/less in mottled, 1 or less in unmottled

Sandy hydric soil indicators - add:

- Aquic moisture regime
- High organic content in surface layer
- Streaking of subsurface horizons by organic material
- Organic accretions (muck balls just below surface)
- Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)

Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes  No

standing water at cross drain

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil \_\_\_\_\_

Water sources: \_\_\_\_\_

Primary wetland hydrology indicators:

- Inundated
- Saturated in upper 12" > 12.5% of growing season
- Water marks
- drift lines
- Sediment deposits
- Drainage pattern in wetlands

Secondary indicators (need 2 or more):

- Oxidized root channels in upper 12"
- Water-stained leaves
- Local soil survey data
- Fac-neutral test (>50% dom = OBL, FACW+, FACW)
- Other: \_\_\_\_\_

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes  No

Project, City/County, State: SH7, Boulder CO  
 Applicant/Owner: COOTRY Investigator: L. Rackus  
 Site: City Open Space, east side 75th St, south of RR bridge Date: 6-12-01

Disturbed - Wetland indicators altered/removed w/in last 5 years by human activities/catastrophic natural events? Yes  No  
 Problem Area - Wetland indicators periodically lacking due to normal seasonal environmental variations? Yes  No  
 Ecological setting: rolling plains of east CO

Vegetation: Wetland vegetation present?  Yes No

Dominant species	Layer	Status	Dominant species	Layer	Status
<u>Typha latifolia</u>	<u>H</u>	<u>OBL</u>	<u>Elmrigia repens</u>	<u>H</u>	<u>FAC</u>
<u>Schrenoplectus pungens</u>	<u>H</u>	<u>OBL</u>	<u>Salix exigua</u>	<u>H</u>	<u>OBL</u>
<u>Phalaroides arundinacea</u>	<u>H</u>	<u>FACW</u>			
<u>Agrostis stolonifera</u>	<u>H</u>	<u>FACW</u>			
<u>Juncus spp.</u>	<u>H</u>	<u>-</u>			
<u>Eleocharis palustris</u>	<u>H</u>	<u>OBL</u>			

H - woody/non-wood <3.2'; S - woody >3.2', <3.0" dbh, T - woody >3.0" dbh of any height, V - woody, climbing >3.2'  
 Dominant species - most abundant species that exceed 50% of total cover, plus additional species comprising over 20% of total cover.  
 Photo # 13 <sup>→ SE</sup> % of dominants = OBL, FACW, FAC 100% (Wetlands - 50% or greater of dominants = OBL, FACW, FAC)  
25 <sup>→ SE</sup>  
extends south to Dry Creek  
includes small ditch at NE end - 9d

Soils: Wetland soils present?  Yes No

Map unit series and phase: \_\_\_\_\_ Hydric soils list? Yes No

Depth	Horizon	Matrix color	Mottle color	Mottle abundance/contrast	Texture, concretions, structure

Mottle abundance: few = <2%, common = 2-20%, many = >20%  
 Mottles prominent/distinct: same hue - value varies by 3 units, chroma by 2; different hue - value and chroma vary by 1 unit

- Non-sandy hydric soil indicators:
- Histosol
  - Histic epipedon
  - H2S odor
  - Aquic moisture regime
  - Fe/Mg recent concretions
  - Reducing conditions (a-a-dipyridil)
  - Gley
  - Chroma = 2/less in mottled, 1 or less in unmottled
- Sandy hydric soil indicators - add:
- Aquic moisture regime
  - High organic content in surface layer
  - Striking of subsurface horizons by organic material
  - Organic accretions (muck balls just below surface)
  - Wet spodosol (dark red-br horizon beneath leached E horizon at water table depth)
- Assume soils when all dominant plants are OBL and/or FACW

Hydrology: Wetland hydrology present?  Yes No

Depth of surface water \_\_\_\_\_ Depth to free water in pit \_\_\_\_\_ Depth to saturated soil surface in meadow

- Water sources: runoff, high groundwater table?
- Primary wetland hydrology indicators:
- Inundated
  - Saturated in upper 12" > 12.5% of growing season
  - Water marks
  - drift lines
  - Sediment deposits
  - Drainage pattern in wetlands
- Secondary indicators (need 2 or more):
- Oxidized root channels in upper 12"
  - Water-stained leaves
  - Local soil survey data
  - Fac-neutral test (>50% dom = OBL, FACW+, FACW)
  - Other:

Wetland Determination: Does this sampling point meet all 3 wetland criteria?  Yes No

**Wetland Mitigation Site Selection Form**  
**Colorado Department of Transportation**  
 Attachment to Wetland Finding

Project Name/No. SH 7 Cherryvale Road to 75<sup>th</sup> Street, STA 0072 -013 Subaccount \_\_\_\_\_  
 Region 4 Author Laura Backus Firm Carter & Burgess Date 4-18-2006

<b>Mitigation Options</b>	(1) Mitigation bank available? Yes	
	(2) Project impacts in 1°, 2° service area? Yes	(3) HUC units NA – ditch wetlands
	(4) On-site mitigation available? No	
	(5) Off-site mitigation available? No	
	(6) In-lieu fee arrangement? In-lieu fee sponsor? No	
	(7) Mitigation ratio(s) other than 1:1 involved? No	Ratio(s) NA

<b>Site Characteristics</b>	<b>Impact Site</b>	<b>Mitigation Site</b>
(8) Geographic location	R70W, T1N, S 25, 26, 27, 34, 35, 36	Wetland mitigation bank (in primary service area of 3 banks)
	Emergent – 80% Scrub/shrub – 20%	Varies
(9) Wetland community type, pct.	GW-L, SS-M; SR-M, WH-L	Varies
(10) Functions, values		
(11) Size of impacts, pct. of total area?	0.32 acre, 50% of wetlands in narrow study area	NA

<b>Wildlife/Habitat</b>	(12) T&E species/habitat present?	No	Corps of Engineers approved bank
	(13) Species? Status?	NA	“
	(14) Migratory Bird Treaty Act?	No	“
	(15) Other wildlife issues	No	“
	(16) Status of aquatic resource?	NA	“
	(17) Special aquatic site?	Wetlands	“
	(18) Unique? Quality? Ranking?	No, L-M, none	“
(19) Watershed, ecosystem issues?	No	“	

<b>Other</b>	(20) Likelihood of success?	NA	Bank
	(21) Interagency agreement?	NA	No
	(22) Project logistics, size/scope?	NA	Ditch wetlands
	(23) Cost considerations?	NA	Ditch wetlands
	(24) Buffer used:	NA	Bank

<b>Water Issues</b>	(25) Individual 404 permit condition?	No
	(26) 404(b)(1) Guidelines?	No
	(27) NWP gen., reg. conditions?	No
	(28) Regulatory letters?	No
	(29) S.B. 40?	No
	(30) Water rights issues?	No

<b>NEPA Issues</b>	(31) Cumulative impact issues?	No
	(32) Agency policy, input?	No
	(33) Public involvement?	No

**(34) Basis for Decision**

[Describe those factors from the front side that are instrumental in the selection of the chosen mitigation decision.]

SH 7 project impacts 0.32 acre of irrigation ditch and roadside ditch wetlands. The Transportation Equity Act for the 21<sup>st</sup> Century establishes a preference for mitigation banks, and the project site is within the primary service area of three Corps of Engineers approved wetland mitigation banks. No suitable sites for wetland mitigation such as natural drainages or wetland sites are present in the project area.

**(35) Decision**

Mitigation at a Wetland Mitigation Bank

**(36) Contingency Plans**

The project is within the primary service area of three wetland mitigation banks.

# ***Noise Analysis Technical Memorandum State Highway 7 Project, Phase 2***

*Prepared by:*  
**Carter=Burgess**

*Prepared for:*  
**Muller Engineering**

and



**Colorado Department of Transportation  
Region 4  
Greeley, Colorado**

**August 2007**

**NOISE ANALYSIS  
TECHNICAL MEMORANDUM  
STATE HIGHWAY 7 PROJECT, PHASE 2**

**C&B PROJECT NO.: 070702.401.1.0001**

*Prepared for:*

**MULLER ENGINEERING**

and

**COLORADO DEPARTMENT OF TRANSPORTATION  
REGION 4  
GREELEY, COLORADO**

*Prepared by:*

**CARTER & BURGESS, INC.  
707 17<sup>TH</sup> STREET, SUITE 2300  
DENVER, COLORADO 80202**

**FINAL REPORT**

**August 6, 2007**

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## 1.0 Introduction

The Colorado Department of Transportation is currently considering improvements for State Highway 7 from Cherryvale Road to 75<sup>th</sup> Street. The study area is located within the Boulder County in Colorado, just east of the City of Boulder. A small portion of the western edge of the study area falls within the city limits of Boulder. A detailed traffic noise analysis was conducted to determine the potential impact to receptors along the roadway for the first phase of the project in November 2001.

This technical report adheres to both the Colorado Department of Transportation's (CDOT) and Federal Highway Administration (FHWA) policy. The use of CDOT and FHWA policy has been used in this analysis to determine noise impact on existing and future planned development for the second phase of the project.

The purpose of this report is to document this work effort, including results and mitigation recommendations. This document provides the following information:

- Study area definition
- Description of the proposed action
- Overview of noise standards and fundamentals,
- Description of the methodology employed for the analysis,
- Description of the traffic data utilized in the analysis,
- Summary of the results,
- Findings from the assessment of feasibility and reasonableness of mitigation, and
- Recommended mitigation measures and next steps.

All model input and output files have been included in the appendix.

## 2.0 Study Area

**Figure 1** graphically defines the study area that was evaluated for this noise analysis. From the Cherryvale Road/SH7 intersection, the study area extends approximately 3.0 kilometers (1.9 miles) east along SH7 to the SH7/75<sup>th</sup> Street intersection. Both intersections were included in the analysis.

The major roadway within the study area is SH7, a continuous two-lane roadway with an east-west alignment. At Cherryvale Lane, SH7 widens to four lanes as it heads west into Boulder.

Existing land uses within the study area primarily include residential and commercial developments with some light industrial. Commercial developments within the study area include office, business, restaurant, school, and motel, all generally one or two stories tall. Residential uses primarily consist of single-family dwelling units. The study area also includes a church, which is located at the northwest corner of the SH7/75<sup>th</sup> Street intersection. The Boulder Technical Education Center and the Arapahoe Ridge High School are located to the south of SH7 along a 0.5-kilometer (1/3-mile) stretch of the roadway. These land uses are defined as "noise-sensitive" activity categories in Section 7.1. The adjacent land uses to the study area are generally at the same elevation as SH7.

Figure 1: Project Study Area



### 3.0 Proposed Action

The proposed transportation improvements evaluated consist of two alternatives, named the Two-Lane Alternative and the Four-Lane Option. The Two-Lane Alternative has two thru lanes in each direction from Cherryvale Road to the Boulder Valley School District entrance. In the westbound direction, there is a continuous right turn acceleration/deceleration lane that also functions as a bus bypass lane from east of 63<sup>rd</sup> to Cherryvale Road. In the eastbound direction, there is a continuous right turn acceleration/deceleration lane between the business access west of the Boulder Valley School District to east of the BVSD signal. From the BVSD signal to Westview Drive there is one thru lane westbound and two thru lanes eastbound. The second eastbound thru lane is dropped as a right turn lane at Westview Drive. There is a right turn lane in the westbound direction at Valtec lane. The two-lane section (one lane in each direction) continues past the Burlington Northern Railroad Crossing. After the railroad crossing, the roadway section widens to two lanes in each direction to the 75<sup>th</sup> Street improvements. The Four-Lane Option is identical to the Two-Lane Alternative between Cherryvale Road and the Boulder Valley School District entrance. The Four-Lane Option retains two lanes in each direction to 75<sup>th</sup> Street with deceleration lanes at Westview Drive and Valtec lanes.

For both alternatives, the roadway is an urban section with curb and gutter between Cherryvale Road and Westview Drive. Between Westview Drive and the Burlington Northern Railroad crossing, The Two-Lane Alternative is a rural section with 10-foot shoulders. Between the railroad crossing and 75<sup>th</sup> Street, SH7 is an urban section with curb and gutter; and between Cherryvale and 63<sup>rd</sup>, there is a raised median with left turn lanes. East of 63<sup>rd</sup> to the 75<sup>th</sup> Street improvements is a continuous 16-foot left turn lane.

Both alternatives require the existing hill east of Westview Drive to be lowered approximately thirteen feet. Retaining walls have been incorporated adjacent to the Burlington Northern Railroad crossing and as required to minimize impacts to private parking or private access roads.

### 4.0 NOISE STANDARDS & FUNDAMENTALS

There are three primary regulations that assist in the determination of noise impacts and when it is applicable to provide mitigation for impacted receivers:

- *Federal Highway Administration's (FHWA) Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR Part 772)*
- *Federal Highway Administration, Highway Traffic Noise Analysis and Abatement, Policy and Guidance, June 1995*
- *Colorado Department of Transportation, Noise Analysis and Abatement Guidelines, December 2002*

These documents collectively establish noise thresholds based on land use. Land uses are categorized and hourly noise level maximums have been established. A complete list of Noise Abatement Criteria (NAC) and each land use threshold has been included in **Table 1**.

**Table 1: Noise Abatement Criteria (NAC)  
Hourly A-Weighted Sound Level (dBA)**

Activity Category	CDOT Leq (h) (hourly)	Description of Activity Category
A	56 (exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the 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.

Source: Colorado Department of Transportation, *Noise Analysis and Abatement Guidelines*, December 2002.

The following terms are used to quantify impacts and define sound levels. The following is a brief summary of key terminology:

- Decibel**      A decibel is a unit of measure for sound. Decibels are presented with the units dB(A).
- dB(A)**        dB(A) represents the noise levels in decibels measured with an A-weighted frequency. The A-weighting corresponds to the A-scale on a standard sound level instrument that closely approximates frequencies that the human ear can detect.
- Leq(h)**        Leq(h) is defined as the sound level for a specified time period. For normal human hearing, the actual sound level measurement is modified by applying A weighting. The A-weighted sound level is the most widely used measure of environmental noise.

Noise impacts occur when existing or future predicted noise levels exceed the levels shown in **Table 1**. Impact also occurs when future noise levels “substantially” exceed existing noise levels by 10 decibels.

**Table 2** provides a list of common outdoor noise levels. These noise levels can be used as a point of reference for those presented in **Table 1**.

**Table 2: Common Outdoor Noise Levels**

Common Outdoor Noise Levels	Noise Level (dBA)
Diesel Truck at 15 meters	90
Noisy Urban Daytime	80
Commercial Area	65
Quiet Urban Daytime	50
Quiet Urban Nighttime	40
Quiet Suburban Nighttime	35
Source: "Guide on Evaluation and Abatement of Traffic Noise" (American Association of State Highway and Transportation Officials, 1993).	

## 5.0 Methodology

The major work elements associated with this traffic noise analysis included the following items:

1. Inventory of land uses (identify "noise-sensitive" developments).
2. Collect field noise measurements, traffic counts and speeds.
3. Validate the noise model.
4. Existing conditions model runs using STAMINA. Peak hour conditions used to represent worst-case noise scenario.
5. Future year model runs using STAMINA.
6. Determination of noise impacts.
7. Consideration of feasible and reasonable noise abatement measures.

The methodology employed for this analysis is consistent with both FHWA and CDOT guidelines for analyzing traffic noise. FHWA's noise prediction model (STAMINA 2.0) was utilized for this analysis, using Colorado 1995 vehicle noise emission factors. The basic inputs to noise modeling include roadway network layout, site characteristics, traffic volume projections, fleet mix, and vehicular operating speeds. Roadway and residential receiver geometry was included based on a preliminary civil design CAD file and aerial photography.

## 6.0 Traffic Data

Traffic counts of existing conditions and traffic volumes from the 2030 traffic model of the Denver Regional Council of Governments (DRCOG) were used to derive peak hour volumes in the noise models for this study. The existing (year 2004) average daily traffic (ADT) is approximately 18,600 total vehicles. Future (year 2030) ADT is projected to be approximately 25,600 total vehicles. A vehicle mix of 97% automobile, 2% buses and medium trucks, and 1% heavy trucks was used in the analysis. The morning and evening split of traffic in the eastbound

direction and westbound direction was determined by modeled traffic patterns. The detailed traffic data used in the analysis is included in the Appendix A.

## 7.0 Noise Analysis

### 7.1. LAND USE INVENTORY

Several areas of noise-sensitive land uses exist along the project corridor. A mobile home park, a church, and single-family residential units are all present along the corridor. A total of 9 locations were field monitored for noise while 39 receivers were modeled in order to represent the Category B and C receivers along the corridor.

Two residences located south of SH7 and between Cherryvale and 63<sup>rd</sup> Streets are located on parcels that are slated to become the site of Cherryvale Commons, a future commercial development. These sites are represented in the models as Receptor SW10. Receptor SW9 in the same area, has been torn down since field measurements were taken at the start of the project. Residences located north of SH7 in the 6300 block are vacant and the buildings are in conditions that render them uninhabitable at this time. They are represented in the models as Receptors NW3 and NW4.

### 7.2. EXISTING NOISE LEVELS—NOISE MEASUREMENTS

Noise measurements were taken at nine different sites (see **Figure 2**) to determine the existing noise conditions. The on-site measurements ranged from 60.6 to 69.9 dB(A). All on-site noise measurements were taken during the PM (4:00 PM – 6:00 PM) peak periods. Field measurements at the monitoring locations were generally taken at the closest point of the structure or closest outdoor use area to the roadway. **Table 3** summarizes the results of the on-site measurements. Locations for existing monitoring locations are included on **Figure 3**. The existing noise levels do not approach or exceed the NAC, as defined in **Table 1**, at any of the monitoring locations.

**Table 3: Existing Noise Levels**

Site	Category	Location	Monitored Noise (dBA)	Modeled Noise (dBA)
1	B	Church at northwest corner of SH7/75 <sup>th</sup> St.	65.3	63.8
2	C	Restaurant at southwest corner of SH7/75 <sup>th</sup> St.	63.5	62.8
3	B	Church at southwest corner of SH7/Westview Dr.	60.9	59.5
4	B	Trailers at BVSD site	62.8	60.2
5	B	Tech school at 6500 Arapahoe Rd. (SH7)	61.8	60.4
6	B	Abandoned residence at 6437-6439 Arapahoe Rd. (SH7)	61.1	62.2
7	B	Trailer park southwest of SH7/63 <sup>rd</sup> St.	60.6	64.9
8	C	Commercial site at 6123 Arapahoe Rd. (SH7)	67.5	65.6
9	C	Historic structure at northeast corner of SH7/63 <sup>rd</sup> St.	69.9	70.7

Figure 2: Noise Modeling Sites

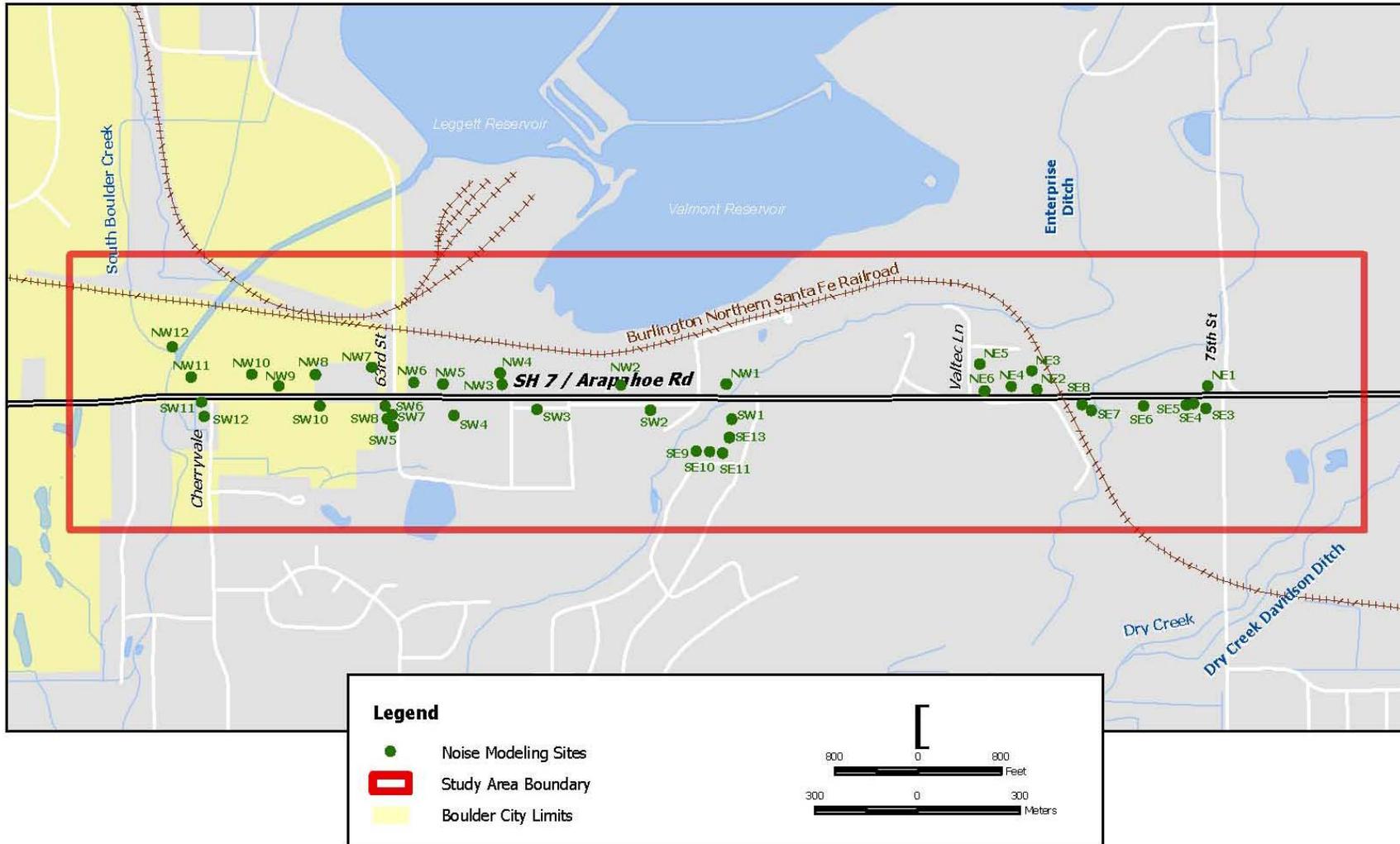


Figure 3: Noise Monitoring Locations



### 7.3. NOISE MODEL VALIDATION

FHWA's noise prediction model (STAMINA 2.0) was utilized to model existing and future noise conditions. The model calculates existing and future noise levels during the peak traffic period based on such variables as traffic volume, traffic speed, vehicle mix, and receptor distance from the roadway. Because the project was initiated prior to release of the FHWA approved TNM noise evaluation model, STAMINA 2.0 will be utilized for all analyses.

In order to accurately model future noise conditions, the STAMINA noise model must be validated to emulate the existing field conditions. The model run for existing conditions resulted in noise levels that were within 3 dB(A) as required by CDOT guidelines, except at one location. At location 7, the field measurements were approximately four decibels lower than the noise level predicted by the model. This difference is probably due to the storage units on either side of this location blocking some of the sound waves from actually reaching the receptor. Although the model tended to over-predict noise levels at this location, overall the noise model was found to perform acceptably for this project.

### 7.4. EXISTING CONDITIONS NOISE MODEL RUNS

Noise levels were modeled at 39 locations along SH7 to represent the receptors along the project corridor. These locations are listed in **Table 4**. According to the model, there are two residential and one commercial noise level above the NAC in the existing conditions model.

### 7.5. PREDICTION OF FUTURE NOISE LEVELS

Future conditions for the 2030 were modeled at the same 39 locations along SH7 as in the existing conditions model. The roadway alignments of both alternatives being evaluated were modeled. Morning and evening peak hour traffic volumes represent the predicted 2030 vehicle numbers. The No Action Alternative carries the same traffic volumes as the Two-Lane Alternative. Roadway differences between the two conditions include widening of shoulders and addition of auxiliary and turn lanes, which did not contribute significant changes to the noise regime for this area. The lowering of the road profile (elevation), widening and extensive road cuts at the hill by the BNRR railroad crossing increases local noise readings in the Four-Lane Option. Noise modeling results have been summarized in **Table 4**.

### 7.6. IMPACT ASSESSMENT

**Two-Lane Preferred Alternative.** According to the model, the Two-Lane Preferred Alternative would cause four of the modeled locations to have noise levels above the NAC in 2030. These 4 receptors approach or exceed the NAC with predicted future noise levels increasing between 3 and 5 dB(A). One of the sites, Receptor SW10 representing two residences, would experience noise levels above the impact NAC for Category B if either build alternative was constructed. Mitigation should be considered for this location. Receptors NE2, NE6 and SW7 would be acquired and removed, and therefore no mitigation needs to be considered for these locations. Therefore, mitigation does not need to be considered for this location. If, however, the condition of the structure should be improved and become habitable prior to construction of either build alternative, the location should be analyzed at that time for possible mitigation.

All remaining receivers falling below the NAC have modeled noise levels ranging from 53.8 to 67.2 dB(A) for Category B receivers and from 56.0 to 71.3 dB(A) for Category C receivers. Of these receivers, the greatest projected increase over existing noise levels is 3.4 dB(A).

Table 4: Noise Model Results (Peak Hour 2004 and 2030)

Site ID	Activity Category (#)*	AM 2004 Modeled Noise Level (dBA)	PM 2004 Modeled Noise Level (dBA)	AM 2030 No Action and 2-Lane Alternatives Modeled Noise Level (dBA)	PM 2030 No Action and 2-Lane Alternatives Modeled Noise Level (dBA)	AM 2030 Four Lane Option Modeled Noise Level (dBA)	PM 2030 Four-Lane Option Modeled Noise Level (dBA)	Preferred Alternative Impact
NE1	B(1)	62.3	61.5	62.6	63.2	<b>66.0</b>	64.8	No
NE2	C(1)	<b>71.8</b>	<b>71.0</b>	Acquired	Acquired	Acquired	Acquired	No
NE3	B(1)	58.9	59.0	60.5	60.4	61.5	61.0	No
NE4	C(1)	66.9	66.5	68.0	68.4	66.7	65.7	No
NE5	C(1)	56.6	56.8	58.2	58.0	65.6	64.8	No
NE6	C(1)	70.7	69.9	Acquired	Acquired	Acquired	Acquired	No
SE3	C(1)	56.8	58.4	59.5	57.8	63.8	65.0	No
SE4	C(1)	59.2	61.4	62.6	60.3	66.7	68.5	No
SE5	B(2)	58.0	60.2	61.4	59.1	65.6	64.8	No
SE6	B(1)	60.3	60.6	62.0	61.7	65.0	<b>66.4</b>	No
SE7	B(1)	59.8	60.5	61.9	61.2	61.6	61.6	No
SE8	B(1)	62.4	63.3	64.7	63.8	65.0	<b>66.4</b>	No
SE9	B(1)	52.6	53.3	54.2	54.1	-	-	No
SE10	B(1)	52.5	53.2	54.2	54.0	-	-	No
SE11	B(1)	52.4	53.1	54.1	53.8	-	-	No
SE13	B(1)	54.6	55.3	56.3	56.1	-	-	No
NW1	B(1)	62.7	63.0	63.8	64.1	65.1	64.1	No
NW2	C(1)	64.2	64.5	65.3	65.6	65.2	64.2	No
NW3	B(1)	63.5	64.0	65.4	65.3	<b>66.4</b>	<b>66.1</b>	No
NW4	B(1)	58.7	59.3	60.8	60.5	63.3	62.2	No
NW5	C(1)	61.8	62.3	63.8	63.6	64.4	64.2	No
NW6	C(2)	61.3	61.8	63.1	63.0	69.9	69.1	No

**Table 4: Noise Model Results (Peak Hour 2004 and 2030)**

Site ID	Activity Category (#)*	AM 2004 Modeled Noise Level (dBA)	PM 2004 Modeled Noise Level (dBA)	AM 2030 No Action and 2-Lane Alternatives Modeled Noise Level (dBA)	PM 2030 No Action and 2-Lane Alternatives Modeled Noise Level (dBA)	AM 2030 Four Lane Option Modeled Noise Level (dBA)	PM 2030 Four-Lane Option Modeled Noise Level (dBA)	Preferred Alternative Impact
NW7	C(1)	57.7	58.3	59.4	59.0	59.2	59.3	No
NW8	C(1)	54.8	55.6	56.6	56.1	61.4	61.4	No
NW9	C(1)	67.8	67.6	68.6	68.9	67.6	67.0	No
NW10	C(1)	61.1	61.4	62.4	62.3	61.3	61.2	No
NW11	C(1)	53.5	54.1	55.2	54.7	62.0	61.6	No
NW12	C(1)	67.6	67.6	68.7	69.0	50.4	50.6	No
SW1	B(1)	58.7	59.6	60.5	60.2	60.9	61.9	No
SW2	B(1)	61.7	62.7	63.6	63.3	61.3	62.1	No
SW3	C(1)	61.6	62.7	64.1	63.6	65.8	66.9	No
SW4	C(1)	60.5	61.5	62.9	62.4	62.8	63.6	No
SW5	B(2)	62.2	63.2	64.4	63.6	64.0	65.0	No
SW6	B(2)	58.3	59.2	60.4	59.8	64.2	65.2	No
SW7	B(1)	<b>68.1</b>	<b>69.7</b>	Acquired	Acquired	Acquired	Acquired	No
SW8	B(2)	60.7	61.7	62.8	62.1	64.6	65.7	No
SW10	B(2)	65.9	<b>67.4</b>	<b>68.4</b>	<b>67.2</b>	<b>67.6</b>	<b>69.1</b>	<b>Yes</b>
SW11	B(1)	57.9	58.8	59.8	59.1	<b>68.7</b>	<b>70.7</b>	No
SW12	B(1)	55.4	56.4	57.5	56.6	60.7	61.7	No

\*Number of individual dwelling units or businesses represented by the modeling site.

**Four-Lane Option.** According to the model, the Four-Lane Option would cause nine of the modeled locations to have noise levels above the NAC in 2030. These areas approach or exceed the NAC with predicted future noise levels increasing between 2 and 5 dB(A) over existing noise levels.

- Receptors NE2, NE6 and SW7 would be acquired and removed, and therefore no mitigation needs to be considered for these locations.
- Receptor NE1, the City on the Hill Church, would experience noise levels at the 66 decibel NAC during peak afternoon travel periods in 2030. Because of the location at the corner of SH 7 and 75<sup>th</sup> Street, noise walls located within right-of-way would not be feasible for intersection line of sight safety and driveway accessibility reasons. Visibility of the church from the roadways is considered important. Therefore no further consideration of noise abatement mitigation was considered. If noise levels reach a greater level, such that indoor use of the church becomes impaired, then a noise reassessment at this location should be undertaken in the future.
- Receptor SE6 would experience noise levels above the 66 decibel NAC during peak afternoon travel periods in 2030. This receiver is located along the south side of Arapahoe Road east of the Burlington Northern Railroad freight line. Mitigation should be considered for this location. It is included in the mitigation analyses.
- Receptor SE8 would experience noise levels above the 66 decibel NAC during peak afternoon travel periods in 2030. This receiver is located 8 feet above SH 7 on a hillside, adjacent to the Burlington Northern Railroad freight line. The roadway in this area will be lowered approximately 13 feet. A slope cut will be required between the residence and SH 7 to accommodate the new roadway height and width. The right-of-way does not reach the top of the slope; therefore, a noise wall located within right-of-way would by necessity have to be constructed along the outside shoulder of the eastbound roadway. The required noise wall height to achieve a minimum 5 decibel noise reduction would exceed a height of 25 feet, and resultant shading issues with icing along the shadow zone of the downhill eastbound highway lanes would present a safety issue. Therefore no further consideration of noise abatement mitigation was considered.
- Noise levels at Receptor NW3 would be above the NAC for Category B in 2030. Two of the three residential structures represented by Receptors NW3 and NW4 have been abandoned for that use, and in their current condition are uninhabitable. However, because these structures have not yet been removed and re-occupancy is possible, mitigation should be considered.
- Receptor SW10 representing two residences, would experience noise levels above the impact NAC for Category B if the build alternative is constructed. Mitigation should be considered for this location.
- Receptor SW11, a private residence, would experience noise levels above the 66 decibel NAC during both morning and afternoon peak travel periods in 2030. Because of the location at the intersection of SH 7 and Cherryvale Road, noise walls located on right-of-way of SH 7 and Cherryvale Road capable of reducing noise levels the required minimum 5

decibels would not be feasible for line of sight and safety reasons. Therefore no further consideration of noise abatement mitigation was considered.

All remaining receivers falling below the NAC have modeled noise levels ranging from 60.6 to 65.1 dB(A) for all Category B receivers and from 56.4 to 69.9 dB(A) for Category C receivers. Of these receivers, the greatest projected increase over existing noise levels is 8.5 dB(A).

### **7.7. MITIGATION ANALYSIS—REASONABLENESS AND FEASIBILITY**

Once a noise impact is determined to result from the proposed improvements, a Reasonableness and Feasibility analysis must be conducted to determine if mitigation is warranted at these locations. Mitigation should consider all possible noise abatement measures for reasonableness and feasibility. These include noise barriers or walls, earthen berms, creating buffer zones of undeveloped land, planting vegetation, traffic management, installing noise insulation on buildings and relocating the highway.

According to FHWA and CDOT guidelines, the “feasibility and reasonableness” of mitigation needs to be considered for all locations that are projected to experience noise impacts. The feasibility analysis of mitigation considers such factors as the effectiveness of a barrier to achieve a 5-dBA reduction in predicted future noise levels, construction, engineering, maintenance or other design issues. Mitigation measures are considered feasible if they can achieve a noise reduction of 5-dBA for at least one receiver. They should not create any safety or unacceptable maintenance problems. Noise mitigation is considered reasonable if it meets certain criteria, such as the cost per receiver per decibel of noise reduction and type of land use protected. For example, business districts typically do not receive noise mitigation, as noise barriers would block the view of businesses from motorists.

Relocating the highway, creating buffer zones, constructing earth berms and planting vegetation are not feasible in this situation because these abatement measures require large amounts of land to achieve the necessary noise reductions. The surrounding land use in the project area prohibits acquiring the space needed for these abatement measures. Traffic management, such as limiting truck traffic on the highway, is not feasible because of the status of SH 7 as a major highway and the commercial and light industrial uses along the highway. Because of the high cost, installing noise insulation on buildings is usually reserved for public buildings such as schools or hospitals. For these reasons, noise barriers seem to be the most appropriate noise abatement measure for this project. Noise mitigation models were run to test the reasonableness and feasibility of noise walls. Note that a unit noise wall cost of \$30 per square foot was used in all of the calculations, according to current CDOT guidelines. Noise abatement structures were analyzed for one impacted area according to CDOT guidelines.

#### **Mitigation Barrier—All Build Alternatives**

##### **Mitigation Barrier at SW10**

A noise barrier was analyzed for Site SW10, which consists of two residences located at 6160 and 6180 Arapahoe Road. Noise mitigation at this site is not recommended because the resultant cost-benefit was unreasonable according to CDOT and FHWA guidelines. The feasible and reasonable analyses are detailed in Appendix B of this report.

An effective noise reduction of 5.7 decibels could be achieved at this location by constructing a continuous six-foot noise wall that is 310 feet long. The noise wall would require relocation of the two residential driveway accesses. Any gaps in the wall would decrease the effectiveness of

the noise abatement, making the wall infeasible. The wall is shown in **Figure 4**, illustrating the gaps created by intervening driveway access points. Construction of a continuous wall should not create safety hazards for vehicles or pedestrians along SH 7. The cost of a continuous wall of these dimensions would be approximately \$55,800. Using the CDOT criterion for cost benefit in determining the reasonableness of noise abatement discussed in the paragraphs above, the cost benefit of this noise wall would be approximately \$4,895 per receiver per decibel noise reduction. CDOT considers any amount over \$4,000 not reasonable. Noise mitigation at this location is not recommended because, although relocating the two accesses would make this wall feasible, the extraordinary cost/benefit ratio would make the wall unreasonable.

### **Mitigation Barrier—Four- Lane Option Only**

#### **Mitigation Barrier at SE6**

A noise barrier was analyzed for Receptor SE6 a residence located along the south side of SH 7. Noise mitigation at this site is not recommended because the resultant cost-benefit was unreasonable according to CDOT and FHWA guidelines. The feasible and reasonable analyses are detailed in Appendix B of this report.

An effective noise reduction of 5.2 decibels could be achieved at this location by constructing a 18-foot noise wall of 180 foot length. The wall is shown in **Figure 5**. Construction of a continuous wall would likely cause icing safety hazards for vehicles along the eastbound lanes of SH 7 making this noise mitigation not feasible. The cost of a continuous wall of these dimensions would be approximately \$97,200. Using the CDOT criterion for cost benefit in determining the reasonableness of noise abatement discussed in the paragraphs above, the cost benefit of this noise wall would be approximately \$18,690 per receiver per decibel noise reduction. CDOT considers any amount over \$4,000 not reasonable. Noise mitigation at this location is not recommended.

#### **Mitigation Barrier at NW3**

A noise barrier was analyzed for Sites NW3 and NW4, which consists of two currently abandoned residences located along the north side of Arapahoe Road and 1 residence located behind NW3 as a second row receiver. Noise mitigation at this site is not recommended because the resultant cost-benefit was unreasonable according to CDOT and FHWA guidelines. The feasible and reasonable analyses are detailed in Appendix B of this report.

An effective noise reduction of 6.5 decibels could be achieved at this location by constructing a 10-foot noise wall of 220 foot length. The noise wall would require relocation of one residential driveway access. Any gaps in the wall would decrease the effectiveness of the noise abatement, making the wall infeasible. The wall is shown in **Figure 6**, and illustrates the gap created by the intervening driveway. Construction of a continuous wall should not create safety hazards for vehicles or pedestrians along SH 7. The cost of a continuous wall of these dimensions would be approximately \$66,000. Using the CDOT criterion for cost benefit in determining the reasonableness of noise abatement discussed in the paragraphs above, the cost benefit of this noise wall would be approximately \$5,077 per receiver per decibel noise reduction. CDOT considers any amount over \$4,000 not reasonable. Noise mitigation at this location is not recommended because, although relocating the access would make this wall feasible, the excessive cost/benefit ratio would make the wall unreasonable.

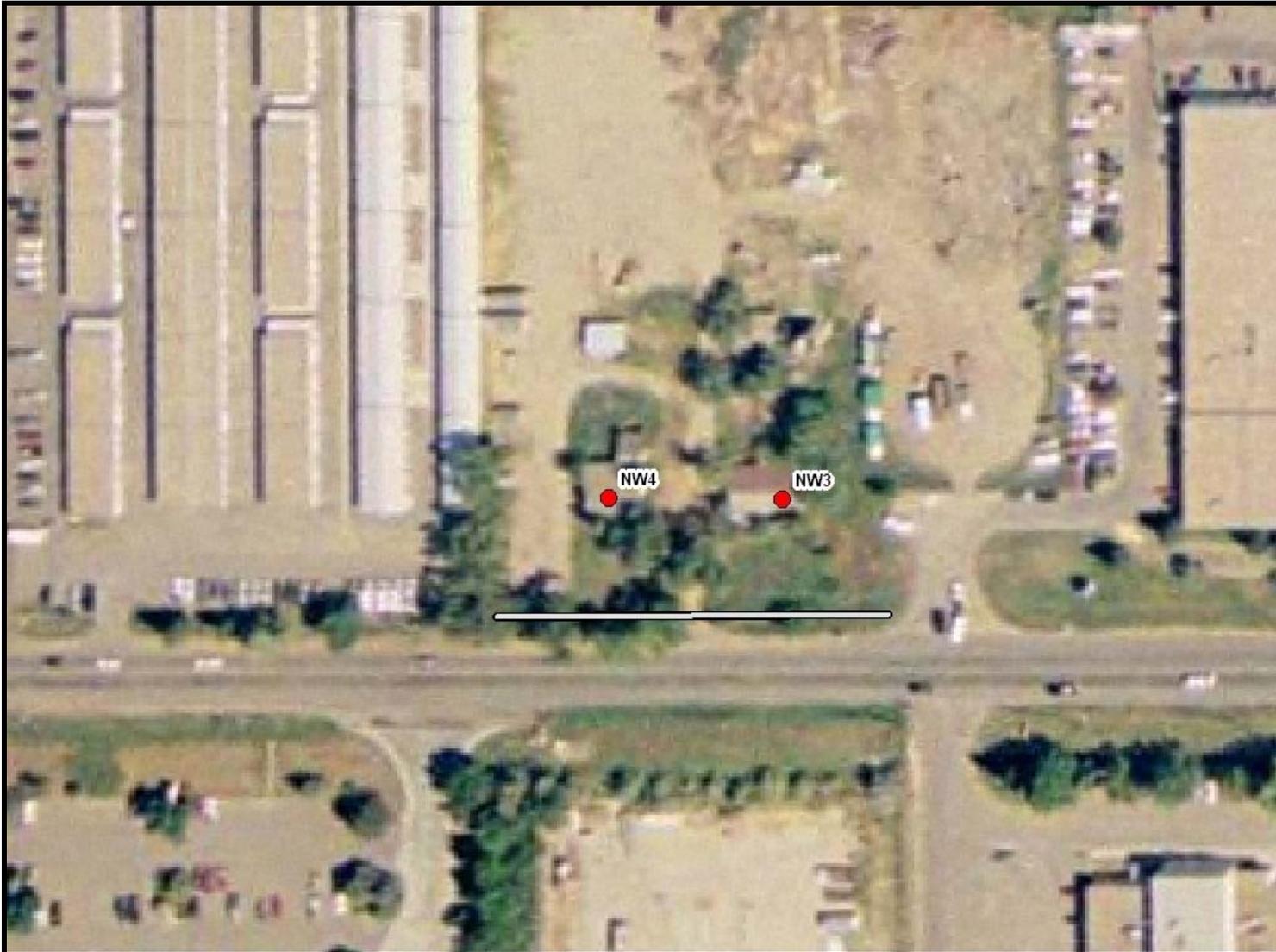
Figure 4: Preliminary Noise Barrier



Figure 5: Preliminary Noise Barrier



Figure 6: Preliminary Noise Barrier



## 8.0 Recommendation

No noise mitigation is recommended for either alternative. If the structures at 6160 and 6180 Arapahoe Road still exist and development of the commercial center in this area is not scheduled to proceed in the foreseeable future, and there are changes to the final design of the project, a noise barrier should be reconsidered for these residences prior to final design of the selected alternative.

**APPENDIX A:  
2004 AND 2030 TRAFFIC DATA  
(INCLUDED IN FULL TECHNICAL REPORT)**

**APPENDIX B:  
CDOT FORM 1209  
(INCLUDED IN FULL TECHNICAL REPORT)**

**APPENDIX C:  
STAMINA 2.0 INPUT AND OUTPUT FILES  
(INCLUDED IN FULL TECHNICAL REPORT)**

**SH 7**

*Cherryvale Rd. to 75th St.*

**Environmental Assessment**

CDOT No. STA 0072-013

**AIR QUALITY ANALYSIS  
TECHNICAL MEMORANDUM**

*Prepared for:*

Colorado Department of Transportation



*Prepared by:*

**Carter::Burgess**

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**February 28, 2007**

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## CHAPTER 1: PROJECT DESCRIPTION

### 1.1 Study Area

The study area extends along the SH 7 (Arapahoe Road) corridor from Cherryvale Road in the city of Boulder through its intersection with 75th Street in Boulder County, Colorado. The study area is predominantly in unincorporated Boulder County. SH 7 is a principal east-west arterial roadway serving as a commuter and intra-regional facility (see **Figure 1**). This important arterial roadway serves the communities of Lafayette, Louisville, Erie, and Boulder, as well as other communities to the east. The west end of the study area is predominantly characterized by urban residential, commercial, and light industrial uses. The middle segment is characterized by open space and vacant land. Finally, the east end is characterized by rural residential and commercial uses at the 75th Street intersection. The highway provides direct public access at intersections with Cherryvale Road, 62nd Street, 63rd Street, Westview Drive, Valtec Lane, and 75th Street. Direct access to abutting land serving residential, commercial, industrial, and public use is prevalent in the study area. In addition to SH 7, South Boulder Road, Baseline Road, and Valmont Road provide east-west travel options serving the eastern communities of Boulder County and the city of Boulder.

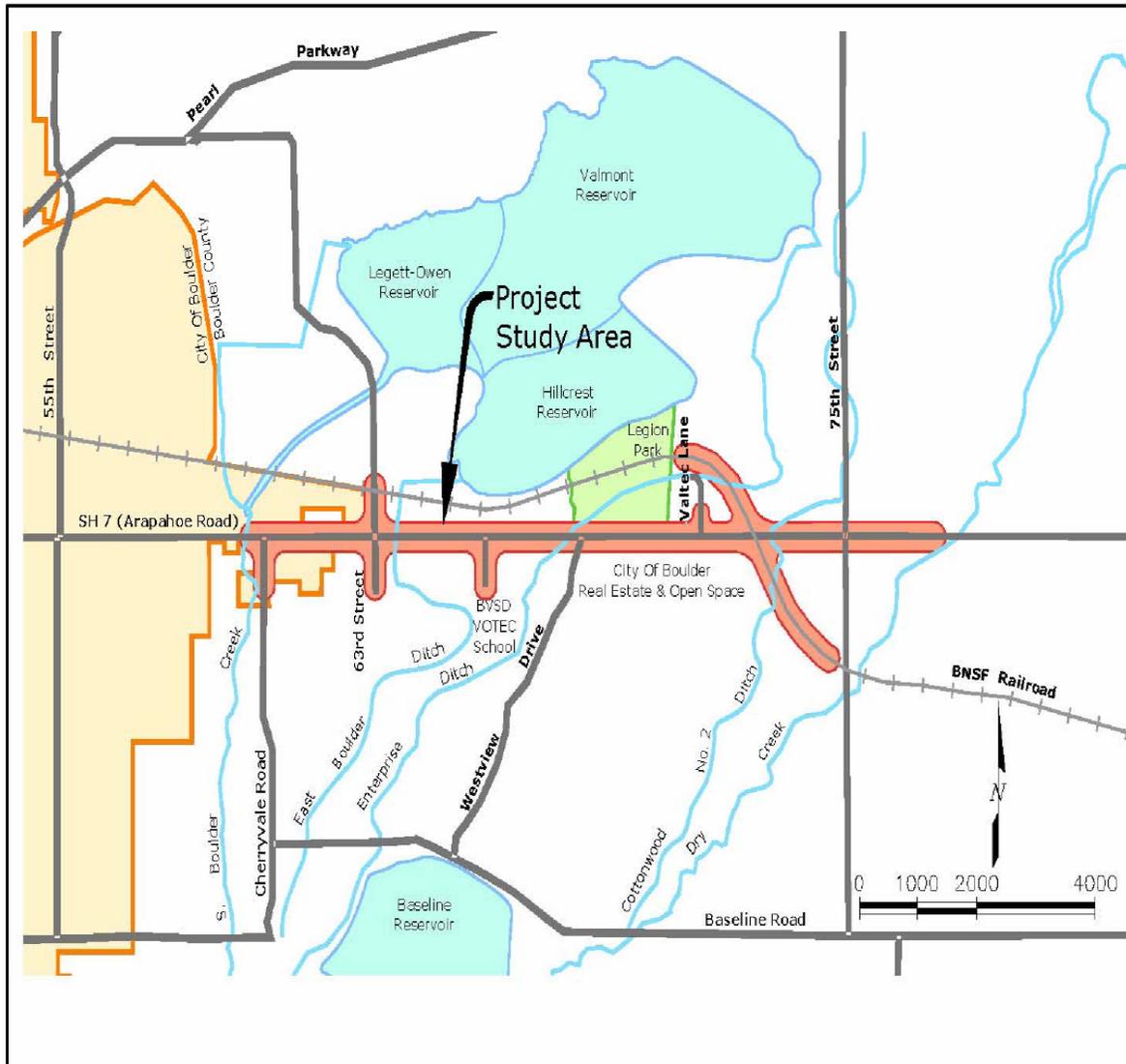
A Burlington Northern Santa Fe (BNSF) railroad line crosses SH 7 with an overpass in the study area. The existing railroad bridge structure only allows for a restricted roadway section, consisting of two travel lanes and minimal (two- to three-foot) shoulders. Modifications to the BNSF alignment are evaluated in this EA because changes to SH 7 precipitate impacts to the railroad crossing. Improvements to the safety and capacity of the BNSF railway are not included in this study.

### 1.2 Alternatives

#### **1.2.1 No Action Alternative**

The No Action Alternative includes no transportation improvements beyond the programmed improvements at the intersection of SH 7 and 75th Street. The SH 7 and 75th intersection has committed funds, is designed and cleared as a Categorical Exclusion and is anticipated to be constructed in 2006. This intersection project would include four through lanes of traffic along SH 7 with on-street bike lanes and sidewalks. The build alternatives would tie to the western extents of the intersection project. In addition, the City of Boulder has funding for intersection improvements for transit operations along SH 7 from Cherryvale Road to east of 63rd Street. These improvements include queue jump lanes, sidewalks, and connections to transit stops. The FHWA and the Federal Transit Administration (FTA), in cooperation with CDOT and RTD, are jointly conducting the U.S. 36 EIS identifying multimodal transportation improvements between Denver and Boulder. As part of this study, improvements including commuter rail are being considered along the existing BNSF railroad corridor that crosses SH 7. In addition to possible commuter rail service, a potential park-n-Ride is being considered in the vicinity of the SH 7 and 63rd Street intersection.

Figure 1  
Study Area Location Map



### 1.2.2 Preferred Alternative

The Preferred Alternative is the Four-Lane Alternative that consists of two through-traffic lanes in each direction from Cherryvale Road to 75<sup>th</sup> Street. The roadway is an urban section with curb and gutter except between Westview Drive and Valtec Lane, which is a rural 4-lane section with 10-foot shoulders. The section of roadway between Cherryvale Road and 63<sup>rd</sup> Street, at the Boulder Valley School District access, and the 75<sup>th</sup> Street approaches will have 2- to 4-foot wide, raised center medians. The remainder of SH 7 will utilize a center turn lane.

## CHAPTER 2: AIR QUALITY DISCUSSION

### 2.1 Introduction

The Clean Air Act of 1970 required the Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for pollutants which pose a risk to public health. The EPA has established standards for six pollutants: carbon monoxide (CO), ozone, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), nitrogen dioxide, sulfur dioxide, and lead. Areas where monitored values of any pollutant exceed the NAAQS are designated by EPA as nonattainment areas. Air quality monitoring in Colorado is conducted by the Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment. Nonattainment areas are required to prepare implementation plans for attaining the standard for each pollutant where there are violations of the NAAQS. 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 the EPA, the area is re-designated an attainment/maintenance area.

The study area for State Highway 7 (SH 7) Cherryvale to 75th Street has been re-designated attainment/maintenance for carbon monoxide, PM<sub>10</sub> and the 1-hour ozone standard. In 2004 the EPA designated the Denver metropolitan area as nonattainment for the 8-hour ozone standard. However, the nonattainment designation is deferred as long as the milestones in the Early Action Compact for Ozone are met. The Early Action Compact 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 July 31, 2007, and maintaining the standard into the future.

The most significant federal air quality regulation that applies to transportation projects is the transportation conformity rule. The purpose of this rule is to implement section 176(C) of the Clean Air Act, which requires all transportation plans, transportation improvement programs and transportation projects to: (a) 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; and (b) insure that these transportation activities will not:

- (i.) Cause or contribute to any new violation of any standard;
- (ii.) Increase the frequency or severity of any existing violation of any standard; and
- (iii.) Delay timely attainment of any standard or any required interim emissions reductions.

All projects in nonattainment or attainment/maintenance areas must have a project-level conformity determination unless they fit into the list of Exempt Projects of the conformity rule. Air quality issues must be addressed as part of the project environmental clearance process.

## 2.2 Existing Conditions

Air quality issues along the SH 7 study corridor include visibility and gaseous pollutant levels related to motor vehicle emissions and street sanding sources.

### 2.2.1 Traffic

The transportation and circulation system evaluated for air quality impacts consists of major intersections of 63rd Street, Boulder Valley School District Road, and 75th Street with SH 7. Data pertinent to traffic volumes and level of service (LOS) in this section are drawn from traffic data presented in Appendix A *Traffic Analysis*. LOS values for the various intersections of interest are listed in **Table 1**. Project level air quality analyses are typically completed for signalized intersections demonstrating deficient levels of service, LOS D or worse.

Table 1

Project Intersection Level of Service

Intersection	Existing	No Action	Preferred Alternative
75th Street and SH 7	E/E	E/E	C/C
Boulder Valley School District Road and SH 7	B/B	D/D	B/B
63rd Street and SH 7	C/C	E/D	B/B
Cherryvale and SH7	C/C	C/D	C/D

Weekday daily traffic volumes on SH 7 range from near 18,500 vehicles per day (vpd) at the east end of the project near 75th Street, and 25,000 vpd at the west end near Cherryvale Road. The existing daily traffic of 18,500 vpd produces an almost two-hour peak traffic period in the morning and another two-hour peak traffic period in the evening. The 75th Street intersection currently controls the peak hour traffic in the SH 7 corridor due to its intersection laneage restrictions. The existing AM and PM peak hour level of service for the 75th Street intersection is classified as level of service (LOS) E, a congested level of operation. The existing LOS for the AM and PM peak hour for the two-lane corridor segment from 63rd Street to 75th Street is classified as LOS E, with travelers experiencing significant delays and reduced travel speeds. Six levels of service are defined from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS E is generally considered to correspond to maximum capacity.

Traffic volumes are projected to increase in the future. The daily traffic forecast of 25,000 in 2030 is anticipated to result in at least three congested hours in each peak period. No improvements to the corridor will result in increasing congestion in the AM peak and PM peak periods in 2030. As traffic volumes increase, the two-lane corridor segments are anticipated to experience increasing congestions and to approach LOS F during the peak hours.

The programmed SH 7 and 75th Street intersection improvements will alleviate some of the congestion at the 75th Street intersection, resulting in a design year (2030) intersection LOS C.

### 2.2.2 National Ambient Air Quality Standards

The state of Colorado has adopted the NAAQS for these criteria pollutants as shown in **Table 2**. Geographic areas that violate a particular NAAQS pollutant standard are considered nonattainment areas for that pollutant. Violations are determined by a prescribed number of exceedances of the particular standard.

Table 2  
National Ambient Air Quality Standards for Criteria Pollutants

Pollutant/Averaging Time	Primary Standard	Secondary Standard
Particulate Matter less than 10 microns (PM <sub>10</sub> )		
Annual	50 ug/m <sup>3</sup>	50 ug/m <sup>3</sup>
24-hour	150 ug/m <sup>3</sup>	150 ug/m <sup>3</sup>
Particulate Matter less than 2.5 microns (PM <sub>2.5</sub> )		
Annual*	15 ug/m <sup>3</sup>	15 ug/m <sup>3</sup>
24-hour*	65 ug/m <sup>3</sup>	65 ug/m <sup>3</sup>
Sulfur Dioxide (SO <sub>2</sub> )		
Annual	80 ug/m <sup>3</sup> (0.03ppm)	--
24-hour	365 ug/m <sup>3</sup> (0.14ppm)	--
3-hour	--	1300 ug/m <sup>3</sup> (0.5ppm)
Nitrogen Dioxide (NO <sub>2</sub> )		
Annual	100 ug/m <sup>3</sup> (0.053ppm)	100 ug/m <sup>3</sup> (0.053ppm)
Ozone (O <sub>3</sub> )		
1-hour	235 ug/m <sup>3</sup> (0.12ppm)	235 ug/m <sup>3</sup> (0.12ppm)
8-hour	157 ug/m <sup>3</sup> (0.08ppm)	157 ug/m <sup>3</sup> (0.08ppm)
Carbon Monoxide (CO)		
8-hour	10,000 ug/m <sup>3</sup> (9 ppm)	--
1-hour	40,000 ug/m <sup>3</sup> (35 ppm)	--
Lead (Pb)		
Calender Quarter	1.5 ug/m <sup>3</sup>	--

\*The ozone 8-hour standard and the PM<sub>2.5</sub> standards are included for information only. These standards are currently not in use.  
ug/m<sup>3</sup> = micrograms per cubic meter      ppm = parts per million

Because of monitored violations of the 8-hour ozone standard in 2002 and 2003, state and regional air quality agencies in Denver metropolitan area have developed a plan for achieving this standard by December 31, 2007. The Early Action Compact for Ozone includes specific milestones that must be met to achieve the standard by July 31, 2007. The EAC was submitted to the EPA in July 2004. EPA has deferred nonattainment designation for the region as long as the area meets the milestones in the EAC.

New standards were instigated in 1997 for particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>). The APCD completed installation of PM<sub>2.5</sub> monitors in 2000 and the Denver metropolitan area including Boulder County is in attainment. The APCD also monitors for pollutants that do not have a national standard established. These "non-criteria" pollutants include nitric oxide, total suspended particulate, cadmium, arsenic, sulfates, and visibility.

Greenhouse gases (water vapor, carbon dioxide, methane, and nitrous oxide) and emissions are discussed in the 1998 CDPHE report, *Climate Change & Colorado—A Technical Assessment* and the November 2000 supplement. The APCD has developed several CO<sub>2</sub> reduction strategies and will be considering regional programs to reduce stationary, area and mobile CO<sub>2</sub> sources.

### 2.2.3 Climate and Meteorology

The study corridor is situated within the Colorado Front Range at an average elevation of 5,250 feet above sea level at SH 7 and 75th Street. The climate is moderate with average temperatures ranging from 36°F in January to 75°F in July, with low relative humidity. The average annual precipitation is 15 to 20 inches with annual snowfall averaging 79 inches since 1961. The predominant winds are from the southeast. Wind speeds can be highly variable. Gusty system front-generated winds over 50 mph are not uncommon.

### 2.2.4 Air Pollution Sources

The SH 7 study corridor contains neither industrialized areas nor power generating plants. Emission sources for this study corridor are generated from re-entrained dust and motor vehicle emissions.

### 2.2.5 Air Quality Monitoring

There are six monitoring stations near the general SH 7 study corridor. The monitoring station types are highlighted in **Table 3**. There are no monitors within the actual study corridor.

Table 3  
Air Quality Monitoring Stations near the Study Corridor

Monitoring Station	Monitored Critical Pollutants			
	CO	O <sub>3</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2150 28th Street, Boulder	X			
1405 ½ South Foothills, Boulder		X		
2102 Athens Street, Boulder				X
2440 Pearl Street, Boulder			X	X
3rd Avenue, Longmont			X	X
440 Main Street, Longmont	X			

### 2.2.6 Class I and II Visibility Areas

The EPA has designated a number of areas in the state of Colorado as Mandatory Class I Federal Areas where visibility is an important value. Generally, these areas contain wilderness areas greater than 5,000 acres or National Parks greater than 6,000 acres that are determined

to require special air quality. There are no Class I areas within the study corridor. The 263,138 acre Rocky Mountain National Park located 40 miles northwest of the study area is the closest Class I Federal Area.

There is one Class II wilderness areas within 30 miles west of the study corridor: the Indian Peaks Wilderness Area. Class II refers to EPA designated wilderness, park, scenic, or wildlife refuge areas that lack the critical air quality status of a Class I area.

### **2.2.7 State Implementation Plans and Air Quality Conformity**

Boulder County was historically classified as a moderate non-attainment area for PM<sub>10</sub> but was re-designated by the EPA for PM<sub>10</sub> attainment in August 2002. The EPA re-designated Boulder County as in attainment for CO in January 2002 for ozone in September 2001. The area is currently under approved maintenance implementation plans for all three pollutants. There are no non-attainment areas within the project study corridor, and no violations of the NAAQS in the project Area of Influence have been reported for since 1991.

The federal Clean Air Act requires states to submit plans, known as State Implementation Plans (SIP) to demonstrate how the state will meet the NAAQS for which they are designated non-attainment. As a part of the SIP development process, an emissions budget is established for non-attainment and maintenance areas to maintain the NAAQS. Because Boulder County is classified as a maintenance area for PM<sub>10</sub>, for ozone and CO, projected emissions of these pollutants resulting from transportation improvement plans (TIP) and RTPs (long-range plan) must not exceed the emissions budgets set forth in the SIP. Regional conformity for this project has already been determined by inclusion in the current conforming long-range plan and TIP.

In addition, the Colorado Air Quality Control Commission sets the requirements for air quality analysis for regional and "hot-spot" air quality on a project level. This includes the requirements for modeling and screening analysis of the selected project. These requirements have been incorporated in the air quality analysis for the SH 7 study area.

The Colorado Air Quality Control Commission on April 19, 2001 adopted the current PM<sub>10</sub> Re-designation Request and Maintenance Plan for the Denver Metropolitan area.

Re-entrained dust from road sanding is a prime contributor to PM<sub>10</sub>. CDOT reduces street sanding emissions through the use of alternative de-icing compounds such as magnesium chloride, lower temperature "M-Caliber 1000 and 2000", and "Ice-slicer" and rapid sand clean up. Transportation control measures (TCM) have been proposed in the SIP to induce reduction of PM<sub>10</sub> emissions from mobile sources.

## **2.3 Environmental Consequences**

The study area is located in Boulder County which is included in the Denver metropolitan attainment/maintenance area for carbon monoxide (CO), ozone, and particulate matter (PM<sub>10</sub>). Therefore, the conformity provisions of the federal Clean Air Act apply. The impacts of motor vehicle emissions in the study area on concentrations of CO, ozone, and PM<sub>10</sub> were analyzed for the Preferred Alternative. Pollutant concentrations, rather than total emissions, are a better

indicator of project level air quality impacts because they can be compared to the federal standards that were established to protect public health.

### 2.3.1 Carbon Monoxide

Carbon monoxide concentrations in the study area were calculated for future (2025) traffic conditions for the build alternatives (see **Table 4**). CO concentrations were modeled using 2025 peak hour traffic volumes and motor vehicle emission rates at the 75th Street intersection which has the same configuration and same general traffic volume for both build alternatives. CO modeling at SH 7 and 75th Street results in a 5.5 ppm concentration, well below the CO NAAQS of 9ppm. Traffic volumes consistent with the most recent RTP, the Metro Vision 2030 Regional Transportation Plan, are slightly lower than the estimates used in the 2025 modeling. Because emission rates have been consistently decreasing from 2025 to 2030 plans, the original CO modeling for this intersection represents the most conservative calculation of CO concentrations likely at this location. The numbers shown are “worst-case” CO concentrations for receptors located near the edge of the highway shoulder within 10 to 12 feet from the travel lane. CO concentrations at buildings and sensitive resources near the highway would be lower because most of the buildings are at least 40 feet from the highway and vehicle related emissions would experience some dispersion by wind and turbulence.

Table 4  
Carbon Monoxide Concentrations by Alternative

Alternative	2025 Traffic Volume (vpd)	2030 Traffic Volume (vpd)	NAAQS 8-hour CO	Maximum 8-hour CO concentration
Preferred	24,800	23,700	9 ppm	5.5 ppm
Optional	24,800	23,700	9 ppm	5.5 ppm

### 2.3.2 PM<sub>10</sub>

Motor vehicle related PM<sub>10</sub> emissions are the primary source of PM<sub>10</sub> in the study corridor. About 80 to 90 percent of vehicle related PM<sub>10</sub> is due to re-entrained dust associated with winter sanding operations. The remainder is due to exhaust, brake, and tire wear. Maximum PM<sub>10</sub> concentrations are based upon comparison with regional PM<sub>10</sub> modeling. The sixth highest PM<sub>10</sub> average daily concentration over a five-year period is typically used for comparison. The nearest point of comparison from the 2030 Denver regional attainment/maintenance PM<sub>10</sub> model with a similar or higher VMT is at I-25 near SH 7. This regional grid receptor (#155) for 2030 PM<sub>10</sub> concentrations provides a value of 89  $\mu\text{g}/\text{m}^3$ . The federal 24 hour PM<sub>10</sub> standard is 150  $\mu\text{g}/\text{m}^3$ . This suggests that PM<sub>10</sub> concentrations within the study corridor would remain below the federal standard.

### 2.3.3 Ozone

Ozone is not directly emitted by motor vehicles; it is an indirect by-product of motor vehicle emissions. Ozone is created by the reaction of nitrogen oxides (NOX) and volatile organic compounds (VOCs), primarily on hot summer days. Since ozone formation depends on the dispersion and reaction of the NOX and VOCs and occurs over several hours, ozone is

predominantly a regional pollutant and cannot be quantified at the project level. Regional modeling for the Denver ozone attainment/maintenance plan demonstrates continued attainment of the federal 1-hour ozone standard in the future. During the summer of 2004, there were no exceedances of federal 8-hour ozone standard.

### **2.3.4 Mobile Source Air Toxics**

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), 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). Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The 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.

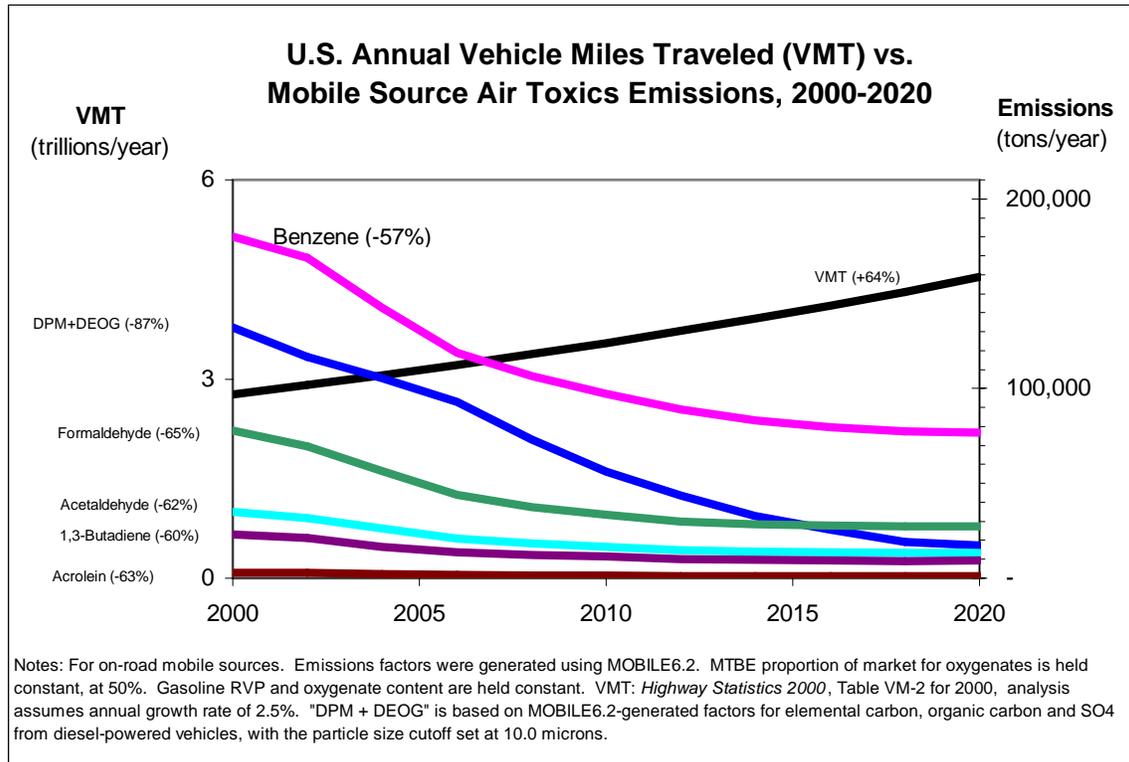
The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. 66 FR 17229 (March 29, 2001). This rule was issued under 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 **Figure 2**.

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.

### **2.3.5 Unavailable Information for Project Specific MSAT Impact Analysis**

This EA includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this EA. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information.

Figure 2  
Graph of VMT versus MSAT Emissions



**Information that is Unavailable or Incomplete.** Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

1. **Emissions:** The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model—emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 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 limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to

average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

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 more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.
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 accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. 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. 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 other project impacts 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 noncancer 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.

There have been other studies that address MSAT health impacts in proximity to roadways. 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 final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes—particularly respiratory problems<sup>1</sup>. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

***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.*** Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be 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 qualitative analysis of MSAT emissions relative to the various alternatives, and has acknowledged that 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 estimated.

### ***2.3.6 Project Level MSAT***

As discussed above, 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 project. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the 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: [www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm](http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm).

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<sup>1</sup> South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); 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.

For the Preferred Alternative 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 Preferred Alternative is slightly higher than that for the No Action, 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 (see **Table 4**). The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 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 Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded SH 7 roadway sections that would be built between Cherryvale Drive and 75th Street under the Preferred Alternative. However, as discussed above, the magnitude and the duration of these potential increases compared to the No Build 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 Build 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.

## 2.4 Mitigation

Motor vehicle emissions in the study corridor will not result in any exceedance of the NAAQS; therefore, no direct project air quality mitigation is necessary.

Dust emissions should be minimized by including techniques to control fugitive dust, such as watering construction areas, into construction plans and specifications, and implementing these measures during construction.

## **2.5 Coordination**

A request has been made to include all proposed improvements in an amendment to the DRCOG 2030 fiscally-constrained, conforming RTP. This must be completed prior to FHWA adoption of the final Decision Document. This project has been coordinated with CDOT and the APCD of the CDPHE. APCD concurrence was received January 19, 2006. The signed concurrence letter from the APCD is attached as Appendix B.

**APPENDIX A  
TRAFFIC DATA****(Included In Full Technical Report)**

**APPENDIX B  
CORRESPONDENCE**

DEPARTMENT OF TRANSPORTATION

4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9011



January 10, 2006

Margie Perkins  
Director, Air Pollution Control Division  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, CO 80222

Re: SH-7, Cherryvale Road to 75<sup>th</sup> Street Environmental Assessment

Dear Ms. Perkins:

The Colorado Department of Transportation is preparing an environmental assessment for proposed improvements to State Highway 7 (Arapahoe Road) between Cherryvale Road and 75<sup>th</sup> Street east of Boulder (see attached project vicinity map). Alternatives being evaluated include widening the existing segment of SH-7 to four lanes and intersection improvements (see attached project alternatives map).

The results of the traffic analysis showed that for any of the build alternatives, the two signalized intersections in the area included in the project improvements under the preferred alternative would operate at level of service (LOS) C or better in the year 2030 (please see attached traffic analysis summary). EPA modeling guidance states that intersections that operate at LOS C or better are not likely to cause a violation of the federal 8-hour average carbon monoxide (CO) standard. Thus, CO hotspot modeling for these intersections is not required.

One of the intersections reported in the EA, the intersection of 75<sup>th</sup> Street and SH-7, is projected to operate at LOS D with the preferred alternative. This intersection, however, was improved under a separate action and will not be changed with the preferred alternative for this project. Cleared under a categorical exclusion in 2002-2003 (please refer to the attached clearance letter prepared for this analysis in 2002), this intersection was modeled at that time, using estimated volumes for the 2025 future year. The resulting worst case 8-hour CO concentration was 5.5 ppm, which is below the 9.0 ppm standard. The traffic volumes that were used for that analysis were compared to the most recent projections developed for this EA to ensure that the 2002 analysis would still be appropriate. It was determined that the traffic volumes used for the previous analysis were higher than the most recent projections, thus the previous analysis represents a worst-case scenario that demonstrates that the CO standard will not be exceeded with the current project.

This project was originally included in the conforming 2025 Interim Denver Regional Transportation Plan (RTP) and the DRCOG 2003-2008 (now 2005-2010) Transportation Improvement Program (TIP #1997-033, STIP-ID# DR2072).

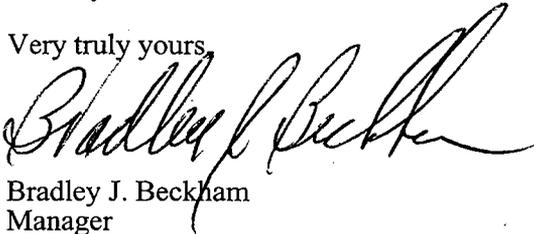
Pursuant to the conformity provisions of the Clean Air Act Amendments of 1990, this project will not:

- (i) cause or contribute to any new violation of any standard;
- (ii) increase the frequency or severity of any existing violations of any standard;
- (iii) delay timely attainment of any standard or any required interim emission reductions.

If you concur with the results of the air quality analysis and the conclusions regarding conformity of this project, please sign below and return this letter by February 10, 2006.

Thank you.

Very truly yours,



Bradley J. Beckham  
Manager  
CDOT Environmental Programs Branch

I Concur: Margie M. Perkins  
Margie Perkins, Director

1-19-06  
Date

**APPENDIX C  
HOT SPOT MODELING DATA  
(Included In Full Technical Report)**

**SH 7**

*Cherryvale Rd. to 75th St.*

## **Environmental Assessment**

CDOT No. STA 0072-013

### **AIR QUALITY ANALYSIS TECHNICAL MEMORANDUM**

*Prepared for:*

Colorado Department of Transportation



*Prepared by:*

**Carter::Burgess**

707 17<sup>TH</sup> STREET, SUITE 2300  
DENVER, COLORADO 80202

**February 28, 2007**

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## CHAPTER 1: PROJECT DESCRIPTION

### 1.1 Study Area

The study area extends along the SH 7 (Arapahoe Road) corridor from Cherryvale Road in the city of Boulder through its intersection with 75th Street in Boulder County, Colorado. The study area is predominantly in unincorporated Boulder County. SH 7 is a principal east-west arterial roadway serving as a commuter and intra-regional facility (see **Figure 1**). This important arterial roadway serves the communities of Lafayette, Louisville, Erie, and Boulder, as well as other communities to the east. The west end of the study area is predominantly characterized by urban residential, commercial, and light industrial uses. The middle segment is characterized by open space and vacant land. Finally, the east end is characterized by rural residential and commercial uses at the 75th Street intersection. The highway provides direct public access at intersections with Cherryvale Road, 62nd Street, 63rd Street, Westview Drive, Valtec Lane, and 75th Street. Direct access to abutting land serving residential, commercial, industrial, and public use is prevalent in the study area. In addition to SH 7, South Boulder Road, Baseline Road, and Valmont Road provide east-west travel options serving the eastern communities of Boulder County and the city of Boulder.

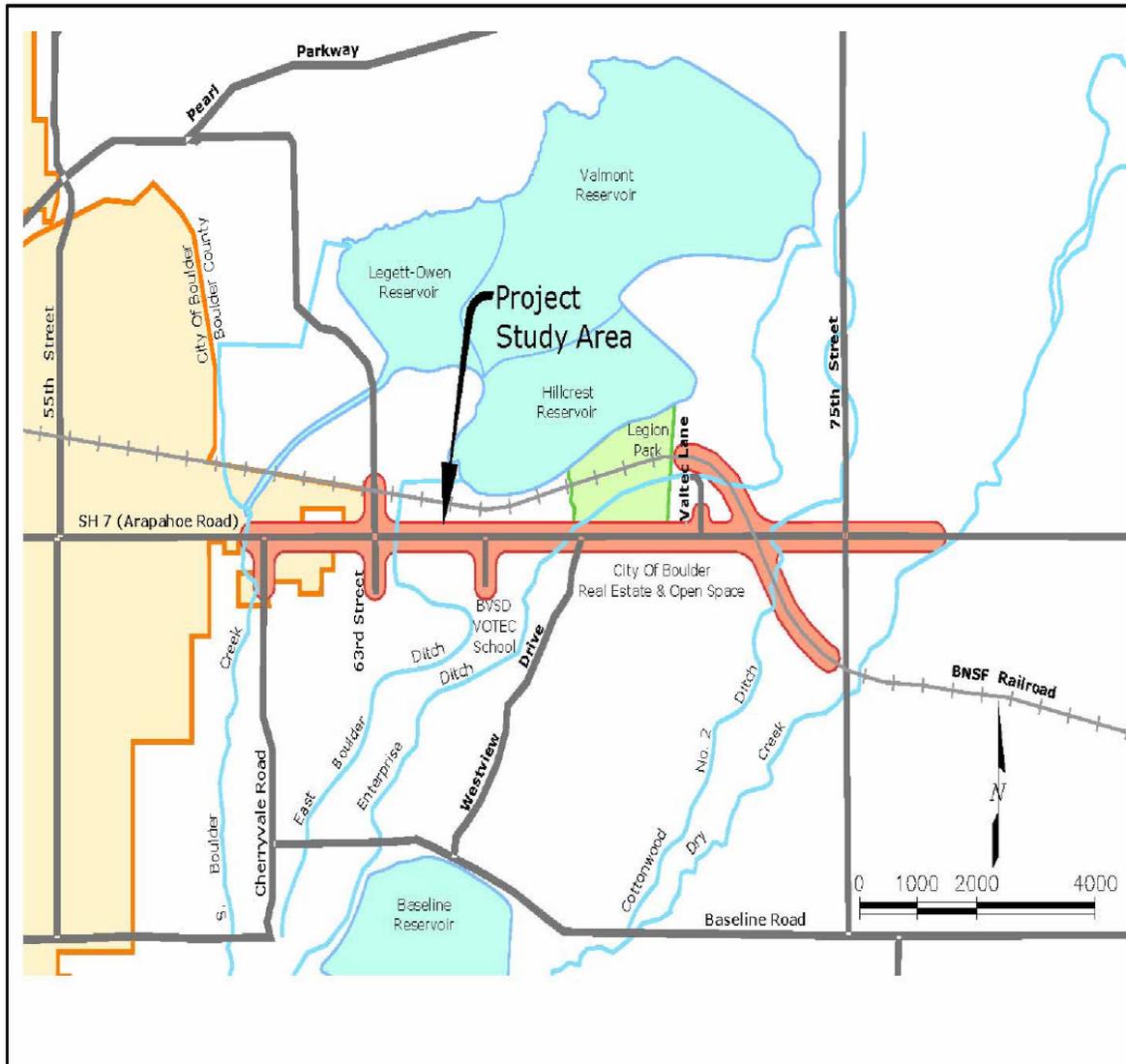
A Burlington Northern Santa Fe (BNSF) railroad line crosses SH 7 with an overpass in the study area. The existing railroad bridge structure only allows for a restricted roadway section, consisting of two travel lanes and minimal (two- to three-foot) shoulders. Modifications to the BNSF alignment are evaluated in this EA because changes to SH 7 precipitate impacts to the railroad crossing. Improvements to the safety and capacity of the BNSF railway are not included in this study.

### 1.2 Alternatives

#### **1.2.1 No Action Alternative**

The No Action Alternative includes no transportation improvements beyond the programmed improvements at the intersection of SH 7 and 75th Street. The SH 7 and 75th intersection has committed funds, is designed and cleared as a Categorical Exclusion and is anticipated to be constructed in 2006. This intersection project would include four through lanes of traffic along SH 7 with on-street bike lanes and sidewalks. The build alternatives would tie to the western extents of the intersection project. In addition, the City of Boulder has funding for intersection improvements for transit operations along SH 7 from Cherryvale Road to east of 63rd Street. These improvements include queue jump lanes, sidewalks, and connections to transit stops. The FHWA and the Federal Transit Administration (FTA), in cooperation with CDOT and RTD, are jointly conducting the U.S. 36 EIS identifying multimodal transportation improvements between Denver and Boulder. As part of this study, improvements including commuter rail are being considered along the existing BNSF railroad corridor that crosses SH 7. In addition to possible commuter rail service, a potential park-n-Ride is being considered in the vicinity of the SH 7 and 63rd Street intersection.

Figure 1  
Study Area Location Map



### 1.2.2 Preferred Alternative

The Preferred Alternative is the Four-Lane Alternative that consists of two through-traffic lanes in each direction from Cherryvale Road to 75<sup>th</sup> Street. The roadway is an urban section with curb and gutter except between Westview Drive and Valtec Lane, which is a rural 4-lane section with 10-foot shoulders. The section of roadway between Cherryvale Road and 63<sup>rd</sup> Street, at the Boulder Valley School District access, and the 75<sup>th</sup> Street approaches will have 2- to 4-foot wide, raised center medians. The remainder of SH 7 will utilize a center turn lane.

## CHAPTER 2: AIR QUALITY DISCUSSION

### 2.1 Introduction

The Clean Air Act of 1970 required the Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for pollutants which pose a risk to public health. The EPA has established standards for six pollutants: carbon monoxide (CO), ozone, particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), nitrogen dioxide, sulfur dioxide, and lead. Areas where monitored values of any pollutant exceed the NAAQS are designated by EPA as nonattainment areas. Air quality monitoring in Colorado is conducted by the Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment. Nonattainment areas are required to prepare implementation plans for attaining the standard for each pollutant where there are violations of the NAAQS. 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 the EPA, the area is re-designated an attainment/maintenance area.

The study area for State Highway 7 (SH 7) Cherryvale to 75th Street has been re-designated attainment/maintenance for carbon monoxide, PM<sub>10</sub> and the 1-hour ozone standard. In 2004 the EPA designated the Denver metropolitan area as nonattainment for the 8-hour ozone standard. However, the nonattainment designation is deferred as long as the milestones in the Early Action Compact for Ozone are met. The Early Action Compact 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 July 31, 2007, and maintaining the standard into the future.

The most significant federal air quality regulation that applies to transportation projects is the transportation conformity rule. The purpose of this rule is to implement section 176(C) of the Clean Air Act, which requires all transportation plans, transportation improvement programs and transportation projects to: (a) 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; and (b) insure that these transportation activities will not:

- (i.) Cause or contribute to any new violation of any standard;
- (ii.) Increase the frequency or severity of any existing violation of any standard; and
- (iii.) Delay timely attainment of any standard or any required interim emissions reductions.

All projects in nonattainment or attainment/maintenance areas must have a project-level conformity determination unless they fit into the list of Exempt Projects of the conformity rule. Air quality issues must be addressed as part of the project environmental clearance process.

## 2.2 Existing Conditions

Air quality issues along the SH 7 study corridor include visibility and gaseous pollutant levels related to motor vehicle emissions and street sanding sources.

### 2.2.1 Traffic

The transportation and circulation system evaluated for air quality impacts consists of major intersections of 63rd Street, Boulder Valley School District Road, and 75th Street with SH 7. Data pertinent to traffic volumes and level of service (LOS) in this section are drawn from traffic data presented in Appendix A *Traffic Analysis*. LOS values for the various intersections of interest are listed in **Table 1**. Project level air quality analyses are typically completed for signalized intersections demonstrating deficient levels of service, LOS D or worse.

Table 1

Project Intersection Level of Service

Intersection	Existing	No Action	Preferred Alternative
75th Street and SH 7	E/E	E/E	C/C
Boulder Valley School District Road and SH 7	B/B	D/D	B/B
63rd Street and SH 7	C/C	E/D	B/B
Cherryvale and SH7	C/C	C/D	C/D

Weekday daily traffic volumes on SH 7 range from near 18,500 vehicles per day (vpd) at the east end of the project near 75th Street, and 25,000 vpd at the west end near Cherryvale Road. The existing daily traffic of 18,500 vpd produces an almost two-hour peak traffic period in the morning and another two-hour peak traffic period in the evening. The 75th Street intersection currently controls the peak hour traffic in the SH 7 corridor due to its intersection laneage restrictions. The existing AM and PM peak hour level of service for the 75th Street intersection is classified as level of service (LOS) E, a congested level of operation. The existing LOS for the AM and PM peak hour for the two-lane corridor segment from 63rd Street to 75th Street is classified as LOS E, with travelers experiencing significant delays and reduced travel speeds. Six levels of service are defined from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS E is generally considered to correspond to maximum capacity.

Traffic volumes are projected to increase in the future. The daily traffic forecast of 25,000 in 2030 is anticipated to result in at least three congested hours in each peak period. No improvements to the corridor will result in increasing congestion in the AM peak and PM peak periods in 2030. As traffic volumes increase, the two-lane corridor segments are anticipated to experience increasing congestions and to approach LOS F during the peak hours.

The programmed SH 7 and 75th Street intersection improvements will alleviate some of the congestion at the 75th Street intersection, resulting in a design year (2030) intersection LOS C.

### 2.2.2 National Ambient Air Quality Standards

The state of Colorado has adopted the NAAQS for these criteria pollutants as shown in **Table 2**. Geographic areas that violate a particular NAAQS pollutant standard are considered nonattainment areas for that pollutant. Violations are determined by a prescribed number of exceedances of the particular standard.

Table 2  
National Ambient Air Quality Standards for Criteria Pollutants

Pollutant/Averaging Time	Primary Standard	Secondary Standard
Particulate Matter less than 10 microns (PM <sub>10</sub> )		
Annual	50 ug/m <sup>3</sup>	50 ug/m <sup>3</sup>
24-hour	150 ug/m <sup>3</sup>	150 ug/m <sup>3</sup>
Particulate Matter less than 2.5 microns (PM <sub>2.5</sub> )		
Annual*	15 ug/m <sup>3</sup>	15 ug/m <sup>3</sup>
24-hour*	65 ug/m <sup>3</sup>	65 ug/m <sup>3</sup>
Sulfur Dioxide (SO <sub>2</sub> )		
Annual	80 ug/m <sup>3</sup> (0.03ppm)	--
24-hour	365 ug/m <sup>3</sup> (0.14ppm)	--
3-hour	--	1300 ug/m <sup>3</sup> (0.5ppm)
Nitrogen Dioxide (NO <sub>2</sub> )		
Annual	100 ug/m <sup>3</sup> (0.053ppm)	100 ug/m <sup>3</sup> (0.053ppm)
Ozone (O <sub>3</sub> )		
1-hour	235 ug/m <sup>3</sup> (0.12ppm)	235 ug/m <sup>3</sup> (0.12ppm)
8-hour	157 ug/m <sup>3</sup> (0.08ppm)	157 ug/m <sup>3</sup> (0.08ppm)
Carbon Monoxide (CO)		
8-hour	10,000 ug/m <sup>3</sup> (9 ppm)	--
1-hour	40,000 ug/m <sup>3</sup> (35 ppm)	--
Lead (Pb)		
Calender Quarter	1.5 ug/m <sup>3</sup>	--

\*The ozone 8-hour standard and the PM<sub>2.5</sub> standards are included for information only. These standards are currently not in use.  
ug/m<sup>3</sup> = micrograms per cubic meter      ppm = parts per million

Because of monitored violations of the 8-hour ozone standard in 2002 and 2003, state and regional air quality agencies in Denver metropolitan area have developed a plan for achieving this standard by December 31, 2007. The Early Action Compact for Ozone includes specific milestones that must be met to achieve the standard by July 31, 2007. The EAC was submitted to the EPA in July 2004. EPA has deferred nonattainment designation for the region as long as the area meets the milestones in the EAC.

New standards were instigated in 1997 for particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>). The APCD completed installation of PM<sub>2.5</sub> monitors in 2000 and the Denver metropolitan area including Boulder County is in attainment. The APCD also monitors for pollutants that do not have a national standard established. These "non-criteria" pollutants include nitric oxide, total suspended particulate, cadmium, arsenic, sulfates, and visibility.

Greenhouse gases (water vapor, carbon dioxide, methane, and nitrous oxide) and emissions are discussed in the 1998 CDPHE report, *Climate Change & Colorado—A Technical Assessment* and the November 2000 supplement. The APCD has developed several CO<sub>2</sub> reduction strategies and will be considering regional programs to reduce stationary, area and mobile CO<sub>2</sub> sources.

### 2.2.3 Climate and Meteorology

The study corridor is situated within the Colorado Front Range at an average elevation of 5,250 feet above sea level at SH 7 and 75th Street. The climate is moderate with average temperatures ranging from 36°F in January to 75°F in July, with low relative humidity. The average annual precipitation is 15 to 20 inches with annual snowfall averaging 79 inches since 1961. The predominant winds are from the southeast. Wind speeds can be highly variable. Gusty system front-generated winds over 50 mph are not uncommon.

### 2.2.4 Air Pollution Sources

The SH 7 study corridor contains neither industrialized areas nor power generating plants. Emission sources for this study corridor are generated from re-entrained dust and motor vehicle emissions.

### 2.2.5 Air Quality Monitoring

There are six monitoring stations near the general SH 7 study corridor. The monitoring station types are highlighted in **Table 3**. There are no monitors within the actual study corridor.

Table 3  
Air Quality Monitoring Stations near the Study Corridor

Monitoring Station	Monitored Critical Pollutants			
	CO	O <sub>3</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2150 28th Street, Boulder	X			
1405 ½ South Foothills, Boulder		X		
2102 Athens Street, Boulder				X
2440 Pearl Street, Boulder			X	X
3rd Avenue, Longmont			X	X
440 Main Street, Longmont	X			

### 2.2.6 Class I and II Visibility Areas

The EPA has designated a number of areas in the state of Colorado as Mandatory Class I Federal Areas where visibility is an important value. Generally, these areas contain wilderness areas greater than 5,000 acres or National Parks greater than 6,000 acres that are determined

to require special air quality. There are no Class I areas within the study corridor. The 263,138 acre Rocky Mountain National Park located 40 miles northwest of the study area is the closest Class I Federal Area.

There is one Class II wilderness areas within 30 miles west of the study corridor: the Indian Peaks Wilderness Area. Class II refers to EPA designated wilderness, park, scenic, or wildlife refuge areas that lack the critical air quality status of a Class I area.

### **2.2.7 State Implementation Plans and Air Quality Conformity**

Boulder County was historically classified as a moderate non-attainment area for PM<sub>10</sub> but was re-designated by the EPA for PM<sub>10</sub> attainment in August 2002. The EPA re-designated Boulder County as in attainment for CO in January 2002 for ozone in September 2001. The area is currently under approved maintenance implementation plans for all three pollutants. There are no non-attainment areas within the project study corridor, and no violations of the NAAQS in the project Area of Influence have been reported for since 1991.

The federal Clean Air Act requires states to submit plans, known as State Implementation Plans (SIP) to demonstrate how the state will meet the NAAQS for which they are designated non-attainment. As a part of the SIP development process, an emissions budget is established for non-attainment and maintenance areas to maintain the NAAQS. Because Boulder County is classified as a maintenance area for PM<sub>10</sub>, for ozone and CO, projected emissions of these pollutants resulting from transportation improvement plans (TIP) and RTPs (long-range plan) must not exceed the emissions budgets set forth in the SIP. Regional conformity for this project has already been determined by inclusion in the current conforming long-range plan and TIP.

In addition, the Colorado Air Quality Control Commission sets the requirements for air quality analysis for regional and "hot-spot" air quality on a project level. This includes the requirements for modeling and screening analysis of the selected project. These requirements have been incorporated in the air quality analysis for the SH 7 study area.

The Colorado Air Quality Control Commission on April 19, 2001 adopted the current PM<sub>10</sub> Re-designation Request and Maintenance Plan for the Denver Metropolitan area.

Re-entrained dust from road sanding is a prime contributor to PM<sub>10</sub>. CDOT reduces street sanding emissions through the use of alternative de-icing compounds such as magnesium chloride, lower temperature "M-Caliber 1000 and 2000", and "Ice-slicer" and rapid sand clean up. Transportation control measures (TCM) have been proposed in the SIP to induce reduction of PM<sub>10</sub> emissions from mobile sources.

## **2.3 Environmental Consequences**

The study area is located in Boulder County which is included in the Denver metropolitan attainment/maintenance area for carbon monoxide (CO), ozone, and particulate matter (PM<sub>10</sub>). Therefore, the conformity provisions of the federal Clean Air Act apply. The impacts of motor vehicle emissions in the study area on concentrations of CO, ozone, and PM<sub>10</sub> were analyzed for the Preferred Alternative. Pollutant concentrations, rather than total emissions, are a better

indicator of project level air quality impacts because they can be compared to the federal standards that were established to protect public health.

### 2.3.1 Carbon Monoxide

Carbon monoxide concentrations in the study area were calculated for future (2025) traffic conditions for the build alternatives (see **Table 4**). CO concentrations were modeled using 2025 peak hour traffic volumes and motor vehicle emission rates at the 75th Street intersection which has the same configuration and same general traffic volume for both build alternatives. CO modeling at SH 7 and 75th Street results in a 5.5 ppm concentration, well below the CO NAAQS of 9ppm. Traffic volumes consistent with the most recent RTP, the Metro Vision 2030 Regional Transportation Plan, are slightly lower than the estimates used in the 2025 modeling. Because emission rates have been consistently decreasing from 2025 to 2030 plans, the original CO modeling for this intersection represents the most conservative calculation of CO concentrations likely at this location. The numbers shown are “worst-case” CO concentrations for receptors located near the edge of the highway shoulder within 10 to 12 feet from the travel lane. CO concentrations at buildings and sensitive resources near the highway would be lower because most of the buildings are at least 40 feet from the highway and vehicle related emissions would experience some dispersion by wind and turbulence.

Table 4  
Carbon Monoxide Concentrations by Alternative

Alternative	2025 Traffic Volume (vpd)	2030 Traffic Volume (vpd)	NAAQS 8-hour CO	Maximum 8-hour CO concentration
Preferred	24,800	23,700	9 ppm	5.5 ppm
Optional	24,800	23,700	9 ppm	5.5 ppm

### 2.3.2 PM<sub>10</sub>

Motor vehicle related PM<sub>10</sub> emissions are the primary source of PM<sub>10</sub> in the study corridor. About 80 to 90 percent of vehicle related PM<sub>10</sub> is due to re-entrained dust associated with winter sanding operations. The remainder is due to exhaust, brake, and tire wear. Maximum PM<sub>10</sub> concentrations are based upon comparison with regional PM<sub>10</sub> modeling. The sixth highest PM<sub>10</sub> average daily concentration over a five-year period is typically used for comparison. The nearest point of comparison from the 2030 Denver regional attainment/maintenance PM<sub>10</sub> model with a similar or higher VMT is at I-25 near SH 7. This regional grid receptor (#155) for 2030 PM<sub>10</sub> concentrations provides a value of 89  $\mu\text{g}/\text{m}^3$ . The federal 24 hour PM<sub>10</sub> standard is 150  $\mu\text{g}/\text{m}^3$ . This suggests that PM<sub>10</sub> concentrations within the study corridor would remain below the federal standard.

### 2.3.3 Ozone

Ozone is not directly emitted by motor vehicles; it is an indirect by-product of motor vehicle emissions. Ozone is created by the reaction of nitrogen oxides (NOX) and volatile organic compounds (VOCs), primarily on hot summer days. Since ozone formation depends on the dispersion and reaction of the NOX and VOCs and occurs over several hours, ozone is

predominantly a regional pollutant and cannot be quantified at the project level. Regional modeling for the Denver ozone attainment/maintenance plan demonstrates continued attainment of the federal 1-hour ozone standard in the future. During the summer of 2004, there were no exceedances of federal 8-hour ozone standard.

### **2.3.4 Mobile Source Air Toxics**

In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), 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). Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The 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.

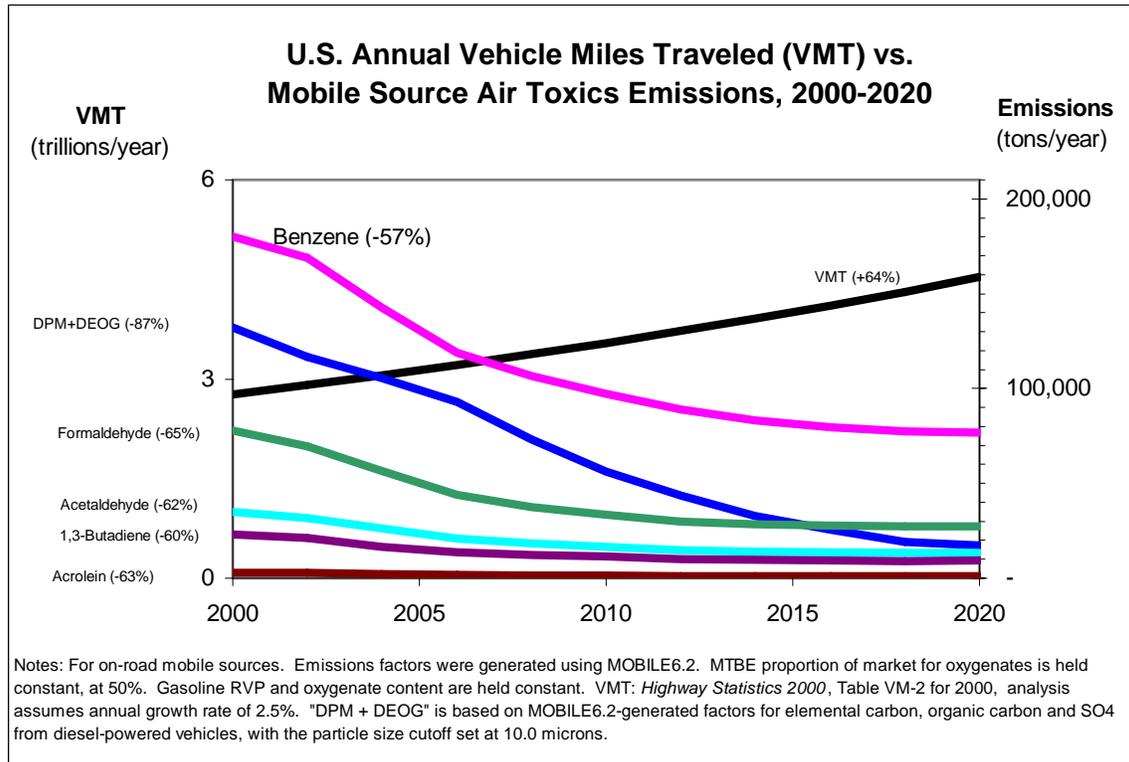
The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. 66 FR 17229 (March 29, 2001). This rule was issued under 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 **Figure 2**.

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.

### **2.3.5 Unavailable Information for Project Specific MSAT Impact Analysis**

This EA includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this EA. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information.

Figure 2  
Graph of VMT versus MSAT Emissions



**Information that is Unavailable or Incomplete.** Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

1. **Emissions:** The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model—emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 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 limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to

average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

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 more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.
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 accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. 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. 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 other project impacts 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 noncancer 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.

There have been other studies that address MSAT health impacts in proximity to roadways. 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 final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes—particularly respiratory problems<sup>1</sup>. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

***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.*** Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be 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 qualitative analysis of MSAT emissions relative to the various alternatives, and has acknowledged that 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 estimated.

### ***2.3.6 Project Level MSAT***

As discussed above, 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 project. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the 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: [www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm](http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm).

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<sup>1</sup> South Coast Air Quality Management District, Multiple Air Toxic Exposure Study-II (2000); 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.

For the Preferred Alternative 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 Preferred Alternative is slightly higher than that for the No Action, 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 (see **Table 4**). The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 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 Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded SH 7 roadway sections that would be built between Cherryvale Drive and 75th Street under the Preferred Alternative. However, as discussed above, the magnitude and the duration of these potential increases compared to the No Build 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 Build 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.

## 2.4 Mitigation

Motor vehicle emissions in the study corridor will not result in any exceedance of the NAAQS; therefore, no direct project air quality mitigation is necessary.

Dust emissions should be minimized by including techniques to control fugitive dust, such as watering construction areas, into construction plans and specifications, and implementing these measures during construction.

## **2.5 Coordination**

A request has been made to include all proposed improvements in an amendment to the DRCOG 2030 fiscally-constrained, conforming RTP. This must be completed prior to FHWA adoption of the final Decision Document. This project has been coordinated with CDOT and the APCD of the CDPHE. APCD concurrence was received January 19, 2006. The signed concurrence letter from the APCD is attached as Appendix B.

**APPENDIX A  
TRAFFIC DATA****(Included In Full Technical Report)**

**APPENDIX B  
CORRESPONDENCE**

DEPARTMENT OF TRANSPORTATION

4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9011



January 10, 2006

Margie Perkins  
Director, Air Pollution Control Division  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, CO 80222

Re: SH-7, Cherryvale Road to 75<sup>th</sup> Street Environmental Assessment

Dear Ms. Perkins:

The Colorado Department of Transportation is preparing an environmental assessment for proposed improvements to State Highway 7 (Arapahoe Road) between Cherryvale Road and 75<sup>th</sup> Street east of Boulder (see attached project vicinity map). Alternatives being evaluated include widening the existing segment of SH-7 to four lanes and intersection improvements (see attached project alternatives map).

The results of the traffic analysis showed that for any of the build alternatives, the two signalized intersections in the area included in the project improvements under the preferred alternative would operate at level of service (LOS) C or better in the year 2030 (please see attached traffic analysis summary). EPA modeling guidance states that intersections that operate at LOS C or better are not likely to cause a violation of the federal 8-hour average carbon monoxide (CO) standard. Thus, CO hotspot modeling for these intersections is not required.

One of the intersections reported in the EA, the intersection of 75<sup>th</sup> Street and SH-7, is projected to operate at LOS D with the preferred alternative. This intersection, however, was improved under a separate action and will not be changed with the preferred alternative for this project. Cleared under a categorical exclusion in 2002-2003 (please refer to the attached clearance letter prepared for this analysis in 2002), this intersection was modeled at that time, using estimated volumes for the 2025 future year. The resulting worst case 8-hour CO concentration was 5.5 ppm, which is below the 9.0 ppm standard. The traffic volumes that were used for that analysis were compared to the most recent projections developed for this EA to ensure that the 2002 analysis would still be appropriate. It was determined that the traffic volumes used for the previous analysis were higher than the most recent projections, thus the previous analysis represents a worst-case scenario that demonstrates that the CO standard will not be exceeded with the current project.

This project was originally included in the conforming 2025 Interim Denver Regional Transportation Plan (RTP) and the DRCOG 2003-2008 (now 2005-2010) Transportation Improvement Program (TIP #1997-033, STIP-ID# DR2072).

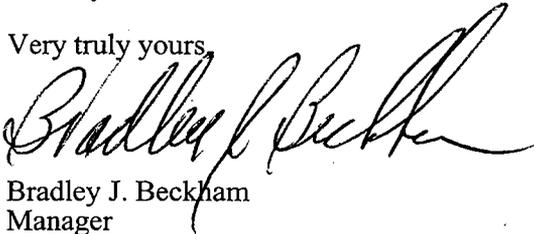
Pursuant to the conformity provisions of the Clean Air Act Amendments of 1990, this project will not:

- (i) cause or contribute to any new violation of any standard;
- (ii) increase the frequency or severity of any existing violations of any standard;
- (iii) delay timely attainment of any standard or any required interim emission reductions.

If you concur with the results of the air quality analysis and the conclusions regarding conformity of this project, please sign below and return this letter by February 10, 2006.

Thank you.

Very truly yours,



Bradley J. Beckham  
Manager  
CDOT Environmental Programs Branch

I Concur: Margie M. Perkins  
Margie Perkins, Director

1-19-06  
Date

**APPENDIX C  
HOT SPOT MODELING DATA  
(Included In Full Technical Report)**

**State Highway 7 (Cherryvale Road to 75th Street) Environmental Assessment and Draft 4(f) Evaluation  
Appendix G - Agency Coordination Summary of Contents**

<b>Date</b>	<b>Letter Subject</b>	<b>Author</b>	<b>Recipient</b>	<b>Page #</b>	
31-Mar-05	Boulder County Comments Regarding Recommended Alternative	Clark Misner	Boulder County Deputy Director of Transportation	Carol Parr CDOT Environmental Project Manager	1
3-Jan-05	City of Boulder Comments Regarding Recommended Alternative	Bill Cowern	City of Boulder Traffic Engineer	Carol Parr CDOT Environmental Project Manager	3
21-Oct-04	Transmittal Letter of Public Agency Coordination Meeting Materials	Carol Parr	CDOT Environmental Project Manager	Public Agency Representatives	5
4-Oct-04	Public Agency Coordination Meeting Invitation Letter	Carol Parr	CDOT Environmental Project Manager	Public Agency Representatives	7
1-Jun-04	Response Letter from Town of Erie Regarding Coordination Meeting	Gary Behlen	City of Erie Director of Public Works	Carol Parr CDOT Environmental Project Manager	8
26-May-04	Public Agency Coordination Meeting Invitation Letter	Carol Parr	CDOT Environmental Project Manager	Public Agency Representatives	9
5-Apr-04	Public Agency Coordination Meeting Invitation Letter	Carol Parr	CDOT Environmental Project Manager	Public Agency Representatives	10
27-Jun-01	City of Boulder Comments Regarding Alternatives	Bill Cowern	City of Boulder Traffic Engineer	Kirk Webb Carter and Burgess	12
<b>4(f) Resources</b>					
7-Mar-08	Letter notifying SHPO of finding of 4(f) <i>de minimis</i> finding for project	Robert Autobee	CDOT Senior Historian	Georgiana Contiguglia State Historic Preservation Officer	15
3-Mar-08	Letter of concurrence on finding of <i>de minimis</i> impact for historic resources	Carol Parr	CDOT Environmental Project Manager	Karla Petty FHWA Division Administrator	17
28-Nov-07	Letter of concurrence on finding of <i>de minimis</i> impact for Cottonwood Ditch and Legion Park	Carol Parr	CDOT Environmental Project Manager	David Nicol FHWA Division Administrator	20
27-Nov-07	Copy of materials sent to FHWA regarding <i>de minimis</i> impact on Cottonwood Ditch and Legion Park	Robert Autobee	CDOT Senior Historian	Richard Koopmann Boulder County Resource Planning Manager	30
6-Nov-07	Copy of materials sent to SHPO regarding <i>de minimis</i> impact on Cottonwood Ditch segment	Robert Autobee	CDOT Senior Historian	James Hewat Boulder County Historic Preservation Advisory Board	31
2-Nov-07	Letter notifying SHPO of finding of <i>de minimis</i> impact for Cottonwood Ditch segment	Brad Beckham	CDOT Environmental Programs Branch Manager	Georgiana Contiguglia State Historic Preservation Officer	32
2-May-07	Letter acknowledging <i>de minimis</i> notification under Section 4(f)	Georgiana Contiguglia	State Historic Preservation Officer	Brad Beckham CDOT Environmental Programs Branch Manager	33
26-Apr-07	Letter requesting concurrence on finding of <i>de minimis</i> impact for Enterprise Ditch	Brad Beckham	CDOT Environmental Programs Branch Manager	David Nicol FHWA Division Administrator	34
25-Apr-07	Letter of notification on <i>de minimis</i> impact for Enterprise Ditch	Brad Beckham	CDOT Environmental Programs Branch Manager	Denise Grimm Boulder County Historic Preservation Advisory Board	36
25-Apr-07	Letter of notification on <i>de minimis</i> impact for Enterprise Ditch	Brad Beckham	CDOT Environmental Programs Branch Manager	Georgiana Contiguglia State Historic Preservation Officer	37
30-Jan-07	Letter requesting concurrence on finding of <i>de minimis</i> impact for Enterprise Ditch	Brad Beckham	CDOT Environmental Programs Branch Manager	David Nicol FHWA Division Administrator	38
<b>Historic Resources</b>					
4-Dec-06	Memorandum of Agreement Letter for Cottonwood Ditch and Burlington Northern Railroad	David Nicol	FHWA Division Administrator	Carol Legard Advisory Council on Historic Preservation	40
20-Nov-06	Memorandum of Agreement Letter for Cottonwood Ditch and Burlington Northern Railroad	Brad Beckham	CDOT Environmental Programs Branch Manager	David Nicol FHWA Division Administrator	41
14-Nov-06	Transmittal Letter and MOA for Cottonwood Ditch and Burlington Northern Railroad	Brad Beckham	CDOT Environmental Programs Branch Manager	Georgiana Contiguglia State Historic Preservation Officer	42
24-Jun-06	Letter of concurrence with finding of <i>no adverse effect</i> for Enterprise Ditch	Georgiana Contiguglia	State Historic Preservation Officer	Brad Beckham CDOT Environmental Programs Branch Manager	46
14-Jun-06	Copy of transmittal letter of documentation of finding of <i>adverse effect</i>	David Nicol	FHWA Division Administrator	David Ortiz Office of Chief Counsel, Western Legal Services	47
14-Jun-06	Transmittal Letter of documentation of finding of <i>adverse effect</i>	David Nicol	FHWA Division Administrator	Carol Legard Advisory Council on Historic Preservation	48
31-May-06	Letter requesting comment on effects determination for Enterprise Ditch	Brad Beckham	CDOT Environmental Programs Branch Manager	Denise Grimm Boulder County Historic Preservation Advisory Board	49
31-May-06	Letter requesting concurrence on determination of effect for Enterprise Ditch	Brad Beckham	CDOT Environmental Programs Branch Manager	Georgiana Contiguglia State Historic Preservation Officer	53
24-Mar-06	Letter of concurrence with finding of <i>adverse effect</i> for Cottonwood Ditch	Georgiana Contiguglia	State Historic Preservation Officer	Brad Beckham CDOT Environmental Programs Branch Manager	55
24-Mar-06	Letter of concurrence with finding of <i>no adverse effect</i> for Enterprise Ditch	Georgiana Contiguglia	State Historic Preservation Officer	Brad Beckham CDOT Environmental Programs Branch Manager	56
24-Aug-05	Letter of SHPO response concerning Enterprise Ditch effects determinations	Lisa Sonoch	CDOT Environmental Programs Branch	Carol Parr CDOT Environmental Project Manager	57
24-Aug-05	Letter of SHPO response regarding Cottonwood Ditch siphon	Lisa Sonoch	CDOT Environmental Programs Branch	Carol Parr CDOT Environmental Project Manager	58
15-Aug-05	Letter of concurrence with finding of <i>no adverse effect</i> for historic properties	Georgiana Contiguglia	State Historic Preservation Officer	Brad Beckham CDOT Environmental Programs Branch Manager	59
12-Aug-05	Letter of concurrence with finding of <i>no adverse effect</i> for Cottonwood Ditch siphon	Georgiana Contiguglia	State Historic Preservation Officer	Brad Beckham CDOT Environmental Programs Branch Manager	61
4-Aug-05	Letter requesting comment on effects determinations for historic properties	Brad Beckham	CDOT Environmental Programs Branch Manager	Denise Grimm Boulder County Historic Preservation Advisory Board	63
4-Aug-05	Transmittal Letter providing information to SHPO concerning Cottonwood Ditch siphon	Brad Beckham	CDOT Environmental Programs Branch Manager	Georgiana Contiguglia State Historic Preservation Officer	67
19-Jul-05	Letter regarding SHPO request for information concerning Cottonwood Ditch siphon	Lisa Sonoch	CDOT Environmental Programs Branch	Carol Parr CDOT Environmental Project Manager	69
6-Jul-05	Letter requesting information for eligibility of Cottonwood Ditch siphon	Georgiana Contiguglia	State Historic Preservation Officer	Brad Beckham CDOT Environmental Programs Branch Manager	70
1-Jul-05	Letter requesting comment on effects determinations for Cottonwood Ditch	Brad Beckham	CDOT Environmental Programs Branch Manager	Denise Grimm Boulder County Historic Preservation Advisory Board	72
29-Mar-05	Letter of concurrence with findings for historic properties, ditches, and railroad	Georgiana Contiguglia	State Historic Preservation Officer	Brad Beckham CDOT Environmental Programs Branch Manager	74
24-Mar-05	Letter requesting concurrence concerning historic boundaries and effects determinations	Brad Beckham	CDOT Environmental Programs Branch Manager	Georgiana Contiguglia State Historic Preservation Officer	76
24-Mar-05	Letter requesting comment concerning historic boundaries and effects determinations	Brad Beckham	CDOT Environmental Programs Branch Manager	Denise Grimm Boulder County Historic Preservation Advisory Board	80
4-Jan-05	Letter regarding Historic Preservation Advisory Board meeting	Denise Grimm	Boulder County Historic Preservation Advisory Board	Mark Gosselin CDOT Resident Engineer	84
<b>Archeological/Paleontological Resources</b>					
14-Jan-05	Letter requesting review of archaeological resources survey report	Brad Beckham	CDOT Environmental Programs Branch Manager	Georgiana Contiguglia State Historic Preservation Officer	88
12-Oct-04	Transmittal Letter of paleontological assessment report	Steven Wallace	CDOT	Carol Parr CDOT Environmental Project Manager	90
11-Aug-04	Letter of Response regarding Environmental Assessment concerning cultural resources	Neil B. Cloud	Southern Ute Indian Tribe NAGPRA Coordinator	Dan Jepsen CDOT Native American Consultation Liaison	91
4-Aug-04	Letter informing party of Environmental Assessment process concerning cultural resources	Douglas Bennett	FHWA Acting Division Administrator	Howard Richards Southern Ute Indian Tribe Chairman	93
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17-May-05	Letter concerning impacts to Legion Park	Richard Koopmann	Boulder County Resource Planning Manager	Mark Gosselin CDOT Resident Engineer	97
5-Dec-01	Letter indicating no LWCF boundaries or 6(f) properties within project limits	Tom Easley	State Parks Statewide Programs Manager	Kirk Webb Carter and Burgess	98
10-Jan-06	Letter requesting concurrence with air quality analysis	Brad Beckham	CDOT Environmental Programs Branch Manager	Margie Perkins CDPH Air Pollution Control Division Director	99
18-Dec-01	Letter providing information on waters of the U.S.	Terry McKee	Army Corps of Engineers Natural Resource Specialist	Laura Backus Carter - Burgess	101
9-May-05	Letter of response from Colorado Natural Heritage Program	Michael Menefee	CSU Environmental Review Coordinator	Laura Backus Carter - Burgess	103
7-Jan-02	Letter or response providing Farmland Conversion Impact Rating	Tim Carney	USDA NRCS District Conservationist	Troy Halouska Carter - Burgess	119
21-Sep-01	Letter of response providing soil map/descriptions	Tim Carney	USDA NRCS District Conservationist	Troy Halouska Carter - Burgess	121
5-Sep-01	Letter requesting soil survey and farmland impact information	Troy Halouska	Carter - Burgess	Tim Carney USDA NRCS District Conservationist	122
<b>East Boulder/Cottonwood/Enterprise Ditch Correspondance</b>					
21-Sep-01	Letter of response regarding Enterprise Ditch information	David Love	Enterprise Ditch Company	Tracy Brekel Muller Engineering Company	123
14-Aug-01	Letter of response regarding Cottonwood Ditch and siphon	Richard Gilbert	Cottonwood Ditch Company Secretary/Treasurer	Tracy Brekel Muller Engineering Company	127
9-Aug-01	Telephone Memorandum regarding East Boulder Ditch	Tracy Brekel	Muller Engineering Company		128
6-Aug-01	Letter requesting information about Enterprise Ditch	Tracy Brekel	Muller Engineering Company	Nancy Love Love and Associates	129
6-Aug-01	Letter requesting information about East Boulder Ditch	Tracy Brekel	Muller Engineering Company	Randy Rhodes Xcel Energy	130
6-Aug-01	Letter requesting information about Cottonwood Ditch	Tracy Brekel	Muller Engineering Company	Bob Pherson Cottonwood Ditch No. 2	131



## Transportation Department

2045 13th Street • Boulder, Colorado 80302 • (303) 441-3900 • Fax: (303) 441-4594

March 31, 2005

Carol H. Parr  
Environmental Project Manager CDOT Region 4  
Planning/Environment Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631

RECEIVED

MAY 11 2005

Muller Engineering Company, Inc.

STA 0072-013, S+H 7, Cherryvale Road to N. 75<sup>th</sup> Street, Current recommended Alternative

Dear Carol,

In response to public Agency Meeting No 3 and CDOT's recommended alternative for SH 7- Arapahoe Road at the above location, Boulder County has the following comments and recommendation.

As you may recall, the Boulder County Consortium of Cities created the Boulder County Regional Transportation Task Force was created in 1996 in order to define a process to address regional transportation issues for the future. At the same time the RTTF began a study of the six major regional arterials in Boulder County and included SH 7 – Arapahoe road from Cherryvale Road to US 287.

The funding for the study was a makeup of participation from the cities and town, private sector and the Colorado Department of Transportation.

The corridor analysis for Arapahoe included an examination of the population and growth along the corridor based on DRCOG data and verified by the cities and towns along with the resulting 2020 traffic volumes. The RTTF considered three alternatives for improving transportation along the Arapahoe Corridor. Two lanes with improved intersections, four lanes and an improved transit alternative.

The RTTF preference was to support a project that would improve both transit and the intersections. This option was determined to be the most cost effective with the least impact. This preference would be similar to CDOT's Alternative 2.

In our opinion, Alternative 2 addresses the need from Cherryvale Road to Boulder Valley School District while the three lane section to the 75<sup>th</sup> Intersection would provide the safety and capacity without the impacts of the four lane section with a center turn lane as proposed in Alternative 3.

Thank you for the excellent work that CDOT staff and consultants have presented to County staff through this phase of the project. We will look forward to working with you in the future.

Sincerely,

A handwritten signature in black ink, appearing to read 'Clark A. Misner', written in a cursive style.

Clark A. Misner  
Deputy Director of Transportation

Copy: Board of County Commissioners  
Parks and Open Space  
Bill Cowern, City of Boulder

# CITY OF BOULDER

## Department of Public Works Transportation Division

P.O. Box 791  
1739 Broadway  
Boulder, Colorado 80306  
(303) 441-3266



January 3, 2005

Carol H. Parr  
Environmental Project Manager CDOT Region 4  
Planning/Environmental Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631

Subject: STA 0072-013, SH 7 – Cherryvale Rd. to N. 75<sup>th</sup> St., 14802  
Public Agency Meeting and discussion of current recommended alternative

Dear Ms. Parr:

Thank you for the invitation to Public Agency Group Meeting No. 3 concerning this project and for the materials which were provided ahead of time for our staff's review. The CDOT consultant did a good job of presenting the materials and there was good discussion of the pros and cons of the two "build" alternatives being taken forward by CDOT through the rest of the public process. I found the meeting to be very informative.

The purpose of this letter is to provide CDOT staff with our feedback on the alternatives and to advocate that CDOT change the preferred recommendation to Alternative 2 (the alternative with a three-lane section west of 75<sup>th</sup> Street).

Staffs from the City of Boulder, County of Boulder and CDOT are generally in agreement concerning the improvements which should occur between Cherryvale Road and the VOTECH/Boulder Valley School District (BVSD) driveway. Alternatives 2 and 3 provide these improvements. In addition, city staff is supportive of the level and nature of the alternative transportation improvements including sidewalks, multi-use path, on-street bicycle lanes, transit queue jump at signalized intersections and improved transit stops in the corridor.

The difference between the two alternatives is the addition of general purpose vehicle lanes to the east from VOTECH/BVSD driveway to 75<sup>th</sup> Street. Alternative 2 proposes a three-lane section, while Alternative 3 proposes a five-lane section. In reviewing the two alternatives, the five-lane section is being shown as the current preferred alternative because of efficiency and safety benefits in this section of the corridor. The cost for Alternative 3 is approximately \$2 million greater than Alternative 2.

As I mentioned at the public agency meeting, city staff is concerned that the benefits of Alternative 3 are not sufficient to justify the added cost. The efficiency/corridor time travel enhancement between these two alternatives is marginal. The intersections on each end of this area will operate at a much improved level of service because of the planned improvements at these locations. As a result, the additional general purpose lanes between the two intersections does not appear to be needed.

It was suggested that Alternative 3 would provide the greatest safety improvement in the corridor. However, it was further discussed that there is not a significant existing safety issue in the corridor and therefore any safety benefit from Alternative 3 is marginal. Furthermore, it appeared to be difficult to quantify the level of benefit.

In summary, neither the efficiency benefits nor the suggested safety improvement would appear to justify the increased cost of \$2 million.

In addition, we believe that our community leadership will be unlikely to support the package proposed in Alternative 3. As you know, both the City and County of Boulder leadership participated with other community leaders from Louisville and Lafayette in the Regional Transportation Task Force (RTTF) which discussed this corridor and made recommendations for how this corridor should be improved. Since the RTTF recommendations show better conformity with Alternative 2 and since their does not appear to be a sound technical justification for deviating from that original recommendation, it would seem unlikely that policy makers from either the City of Boulder or the County of Boulder would support Alternative 3.

Our staff would like to request that the CDOT staff consider these factors and endorse Alternative 2 as the preferred alternative for this project. We believe that staff from both the city and the county could support this alternative with CDOT staff as this project is taken before our respective community leadership.

Our staff has enjoyed working with the CDOT staff and their consultants on this project. We look forward to seeing this project completed in a manner in which we can all support. If CDOT staff has any questions concerning the city's position on this project, please feel free to contact me at 303-441-3266.

Sincerely,

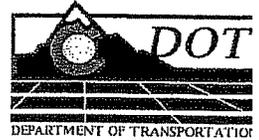


Bill Cowern  
Transportation Operations Engineer  
City of Boulder

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Planning/Environmental Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631  
(970) 350-2170  
Fax (970) 350-2177



October 21, 2004

Clark Misner, P.E.  
Transportation Planning Manager  
Boulder County Transportation Dept.  
P.O. Box 471  
Boulder, CO 80306

RE: STA 0072-013, SH 7 - Cherryvale Rd. to N. 75<sup>th</sup> St., 14802  
Public Agency Group Meeting No. 3  
Information Packet

Dear Mr. Misner:

You were recently invited to attend a public agency group meeting to discuss the status of the Environmental Assessment (EA) for State Highway 7 (Arapahoe Road) between Cherryvale and N. 75<sup>th</sup> Street. Attached is a packet of information for your review prior to the meeting. This information will be discussed in further detail at the coordination meeting. Included for your review are the following items:

1. A meeting agenda
2. A plan graphic of the two Short-Listed Alternatives
3. A Draft Short-Listed Alternatives Evaluation Summary Matrix
4. A Draft Railroad Alternatives Evaluation Summary Matrix
5. An Engineers Estimate of Probable Construction Costs of the two Short-Listed Alternatives
6. A memo comparing the RTTF Project Justification and the SH 7 EA Findings
7. A memo comparing the safety of the two Short-Listed Alternatives
8. A memo outlining bus priority options at the 63<sup>rd</sup> Street intersection

We look forward to seeing you on November 2<sup>nd</sup>, 2004 at 9:00 am at the CDOT Boulder Residency Office, 1050 Lee Hill Road. If you have any questions regarding the attached information or the public agency group meeting, please contact me or Gray Clark, Muller Engineering Company, at (303) 988 4939.

Sincerely,

Carol H. Parr  
Environmental Project Manager, CDOT Region 4

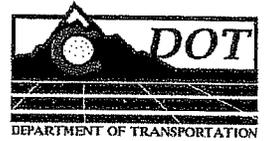
**SH 7 – CHERRYVALE RD. TO 75<sup>TH</sup> ST.  
PUBLIC AGENCY CONTACTS ENVIRONMENTAL ASSESSMENT 0072-013, 14802  
May 26, 2004, October 4, 2004, and October 21, 2004 Letter Recipients**

Clark Misner Boulder County Transportation Dept. P.O. Box 471 Boulder, CO 80306	Mr. George Scheuernstuhl Director of Transportation Services Denver Regional Council of Govts. 4500 Cherry Creek Drive South # 800 Denver, CO 80246	Tracey Winfree, Dir. Of Transportation City of Boulder Park Central Building 1739 Broadway, Ste. 415 Boulder, CO 80302
Mr. Gary Behlen Town of Erie Public Works P.O. Box 750 Erie, CO 80516	Jim Schmidt Boulder City Open Space P.O. Box 791 Boulder, CO 80306	Jeff Dunning Regional Transportation District 1600 Blake Street Denver, CO 80202
Mr. Thomas A. Phare Public Works Director City of Louisville 749 Main Street Louisville, CO 80027 (303) 666-6565	Mr. Doug Short Public Works Director City of Lafayette 1290 S. Public Road Lafayette, CO 80026	Bill Cowern, Traffic Engineer City of Boulder P.O. Box 791 Boulder, CO 80306 (303) 441-4054
Therese Glowacki Parks and Open Space P.O. Box 471 Boulder, CO 80306	Mike Vanderhoof Federal Highway Administration 555 Zang St. Rm. 250 Lakewood, CO 80228	Scott Sands Federal Highway Administration 555 Zang St. Rm. 250 Lakewood, CO 80228
Alison Deans Michael USFWS 755 Parfet Street No. 361 Lakewood, CO 80215	Deborah Lebow Environmental Protection Agency 999 18 <sup>th</sup> Street, Ste. 300 8EPR-N Denver, CO 80202	Claire Solohub Colorado Division of Wildlife 4207 West CR 16E Loveland, CO 80537
Pat Martinek Colorado Department of Public Health and Environment 4300 Cherry Creek Drive South Denver, CO 80246-1530	Scott Franklin US Army Corps of Engineers 9307 S. Wadsworth Blvd. Littleton, CO 80128-6901	Colorado Historical Society Dan Corson, Local Government Liaison 1300 Broadway Denver, CO 80203 (303) 866-2673 <a href="mailto:dan.corson@chs.state.co.us">dan.corson@chs.state.co.us</a>
Scott Robson Boulder County Transportation Dept. P.O. Box 471 Boulder, CO 80306		

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Planning/Environmental Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631  
(970) 350-2170  
Fax (970) 350-2177



October 4, 2004

Clark Misner, P.E.  
Transportation Planning Manager  
Boulder County Transportation Dept.  
P.O. Box 471  
Boulder, CO 80306

RE: STA 0072-013, SH 7 - Cherryvale Rd. to N. 75<sup>th</sup> St., 14802  
Public Agency Group Meeting No. 3

Dear Mr. Misner:

The purpose of this letter is to invite you to attend a public agency group meeting to discuss the status of the Environmental Assessment (EA) for State Highway 7 (Arapahoe Road) between Cherryvale and N. 75<sup>th</sup> Street being conducted by CDOT. The meeting will be held at the CDOT Boulder Residency Office, 1050 Lee Hill Road at 9:00 a.m. on October 13, 2004.

CDOT has completed a comprehensive evaluation of design alternatives for the corridor and has identified an improvement alternative that will be presented to the public agencies and to the general public. We are planning a public open house, on November 9, to gather input from the general public regarding the study process and the preferred alternative. Prior to the public open house we would like to share with the local agencies what will be presented to the general public at the open house. We will be presenting graphics of the preferred alternative that will be presented, a summary of the evaluation process (evaluation matrix) along with other public meeting presentation boards. A meeting agenda is attached.

In addition to this public agency coordination meeting, we would like to invite you to attend the public open house, which is tentatively scheduled to be held in the cafeteria of the Platte Middle School, 6069 Baseline Road, on November 9, anytime between 4:00 pm and 7:00 pm (no formal presentation will be made). We will confirm the time and location once the scheduling has been finalized.

Thank you for your continued participation in this process. If you have any questions regarding the public agency group meeting, the public open house or any aspect of the EA, please contact me or Gray Clark, Muller Engineering Company, at (303) 988 4939.

Sincerely,

Carol H. Parr  
Environmental Project Manager, CDOT Region 4



June 1, 2004

Ms. Carol H. Parr  
State of Colorado  
Department of Transportation  
Planning/Environmental Section  
1420 2nd Street  
Greeley, CO 80631

**RE: State Highway 7 -- Cherryvale Road to North 75<sup>th</sup> Street Environmental Assessment**

Dear Ms. Parr:

Thank you for the notice on the pre-meeting for the Environmental Assessment on State Highway 7. Unfortunately, I have a conflict at this time and will be unable to attend. However, I am interested in the information that you will be providing in the open house on June 17, 2004. Please send me a copy of the graphic and keep me informed of the progress with the project. If you have any questions, please contact me at 303-926-2871.

Sincerely,

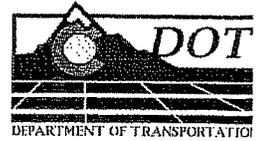


Gary W. Behlen  
Director of Public Works

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Planning/Environmental Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631  
(970) 350-2170  
Fax (970) 350-2177



May 26, 2004

Clark Misner, P.E.  
Transportation Planning Manager  
Boulder County Transportation Dept.  
P.O. Box 471  
Boulder, CO 80306

RE: STA 0072-013, SH 7 - Cherryvale Rd. to N. 75<sup>th</sup> St., 14802  
Public Agency Group Meeting No. 2

Dear Mr. Misner:

The purpose of this letter is to invite you to attend a public agency group meeting to discuss the status of the Environmental Assessment (EA) for State Highway 7 (Arapahoe Road) between Cherryvale and N. 75<sup>th</sup> Street being conducted by CDOT. The meeting will be held at the CDOT Boulder Residency Office, 1050 Lee Hill Road at 9:00 a.m. on June 9, 2004.

CDOT is proceeding with a comprehensive evaluation of design alternatives for the corridor. As part of this study, a clear definition of the purpose and need for improvements is necessary, as well as specifically defined evaluation criteria. We are planning a public open house, on June 17, to gather input from the general public regarding the project process and the evaluation of alternatives. Prior to the public open house we would like to share with the local agencies what will be presented to the general public at the open house. We will be presenting graphics of alternatives being evaluated along with other public meeting presentation boards. A meeting agenda is attached.

In addition to this public agency coordination meeting, we would like to invite you to attend the public open house, which will be held in the cafeteria of the Platte Middle School, -6069 Baseline Road, on June 17, anytime between 4:00 pm and 7:00 pm (no formal presentation will be made).

Thank you for your continued participation in this process. If you have any questions regarding the public agency group meeting, the public open house or any aspect of the EA, please contact me or Gray Clark, Muller Engineering Company, at (303) 988 4939.

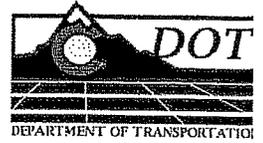
Sincerely,

Carol H. Parr  
Environmental Project Manager, CDOT Region 4

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Planning/Environmental Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631  
(970) 350-2170  
Fax (970) 350-2177



April 5, 2004

Clark Misner, P.E.  
Transportation Planning Manager  
Boulder County Transportation Dept.  
P.O. Box 471  
Boulder, CO 80306

RE: STA 0072-013, SH 7 - Cherryvale Rd. to N. 75<sup>th</sup> St., 14802  
Public Agency Group Meeting

Dear Mr. Misner:

The purpose of this letter is to invite you to attend a public agency group meeting to gather input and discuss the status of the Environmental Assessment (EA) for State Highway 7 (Arapahoe Road) between Cherryvale and N. 75<sup>th</sup> Street being conducted by CDOT. The meeting will be held at the CDOT Boulder Residency Office, 1050 Lee Hill Road at 10:00 a.m. on April 15, 2004.

Based upon results of earlier studies, preliminary traffic engineering analysis, and public and agency input, CDOT would like to proceed with a comprehensive evaluation of several design alternatives for the corridor.

CDOT would like to present to the public agency group the information that has been gathered to this point and obtain input regarding the evaluation of alternatives. The agenda for the meeting will include a description of the current funding available for improvements, a summary of previous work completed and results, a traffic forecasting and LOS analysis, environmental concerns, and potential project alternatives. A meeting agenda will be mailed to you within the week.

This meeting is your opportunity to provide input to CDOT regarding the issues that are important to your constituents. Thank you for your continued participation in this process.

If you have any questions regarding the meeting or any aspect of the EA, please contact me or Troy Halouska at 303.820.4898.

Sincerely,

Carol H. Parr  
Environmental Project Manager, CDOT Region 4

SH 7 – CHERRYVALE RD. TO 75<sup>TH</sup> ST.

STA 0072-010, 11873

April 5, 2005 Public Agency Letter Recipients

Clark Misner Boulder County Transportation Dept. P.O. Box 471 Boulder, CO 80306	Mr. George Scheuernstuhl Director of Transportation Services Denver Regional Council of Govts. 2480 W. 26 <sup>th</sup> Ave., Ste. 200B Denver, CO 80211	Mr. Joe Perone, Director of Transp. City of Boulder Park Central Building 1739 Broadway, Ste. 415 Boulder, CO 80302
Ms. Judy Ding Town of Erie Public Works P.O. Box 750 Erie, CO 80516	Jim Schmidt Boulder City Open Space P.O. Box 791 Boulder, CO 80306	Ms. Carol Decker RTD 1600 Blake Street Denver, CO 80202
Mr. Thomas A. Phare Public Works Director City of Louisville 749 Main Street Louisville, CO 80027 (303)666-6565	Mr. Doug Short Public Works Director City of Lafayette 1290 S. Public Road Lafayette, CO 80026	Bill Cowern, Traffic Engineer City of Boulder P.O. Box 791 Boulder, CO 80306 (303) 441-4054
Therese Glowacki Parks and Open Space P.O. Box 471 Boulder, CO 80306	Mike Vanderhoof Federal Highway Administration 555 Zang St. Rm. 250 Lakewood, CO 80228	Jean Wallace Federal Highway Administration 555 Zang St. Rm. 250 Lakewood, CO 80228
Allison Deans Michael USFWS 755 Parfet Street No. 361 Lakewood, CO 80215	Deborah Lebow Environmental Protection Agency 999 18 <sup>th</sup> Street, Ste. 300 8EPR-N Denver, CO 80202	Mike Sherman Colorado Division of Wildlife 317 W. Prospect Road Fort Collins, CO 80526
Pat Martinek Colorado Department of Public Health and Environment 4300 Cherry Creek Drive South Denver, CO 80246-1530	Tim Carey US Army Corps of Engineers 9307 S. Wadsworth Blvd. Littleton, CO 80128-6901	Colorado Historical Society Contact: Dan Corson, Local Government Liaison 1300 Broadway Denver, CO 80203 303-866-2673 dan.corson@chs.state.co.us
Scott Franklin US Army Corps of Engineers 9307 S. Wadsworth Blvd. Littleton, CO 80128-6901		

**A. Gray Clark**

---

**From:** Micki Kaplan [KaplanM@ci.boulder.co.us]  
**Sent:** Friday, July 27, 2001 1:46 PM  
**To:** webbKS@c-b.com  
**Cc:** Bill Cowern; Marni Ratzel; Tracy Winfree  
**Subject:** Comments on CDOT Arapahoe Project

Kirk:

Attached are City of Boulder comments on the project to date. Thank you for contacting us. As you are developing your recommendations for alternative transportation strategies for the corridor for Mueller Engineering and CDOT, feel free to contact us. Also, we would be interested in seeing your recommendations after they are completed.

Thank you.

Micki



**CITY  
OF  
BOULDER**

**DEPARTMENT OF PUBLIC WORKS**  
P.O. Box 791  
1739 Broadway, Second Floor  
Boulder, Colorado 80306-0791

July 27, 2001

**MEMORANDUM**

**TO:** Kirk Webster, Carter & Burgess

**From:** Bill Cowern, City of Boulder, Traffic Engineer  
Micki Kaplan, City of Boulder/GO Boulder, Senior Transportation Planner  
Marni Ratzel, City of Boulder/Go Boulder, Bicycle and Pedestrian Coordinator

**RE:** City of Boulder Comments on the CDOT Arapahoe project

Comments were provided at the recent open house on the Arapahoe project. In addition, City of Boulder comments on the CDOT Arapahoe project are summarized below.

1. At the intersection of 75th & Arapahoe, construct an additional Through lane in each direction, which tapers out on the approach and tapers back in on the departure. Provide a sufficient amount of storage on each approach and a sufficient amount of acceleration before the taper on the departure. Evaluate whether the most efficient use of that lane would be a "general purpose lane" or a "Queue Jump Lane" for transit.
2. Consider whether you need an extra through lane at 63rd & Arapahoe. If you do, when connect west to Cherryvale and taper back down to a three lane section east of 63rd. Otherwise, design tapers, approach and accel facilities and evaluate how you use the lane as above. When rebuilding this intersection, realign the north and south legs of 63rd so that the intersection is a more traditional four-way. Make needed signal equipment upgrades such that the City of Boulder would be willing to take over maintenance and operation of the signal afterwards (coordinate with Alex May and Joe Paulson about those issues).
3. We support reconstruction of the bridge structure west of 75th Street, as it constrains efficient travel along the corridor and precludes adequate width necessary to provide a continuous shoulder wide enough to accommodate safe bicycle travel. Forecast for future travel demand should guide the design and construction of the new bridge structure. Consider the need to accommodate any possible future configuration that makes sense (four lanes plus shoulder, etc...). Also, make sure the new bridge structure accommodates any possible transit rail that might use this facility in the future. We should rebuild this bridge ONCE and only ONCE.
4. Provide Bicycle Lanes through the City of Boulder portions of Arapahoe and then EITHER bicycle lanes or shoulders (whichever is preferred by the County) for the remainder of Arapahoe Road within the project.
5. Provide transit stop amenities throughout the corridor (shelters, benches, concrete pads, etc..). Where there are transit stops, make sure that buses can use shoulder and additional space to clear the motor vehicles space AND that they have adequate acceleration space afterwards to ge

- • • back up to speed for reentry on to Arapahoe. Bus turnouts are not desired nor being requested.
  - • • A shoulder that can be shared with bicycles can be effective.
6. Connect transit stops to significant destination points with concrete sidewalk or path. Sidewalk all along Arapahoe is probably unreasonable, but facilities should exist to connect major origin/destination points with transit stops.
  7. Consider transit priority treatments to speed the bus up whenever possible. Ed Schumm, Carter Burgess is currently researching transit system priority treatments for the City of Boulder. This research should be completed by early September, 2001. Coordination with the results of Ed's research would be beneficial for the Arapahoe project. Some possibilities include queue-jumps at intersections and exclusive bus lanes.

Contact information:

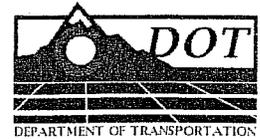
Bill Cowern (303) 441-4054 email: [cowernb@ci.boulder.co.us](mailto:cowernb@ci.boulder.co.us)  
Marni Ratzel (303) 441-4138 [ratzelm@ci.boulder.co.us](mailto:ratzelm@ci.boulder.co.us)  
Micki Kaplan (303) 441-4162 [kaplanm@ci.boulder.co.us](mailto:kaplanm@ci.boulder.co.us)

## 4(f) Resources

# STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION

Planning/Environmental Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631  
(970) 350-2170



RECEIVED

MAR 10 2008

March 7, 2008

Ms. Georgianna Contiguglia  
State Historic Preservation Officer  
Colorado Historical Society  
1300 Broadway  
Denver, CO 80203

Muller Engineering Company, Inc.

SUBJECT: Section 4(f) *De Minimis* Notification, CDOT Project STA 0072-013, State Highway 7  
(Cherryvale Road to 75<sup>th</sup> Street) Environmental Assessment, Boulder County

Dear Ms. Contiguglia:

This letter and the attached correspondence constitute notification that FHWA intends to make a 4(f) *de minimis* finding for the project referenced above, which involves four historic resources associated with State Highway 7 (Cherryvale Road to 75<sup>th</sup> Street) Environmental Assessment (EA). These National Register of Historic Places (NRHP)-eligible sites include: the Butler-Smith Property (Colorado Office of Archaeology and Historic Preservation [OAHHP] Site No. 5BL8917); a Gas Station and House (5BL9021) located at 6307 Arapahoe Road; the Harburg House (5BL9024) and the DeBacker-Tenenbaum House (5BL9029). CDOT's Environmental Programs Branch consulted with your staff regarding eligibility and effects for this project in March and August 2005.

## Project Effects

**Butler-Smith Property (5BL8917):** The project will remove vegetation in the CDOT right-of-way between Arapahoe Road and the Butler-Smith house. These improvements are limited to the existing road right-of-way. Construction will also require a 25 square-foot temporary easement for new curbing. Neither action will result in direct impacts to the property or the elements that make the property eligible for NRHP-listing. In August 2005, the Colorado State Historical Preservation Officer (SHPO) concurred that these activities would result in *no adverse effect*.

**Gas Station and House (5BL9021):** After the reconstruction of SH 7, the southwest corner of this property will be required for sidewalk, curb and gutter, as there is currently no sidewalk. This triangle-shaped property is paved and has been used as part of the highway. In March 2005, CDOT consulted with the SHPO and it was determined that this triangle does not contribute to overall significance of the property. The project also requires a 400-square-foot temporary easement to construct a private access on the property. The existing access off 63<sup>rd</sup> Street will be closed and a ten-foot wide and unpaved access will be built to the north. In August 2005, your office concurred that these actions result in *no adverse effect*.

**Harburg House (5BL9024):** Construction will require various temporary easements resulting from minor improvements to two existing property driveways. The improvements involve asphaltting the drives within the right-of-way. No work will occur on private property across the right-of-way line except for two temporary construction easements totaling 600 square feet. In addition, an existing public road on the west side of the Harburg property requires reconstruction and a temporary easement of 4,450

square feet. Finally, a temporary easement maybe needed to reconstruct the headwall and wingwalls on the outlet end of a segment of the Enterprise Ditch (5BL4164.2) that runs through the property. This segment of ditch was determined *not eligible* to the NRHP, in consultation with the SHPO, in March 2002. None of the aforementioned temporary easements will directly impact the property or the elements that make the property eligible for listing to the NRHP. In August 2005, your office concurred that these actions would result in *no adverse effect* to 5BL9024.

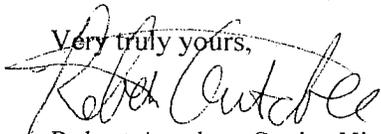
**DeBacker-Tenenbaum House (5BL9029):** Widening of SH 7 will require the completion of a retaining wall along CDOT right-of-way north of the house. The retaining wall will not directly impact the property's landscaping or buildings. The Burlington Northern and Santa Fe (BNSF) railroad located west of the property will be temporarily realigned to the east of its existing location. This work will not directly impact 5BL9029. However, a temporary easement of approximately 2,000 square feet is necessary to build the fill slope for the railroad shoe-fly alignment, which is also a temporary improvement. These fill slopes will be located partially within the historic property boundary and the limit of the fill may impact some of the landscaping along the property's western boundary. With the exception of a single juniper bush, the vegetation impacted by the toe of the slope is not part of the original plantings that contribute to the property's significance. CDOT will build a temporary 2-foot to 4-foot-long retaining wall to minimize impacts inside the historic property boundary. Crews will remove the retaining wall after construction is completed. There will be no direct impacts to the property or the elements that make the property eligible for NRHP-listing. In August 2005, the SHPO concurred that these actions would result in *no adverse effect*.

#### **De Minimis Determination**

CDOT's Environmental Programs Branch (EPB) sent your office a request for comment on a revised boundary and effects determination on March 24, 2005. Your office responded on March 29, 2005. EPB followed a request for an effects determination for 5BL8917, 5BL9021, 5BL9024, and 5BL9029 on August 4, 2005. You concurred with CDOT's determinations in a letter dated August 15, 2005. As part of the Section 106 consultation process, the Boulder County Historic Preservation Advisory Board was afforded the opportunity to comment on the eligibility and effects determinations in correspondence dated March 24 and August 4, 2005. Based on this determination, FHWA may make a *de minimis* finding for the Section 4(f) requirements for this property. Enclosed are copies of the letters from March to August 2005 letters for your convenience.

We request your acknowledgment of this *de minimis* notification. We have forwarded this notification to the Boulder County Historic Preservation Advisory Board as well. Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Region 4 Senior Historian Robert Autobee at (970) 350-2204.

Very truly yours,



Robert Autobee, Senior Historian  
CDOT-Region 4 Environmental

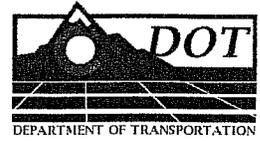
Enclosures: correspondence

cc: Carol Parr, CDOT Region 4  
File/CF

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Planning/Environmental Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631  
(970) 350-2170



RECEIVED

MAR 10 2008

March 3, 2008

Ms. Karla S. Petty  
FHWA Colorado Division Administrator  
12300 W. Dakota Avenue, Suite 180  
Lakewood, CO 80228

Muller Engineering Company, Inc.

SUBJECT: Finding of Section 4(f) *De Minimis* Impact, CDOT Project STA 0072-013, State Highway 7 (Cherryvale Road to 75<sup>th</sup> Street) Environmental Assessment, Boulder County

Dear Ms. Petty:

This letter and the attached materials constitute a request for review and concurrence on a finding of *de minimis* impact for four historic resources associated with the State Highway (SH) 7 (Cherryvale Road to 75<sup>th</sup> Street) Environmental Assessment (EA) which involves improvements from Cherryvale Road to 75<sup>th</sup> Street to reduce congestion and enhance safety. These National Register of Historic Places (NRHP)-eligible sites include: the Butler-Smith Property (Colorado Office of Archaeology and Historic Preservation [OAHP] Site No. 5BL8917); a Gas Station and House (5BL9021) located at 6307 Arapahoe Road; the Harburg House (5BL9024) and the DeBacker-Tenenbaum House (5BL9029).

### **Project Effects**

**Butler-Smith Property (5BL8917):** The project will remove vegetation in the CDOT right-of-way between Arapahoe Road and the Butler-Smith house. These improvements are limited to the existing road right-of-way. Construction will also require a 25 square-foot temporary easement for new curbing. Neither action will result in direct impacts to the property or the elements that make the property eligible for NRHP-listing. In August 2005, the Colorado State Historical Preservation Officer (SHPO) concurred that these activities would result in *no adverse effect*.

**Gas Station and House (5BL9021):** After the reconstruction of SH 7, the southwest corner of this property will be required for sidewalk, curb and gutter, as there is currently no sidewalk. This triangle-shaped property is currently paved and has been used as part of the highway. In March 2005, CDOT consulted with the SHPO and it was determined that this triangle does not contribute to overall significance of the property. The project also requires a 400-square-foot temporary easement to construct a private access on the property. The existing access off 63<sup>rd</sup> Street will be closed and a new access, about ten feet wide and unpaved, will be built to the north. In August 2005, the SHPO concurred that these actions result in *no adverse effect*.

**Harburg House (5BL9024):** Construction will require various temporary easements for minor improvements to two existing property driveways. The improvements involve asphaltting the drives within the right-of-way. No work will occur on private property across the right-of-way line except for two temporary construction easements totaling 600 square feet. In addition, an existing public road on the west side of the Harburg property requires reconstruction and a temporary easement of 4,450 square feet.

Finally, a temporary easement maybe needed to reconstruct the headwall and wingwalls on the outlet end of a segment of the Enterprise Ditch (5BL4164.2) that runs through the property. This segment of ditch was determined *not eligible* to the NRHP, in consultation with the SHPO, in March 2002. None of the aforementioned temporary easements will directly impact the property or the elements that make the property eligible for listing to the NRHP. In August 2005, the SHPO concurred that these actions would result in *no adverse effect* to 5BL9024.

**DeBacker-Tenenbaum House (SBL9029):** Widening of SH 7 will require the completion of a retaining wall along CDOT right-of-way to the north of the house. The retaining wall will not directly impact the property's landscaping or buildings. The Burlington Northern and Santa Fe (BNSF) railroad located west of the property will be temporarily realigned to the east of its existing location. This work will not directly impact 5BL9029. However, a temporary easement of approximately 2,000 square feet is necessary to build the fill slope for the railroad shoe-fly alignment, which is also a temporary improvement. These fill slopes will be located partially within the historic property boundary and the limit of the fill may impact some of the landscaping along the property's western boundary. With the exception of a single juniper bush, the vegetation impacted by the toe of the slope is not part of the original plantings that contribute to the property's significance. CDOT will build a temporary 2-foot to 4-foot-long retaining wall to minimize impacts inside the historic property boundary. Crews will remove the retaining wall after construction is completed. There will be no direct impacts to the property or the elements that make the property eligible for NRHP-listing. In August 2005, the SHPO concurred that these actions would result in *no adverse effect*.

#### **Finding of De Minimis Impact**

CDOT consulted with the SHPO regarding eligibility and effects for these sites in correspondence dated August 4, 2005. The SHPO concurred with these determinations on August 15, 2005. On August 4, 2005, CDOT offered the Boulder County Historic Preservation Advisory Board the opportunity to comment on eligibility and effects via letter. CDOT did not receive a response from the Advisory Board to this request within the 30-day review period. Copies of the Section 106 correspondence are attached for your review.

Based on the information presented above and on the attached documentation, the effects of the project on the historic properties noted above constitute a *de minimis* impact and the requirements of 23 USC 138 and 49 USC 303 have been satisfied. This finding is considered valid unless new information is obtained or the proposed effects change to the extent that consultation under Section 106 must be reinitiated.

If you concur with this finding, please sign below.

Very truly yours,



Carol Parr  
CDOT Region 4 Environmental Manager

Enc:

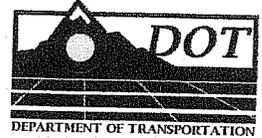
cc: Lisa Schoch, CDOT-EPB  
File/CF

I concur: Stephen Popul 3/6/08  
for Karla S. Petty (date)  
Administrator, Colorado Division  
Federal Highway Administration

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Planning/Environmental Section  
1420 2<sup>nd</sup> Street  
Greeley, Colorado 80631  
(970) 350-2170



November 28, 2007

RECEIVED

DEC 19 2007

Muller Engineering Company

David A. Nicol, PE  
FHWA Colorado Division Administrator  
12300 W. Dakota Avenue, Suite 180  
Lakewood, CO 80228

SUBJECT: Findings of Section 4(f) *De Minimis* Impact, (Legion Park and Cottonwood Ditch #2 [5BL4488.3]), Project STA 0072-013, SH 7 (Cherryvale Road to 75<sup>th</sup> Street) Environmental Assessment, Boulder County

Dear Mr. Nicol:

This letter and attached materials constitute a request for review and concurrence on findings of *de minimis* impact for two resources associated with the State Highway (SH) 7 (Cherryvale Road to 75th Street) Environmental Assessment (EA). The sites are the City of Boulder's Legion Park and a segment of the Cottonwood Ditch #2 (Colorado Office of Archaeology and Historic Preservation [OAHP] Site No. 5BL4488.3). Resulting from an agreement between Federal Highways Administration (FHWA) and the Colorado Department of Transportation's (CDOT) Region 4 Office, we are including in this correspondence both 4(f) *de minimis* findings for your review and signature.

CDOT will implement improvements to a two-mile segment of SH 7 to alleviate current problems with congestion, safety and multi-modal deficiencies. The project corridor is the length of SH 7 from Cherryvale Road in the city of Boulder and east to 75th Street in Boulder County. In the area of Legion Park, the project will widen the existing alignment from two to four lanes, including shoulder improvements for pedestrian and bike users and replace a deteriorating siphon within a 500-foot segment of Cottonwood Ditch #2.

### Request for Finding of 4(f) *De Minimis* for Legion Park

Federal and state agencies conducted three group meetings early in the EA process. The official agency with jurisdiction, Boulder County Open Space, attended all three group meetings, project team progress gatherings and public open houses. The following summarizes the project's public involvement from June and November 2004:

- ❖ First EA Public Meeting, June 17, 2004
  - Information Presented
    - Project Background
    - Possible Alternatives
    - Existing Conditions

- Identified All Parks, Open Space, and Recreation Facilities Along Project Corridor
- Public Comments
  - Project team received 29 Comment Sheets Containing 173 Different Responses
  - None of the Comments Specifically Addressed Legion Park
- ❖ Second EA Public Meeting, November 9, 2004
  - Information Presented
    - Project Background
    - Alternatives Evaluation
    - Preferred Alternative (4-Lane)
    - Environmental Impacts
      - Visual Display Identified Specific Impacts to Legion Park – With Cut Slopes Or With A Retaining Wall
      - Photo Simulations Showed View Of Legion Park Before And After Construction – With Cut Slopes Or With A Retaining Wall
  - Public Comments
    - Question to the Public on the comment sheet: In the area of Legion Park and the City of Boulder Open Space (top of hill), both cut slopes and retaining walls are being considered. Cut slopes would require a larger construction impact area affecting more vegetation and trees, while retaining walls would be up to 20-23' tall. Which do you prefer?
      - 43 Responses Preferred Cut Slopes
      - 18 Responses Preferred Retaining Walls
    - Project team received 75 Comment Sheets Containing 293 Responses
    - Four Comments Addressed Retaining Walls
      - Graffiti will be a problem if walls are built (2 comments)
      - Concern about the aesthetics of the wall (1 comment)
      - Concern with sight restrictions and shadows causing icing problems (1 comment)
    - Two requests that cut slopes appear more natural
    - One respondent wanted as many trees saved as possible
- ❖ After the signing of the EA, the project team will conduct a public hearing. At this time, the team will inform those in attendance of the *de minimis* findings and the public will have an opportunity to comment. This meeting has yet to be scheduled.
- ❖ All Public Process Information Is Documented In The EA

Legion Park is a 28-acre mesa overlooking the Hillcrest, Leggett-Owen and Valmont Reservoirs. These reservoirs support the local osprey and eagle populations and provide park visitors the opportunity for raptor watching. Inside the park, Legion Park Trail is a one-mile loop open to hikers, mountain bikers and equestrians. Construction will accommodate a widened roadway; improve access to the primary park; connect the primary entrance to SH 7, and improve safety along the roadway resulting from the removal of a secondary access. The proposed action will impact approximately 0.5 of an acre of Legion Park and project effects on the Section 4(f) resource are limited to alterations to the existing cut slopes inside the park. In the impacted area, there is a landscaped hillside with no formal support of use or activity. In consultation with Boulder County Open Space, the impact from the cut slopes and/or loss of secondary access will not negatively affect any of the activities, attributes, or functions of the park.

Please refer to the enclosed for an illustration of the park and the May 17, 2005 concurrence letter from the Official with Jurisdiction, Boulder County Open Space. After construction, CDOT will return any affected locations to a condition that does not impact the use of the park or diminish its setting. The park will remain open and accessible during the entire project. CDOT believes that this represents the best effort to avoid, minimize, and mitigate impacts to the Section 4(f) resources associated with this project.

On April 26, 2005, CDOT and Boulder County Open Space met to discuss the cut slope and access change impacts to Legion Park. In May 2005, Boulder County Open Space sent CDOT a letter outlining the impacts to the Park and the County's concurrence that the project would not negatively impact park resources. Attached is a copy of the concurrence letter from Boulder County Open Space dated May 17, 2005.

Based on these actions and correspondence, and taking into consideration the harm minimization measures that have been incorporated into the proposed action as documented in this Section 4(f) Evaluation in Section 4.5 of the Environmental Assessment, it is recommended that the proposed action would have *de minimis* impacts and that an analysis of feasible and prudent avoidance alternatives under Section 4(f) is not required.

Please refer to page five with the heading: Finding of 4(f) de minimis for Legion Park for a complete compliance summary.

#### **Request for Finding of 4(f) De Minimis for Cottonwood Ditch #2 (5BL4488.3)**

The following description of the effects to a segment of the Cottonwood Ditch # 2 (5BL4488.3) and attached materials constitute a request for concurrence on a finding of *de minimis* impact for the project referenced above. The Cottonwood Ditch #2 is a historic resource within the State Highway 7 EA project area. Segment 5BL4488.3 was initially determined *eligible* under National Register of Historic Places (NRHP) Criterion A on March 29, 2005.

#### **Project Effects**

- 1) Improvements to SH 7 require the construction of a temporary bridge to carry the Burlington Northern railroad over the Cottonwood Ditch #2. CDOT will remove the bridge upon the project's completion.
- 2) CDOT will also construct a permanent bridge to replace the existing railroad bridge over the ditch. The proposed bridge will be similar in configuration to the existing bridge (approximately a 15-foot span vs. the existing 12-foot span). The introduction of the new bridge will not alter the resource's current alignment or change the ditch's existing surface or materials.

Because the construction of the two bridges will not impact this segment or the entire eligible Cottonwood Ditch # 2, CDOT has determined that the project will result in *no adverse effect* to the entire ditch. Please see the attached graphic referencing this element of the SH 7 project.

#### **Finding of De Minimis Impact**

CDOT initially consulted with the SHPO regarding eligibility and effects for this sites in correspondence dated March 24, 2005. The SHPO concurred with our findings of eligibility and effects by letter on March 29, 2005. CDOT's Environmental Programs Branch submitted additional information regarding effects

for 5BL4888.3 in a letter dated March 13, 2006 and the SHPO concurred with those findings on March 24, 2006. CDOT offered Boulder County Historic Preservation Advisory Board the opportunity to comment on eligibility and effects via letter dated March 24, 2005. We did not receive a response from the Commission to these requests within the 30-day review period. Copies of the Section 106 correspondence are attached for your review.

CDOT believes that this documentation is sufficient to demonstrate compliance with Section 4(f) *de minimis* requirements and ask that you find as such for both resources. If you concur with this finding for Legion Park, please sign at the concurrence line on page five of this document and for the finding on Cottonwood Ditch #2, please sign the concurrence line on page six.

Sincerely,



Carol Parr

CDOT Region Environmental Manager

Enc: Legion Park Attachments:

Legion Park location map

Parks and Open Space Concurrence Letter dated May 17, 2005

Map showing Preferred Alternative and impacts to Legion Park

Cottonwood Ditch #2 Attachments:

Section 106 correspondence

Site forms

Plan sheets

cc: Lisa Schoch, CDOT-EPB

File/CF

### Finding of 4(f) de minimis for Legion Park

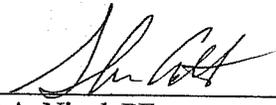
The Federal Highway Administration hereby finds that:

- CDOT has consulted with the Official(s) with Jurisdiction on the uses and impacts to the non-historic Section 4(f) resource from the proposed State Highway 7 (Cherryvale Road to 75<sup>th</sup> Street) Environmental Assessment, CDOT Project Number STA 0072-013.
- The public has been given an opportunity to provide input.
- The Official(s) with Jurisdiction concurred 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 the 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.

I concur:

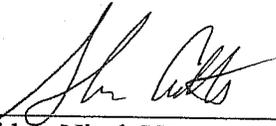
*DN*

  
David A. Nicol, PE  
Administrator, Colorado Division  
Federal Highway Administration

*12/11/07*  
Date

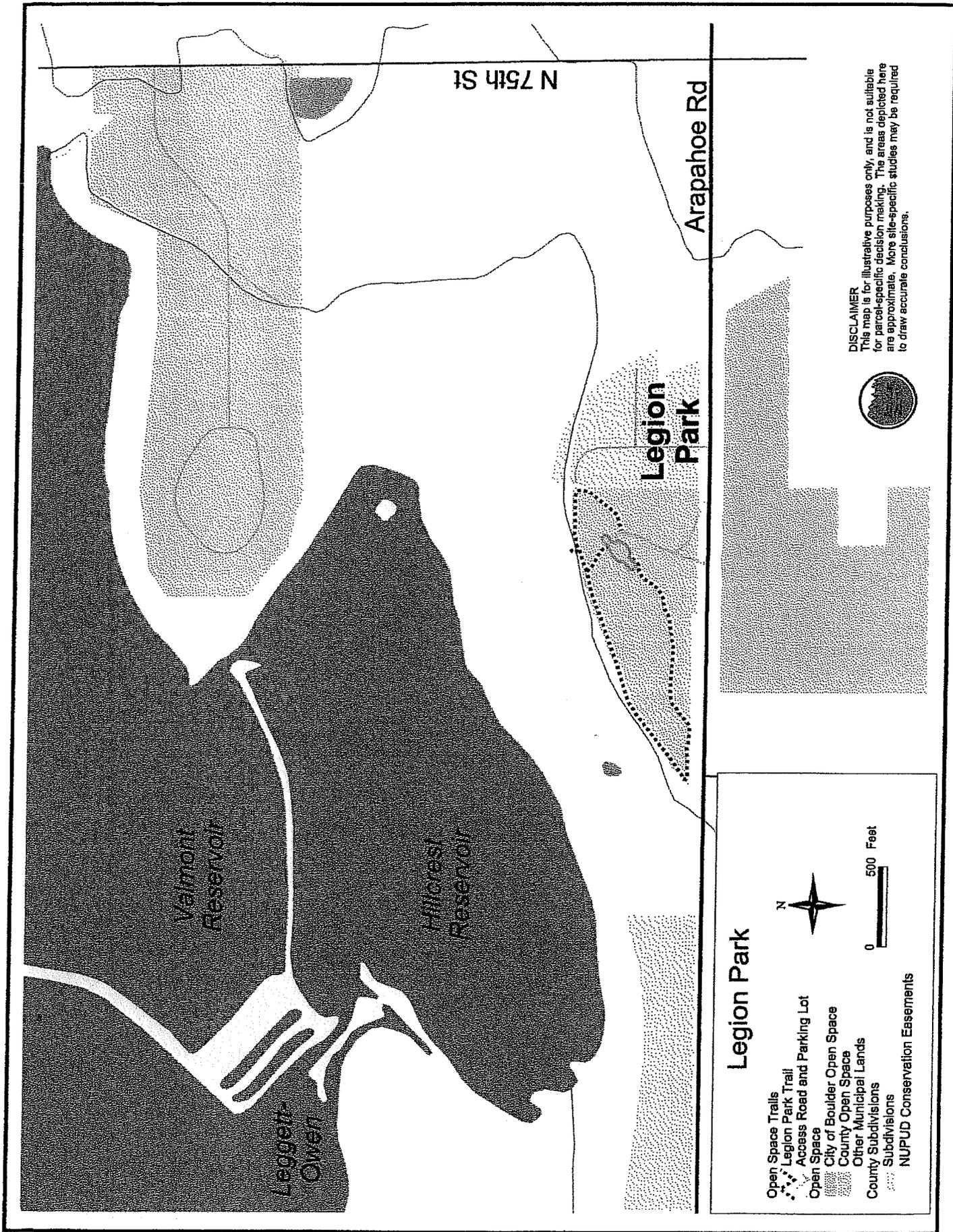
**Finding of 4(f) de minimis for a segment of Cottonwood Ditch # 2 (5BL4488.3)**

Based on the information presented above and on the attached documentation, the effects of this proposed improvement on the property noted above constitute a *de minimis* impact and the requirements of 23 USC 138 and 49 USC 303 have been satisfied. This finding is considered valid unless new information is obtained or the proposed effects change to the extent that consultation under Section 106 must be reinitiated.

I concur:  \_\_\_\_\_ Date 12/11/07

For David A. Nicol, PE  
Administrator, Colorado Division  
Federal Highway Administration

# LEGION PARK ATTACHMENTS





Post Office Box 471 • Boulder, Colorado 80306

## Parks and Open Space Department

5201 St. Vrain Road • Longmont, Colorado 80503 • (303) 678-6200 • Fax: (303) 678-6180  
Fairgrounds: 9595 Nelson Road • Longmont, Colorado 80501 • (303) 678-6235 • Event Line: (303) 441-3927

PROJECT: STA 0072-013  
LOCATION: SH 7 EA  
CODE: 14802

May 17, 2005

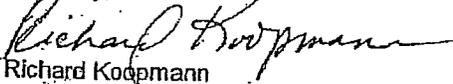
Colorado Department of Transportation  
1050 Lee Hill Road  
Boulder, CO 80302  
Attn: Mark Gosselin

Dear Mr. Gosselin,

This letter concerns impacts to Legion Park with regard to proposed road improvements associated with the State Highway 7 (SH 7) Environmental Assessment. The Boulder County Parks and Open Space Department agrees that the proposed road improvements will not have an adverse impact on the use of Legion Park, and that the project meets the criteria for temporary occupancy as outlined in the Section 4(f) regulations. An agreement between the Colorado Department of Transportation (CDOT) and Boulder County with regard to the following is currently in negotiation.

1. According to CDOT the project will require approximately one year to construct. The time required for the construction of the main access and removal of the secondary access will take less than one month. The duration of construction of the cut slopes along SH 7 will take approximately two months. The cut slopes are a result of the lowering of the hill adjacent to Legion Park and are not related to the construction of the Legion Park access. This work will take place under temporary easements and the ownership of Legion Park will not change. We consider the scope of work to be minor in nature and magnitude. The main access will require minor improvements to re-connect to SH 7. The secondary access will be removed to improve safety. The cut slopes are considered minor and will not change the use of the park in any way.
2. The project will not have any adverse impacts to Legion Park and the park will remain open during construction activities.
3. The affected portion of the Legion Park property will be returned to a condition that will not impact the use of the park or diminish the park setting.

Sincerely,

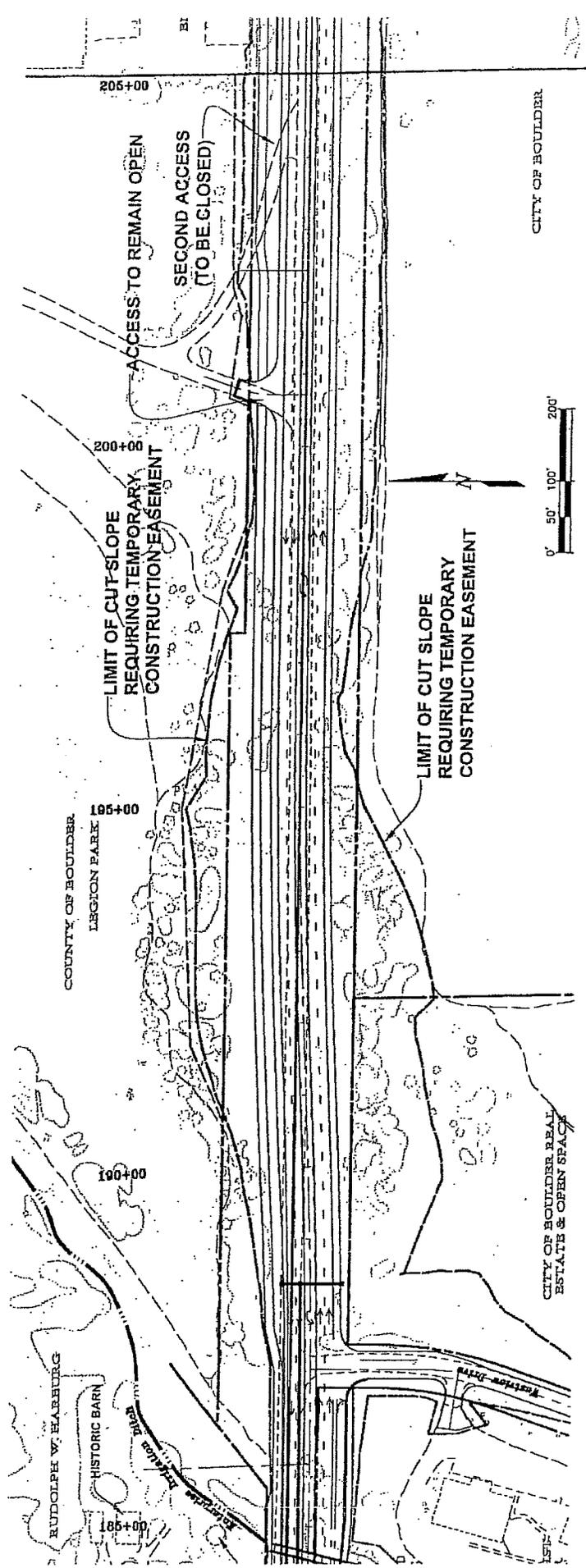
  
Richard Koopmann  
Resource Planning Manager

Cc.  
Ron Stewart, County Open Space  
Carol Parr, CDOT - R4Environmental  
Lisa Schoch, CDOT  
Gray Clark, Muller Engineering  
File

Tom Mayer  
County Commissioner

Ben Pearlman  
County Commissioner

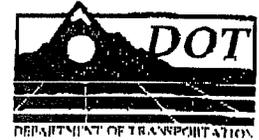
Will Toor  
County Commissioner



# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 E. Arkansas Ave.  
Shumate Bldg.  
Denver, CO 80222  
(303)757-9281



November 27, 2007

Mr. Richard Koopman  
Resource Planning Division Manager  
Boulder County Parks & Open Space  
5201 St. Vrain Road  
Longmont, CO 80503

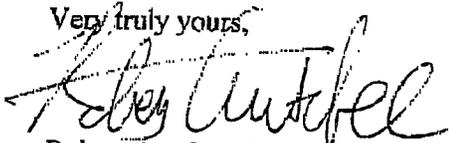
SUBJECT: Notification of Section 4(f) De Minimis for Cottonwood Ditch #2 Segment 5BL4488.3,  
CDOT Project STA 0072-013, State Highway 7 Environmental Assessment

Dear Mr. Koopman:

Enclosed are materials submitted to the Federal Highway Administration (FHWA) -- Colorado Division notifying that office of a Section 4(f) *De Minimis* for a segment of the Cottonwood Ditch #2 (Colorado Office of Archaeology and Historic Preservation Site No. 5BL4488.3) and the City of Boulder's Legion Park. This correspondence is sent to you as a consulting party for the State Highway 7 Environment Assessment.

If you have questions or require additional information, please contact me at (970) 350-2204.

Very truly yours,



Robert Autobee, Senior Historian  
CDOT-Region 4

Enclosures

cc: Carol Parr CDOT Region 4  
File/CF

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 E. Arkansas Ave.  
Shumate Bldg.  
Denver, CO 80222  
(303)757-9281



November 6, 2007

Mr. James Hewat  
Historic Preservation Planner  
Boulder County Historic Preservation Advisory Board  
Boulder Planning Department  
P.O. Box 791  
Boulder, CO 80306

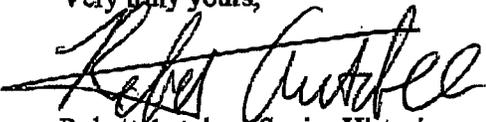
**SUBJECT:** Notification of Section 4(f) De Minimis for Cottonwood Ditch #2 Segment 5BL4488.3, CDOT Project STA 0072-013, State Highway 7 Environmental Assessment (CHS #448019)

Dear Mr. Hewat:

Enclosed are materials submitted to the Colorado State Historic Preservation Officer (SHPO) notifying that office of a Section 4(f) *De Minimis* for a segment of the Cottonwood Ditch #2 (Colorado Office of Archaeology and Historic Preservation Site No. 5BL4488.3). The segment is located south of Arapahoe Road. This correspondence is sent to you as a consulting party for the State Highway 7 Environment Assessment.

If you have questions or require additional information, please contact me at (970) 350-2204.

Very truly yours,

  
Robert Autobee, Senior Historian  
CDOT-Region 4

Enclosures

cc: Carol Parr CDOT Region 4  
Fije/CF

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
Shumate Building  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



November 2, 2007

Ms. Georgianna Contiguglia  
State Historic Preservation Officer  
Colorado Historical Society  
1300 Broadway  
Denver, CO 80203

**SUBJECT:** Notification of Section 4(f) *De Minimis* for Cottonwood Ditch #2 Segment 5BL4488.3, CDOT Project STA 0072-013, State Highway 7 Environmental Assessment (CHS #448019)

Dear Ms. Contiguglia:

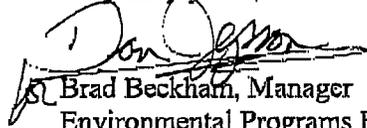
This letter and the attached materials constitute notification of a Section 4(f) *de minimis* impact for a segment of the Cottonwood Ditch #2 (5BL4488.3) associated with the Environmental Assessment referenced above.

CDOT initially consulted with your office regarding 5BL4488.3 in correspondence dated March 24, 2005. That letter included descriptions of effects to this segment and one other (5BL4488.2). On March 29, 2005 you determined 5BL4488.3 was *eligible* for the National Register of Historic Places (NRHP) and the project would result in an *adverse effect* to the segment. On March 13, 2006, CDOT submitted additional information and a clarification of effects for both segments. Based on the revised description of effects, you concurred with our finding of *no adverse effect* to 5BL4488.3 in correspondence dated March 24, 2006.

Based on this determination, FHWA may make a *de minimis* finding for the Section 4(f) requirements for this property. Enclosed are copies of the letters from March 2005 and March 2006 for your convenience.

We request your acknowledgment of this *de minimis* notification. We have forwarded this notification to the Boulder County Historic Preservation Advisory Board as well. Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Region 4 Senior Historian Robert Autobee at (970) 350-2204.

Very truly yours,



Brad Beckham, Manager  
Environmental Programs Branch

**Enclosures:** March 24, 2005 letter from CDOT to SHPO  
March 29, 2005 SHPO response  
March 13, 2006 letter from CDOT to SHPO  
March 24, 2006 SHPO response

**cc:** Carol Purr, CDOT Region 4/Lisa Schoch, CDOT-EPB  
P/CF

 OFFICE of ARCHAEOLOGY and HISTORIC PRESERVATION

May 2, 2007

Brad Beckham  
Manager, Environmental Programs Branch  
Colorado Department of Transportation  
Department of Transportation  
Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, CO 80222

Re: CDOT Project STA 0072-013, SH 7; Notification of Section 4(f) *De Minimis*.  
(CHS #44809)

Dear Mr. Beckham,

Thank you for your correspondence dated April 25, 2007 and received by our office on April 26, 2007 regarding the above-mentioned project. After review of the submitted information, we acknowledge the *de minimis* notification under Section 4(f) of the Department of Transportation Act for this project.

If unidentified archaeological resources are discovered during construction, work must be interrupted until the resources have been evaluated in terms of the National Register criteria, 36 CFR 60.4. In consultation with this office.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Amy Pellante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,

*File Copy*

Georgianna Contiguglia  
State Historic Preservation Officer

**COLORADO HISTORICAL SOCIETY**

1300 BROADWAY DENVER COLORADO 80203 TEL 303/866-3395 FAX 303/866-2711 [www.coloradohistory-adhp.org](http://www.coloradohistory-adhp.org)

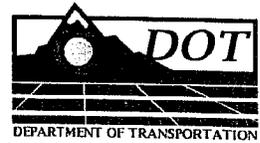
Nov 26 2007 11:10 P.02

CD HISTORICAL SOCIETY Fax: 3038662711

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
Shumate Building  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



April 26, 2007

Mr. David A. Nicol, PE  
Division Administrator  
FHWA - Colorado Division  
12300 W. Dakota Avenue, Suite 180  
Lakewood, CO 80228

RECEIVED

MAY 30 2007

Muller Engineering Company, Inc.

Dear Mr. Nicol,

RE: Finding of Section 4(f) *De Minimis* Impact, Enterprise Ditch Segment 5BL4164.2, Project STA 0072-013, State Highway 7 Environmental Assessment, Boulder County, SA 14802

This letter and attached materials constitute a request for review and concurrence on a finding of *de minimis* impact for the project referenced above, which involves improvements to State Highway 7 (SH 7) from Cherryvale Road to 75<sup>th</sup> to reduce congestion and enhance safety. The Enterprise Ditch (5BL4164) is within the project area and is eligible to the National Register of Historic Places under Criterion A for its association with the agricultural/irrigation history in Boulder County. We recently requested your review of a *de minimis* finding for segment 5BL4164.4 of this ditch.

### Project Effects

The project will involve the replacement of a concrete box culvert that currently carries segment 5BL4164.2 of the Enterprise Ditch under State Highway 7, and will include minor realignment of approximately 200 feet of the ditch on the south side of SH 7. The segment that will be impacted was determined to have a low degree of integrity due to changes in setting. Please see the attached Exhibit 3, which shows the planned impacts to the ditch segment.

### Finding of *De Minimis* Impact

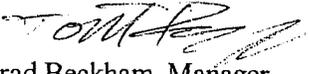
CDOT consulted with the SHPO regarding eligibility and effects to this ditch segment in correspondence dated August 4, 2005. At that time, CDOT determined that the project would result in *no historic properties affected*, but in their response dated August 15, 2005, SHPO determined that the entire Enterprise Ditch is NRHP-eligible, and the project will result in *no adverse effect* to the ditch. The SHPO was notified of the intent to make a *de minimis* finding for this segment of ditch in correspondence dated April 25, 2007. The Boulder County Landmark Preservation Advisory Board was afforded an opportunity to comment on the Section 106 findings in August 2005 and was also notified of the intent to make a *de minimis* finding for this historic resource in correspondence dated April 25, 2007. Boulder County did not provide any comments on the Section 106 determinations. Copies of the Section 106 correspondence are attached for your review.

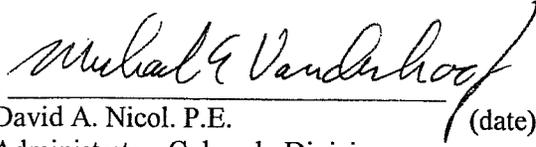
Based on the information presented above and on the attached documentation, the effects of this proposed improvement on the properties noted above constitute a *de minimis* impact and the requirements of 23 USC 138 and 49 USC 303 have been satisfied. This finding is considered valid unless new information is

obtained or the proposed effects change to the extent that consultation under Section 106 must be reinitiated.

If you concur with this finding, please sign below.

Sincerely,

*for*   
Brad Beckham, Manager  
Environmental Programs Branch

I concur,  5.2.07  
*for* David A. Nicol, P.E. (date)  
Administrator, Colorado Division  
Federal Highway Administration

Enclosures:

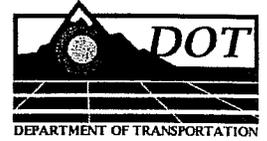
Section 106 correspondence  
Site form for 5BL4164.2  
Exhibit 3

cc: Carol Parr, Region 4  
File/CF

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
Shumate Building  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



April 25, 2007

Ms. Denise Grimm  
Historic Preservation Advisory Board  
Boulder County Land Use Department  
P.O. Box 471  
Boulder, CO 80306

SUBJECT: Notification of Section 4(f) *De Minimis*, Enterprise Ditch Segment 5BL4164.2, CDOT  
Project STA 0072-013, State Highway 7 Environmental Assessment

Dear Ms. Grimm:

This letter and the attached materials constitute notification of a Section 4(f) *de minimis* impact for a segment of the Enterprise Ditch (5BL4164.2) associated with the Environmental Assessment referenced above. We provided an extended explanation of the Section 4(f) *de minimis* requirements in correspondence for this project dated May 31, 2006. Please reference that correspondence for more information about Section 4(f) *de minimis*.

We initially consulted with your office regarding eligibility and effects for this ditch in correspondence dated August 4, 2005. At that time we determined that the segment in the project area lacked integrity and the project would result in *no historic properties affected* with regard to the ditch. In correspondence dated August 15, 2005, the State Historic Preservation Officer (SHPO) determined that the *entire* Enterprise Ditch is National Register-eligible and that the project would actually result in *no adverse effect* to the ditch. Based on this determination, FHWA may make a *de minimis* finding for the Section 4(f) requirements for this property. Enclosed are copies of the August 2005 letters for your convenience.

We request your acknowledgment of this *de minimis* notification. We have forwarded this notification to the SHPO as well. Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Senior Staff Historian Lisa Schoch at (303) 512-4258.

Very truly yours,

Brad Beckham, Manager  
Environmental Programs Branch

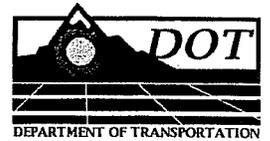
Enclosure: August 5, 2005 (Letter from CDOT to SHPO)  
August 15, 2005 (Response, SHPO to CDOT)

cc: Carol Parr, CDOT Region 4  
F/CF

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
Shumate Building  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



April 25, 2007

Ms. Georgianna Contiguglia  
State Historic Preservation Officer  
Colorado Historical Society  
1300 Broadway  
Denver, CO 80203

SUBJECT: Notification of Section 4(f) De Minimis, Enterprise Ditch Segment 5BL4164.2, CDOT  
Project STA 0072-013, State Highway 7 Environmental Assessment (CHS #44809)

Dear Ms. Contiguglia:

This letter and the attached materials constitute notification of a Section 4(f) *de minimis* impact for a segment of the Enterprise Ditch (5BL4164.2) associated with the Environmental Assessment referenced above.

We initially consulted with your office regarding eligibility and effects for this ditch in correspondence dated August 4, 2005. At that time we determined that the segment in the project area lacked integrity and the project would result in *no historic properties affected* with regard to the ditch. In correspondence dated August 15, 2005, you determined that the *entire* Enterprise Ditch is National Register-eligible and that the project would result in *no adverse effect* to the ditch. Based on this determination, FHWA may make a *de minimis* finding for the Section 4(f) requirements for this property. Enclosed are copies of the August 2005 letters for your convenience.

We request your acknowledgment of this *de minimis* notification. We have forwarded this notification to the Boulder County Historic Preservation Advisory Board as well. Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Senior Staff Historian Lisa Schoch at (303) 512-4258.

Very truly yours,

Brad Beckham, Manager  
Environmental Programs Branch

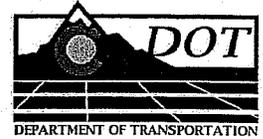
Enclosure: August 5, 2005 (Letter from CDOT to SHPO)  
August 15, 2005 (Response, SHPO to CDOT)

cc: Carol Parr, CDOT Region 4  
F/CF

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



January 30, 2007

Mr. David A. Nicol, PE  
Division Administrator  
FHWA - Colorado Division  
12300 W. Dakota Avenue, Suite 180  
Lakewood, CO 80228

SUBJECT: Finding of Section 4(f) *De Minimis* Impact, Project STA 0072-0013, State Highway 7  
Environmental Assessment, Boulder County

Dear Mr. Nicol:

This letter and the attached materials constitute a request for review and concurrence on a finding of *de minimis* impact for the project referenced above, which involves improvements to State Highway 7 from Cherryvale Road to North 75<sup>th</sup> Street to reduce congestion and enhance safety. In August 2005, the entire Enterprise Ditch (5BL4164) was found eligible to the National Register of Historic Places under Criterion A for its significant association with the agricultural/irrigation history in Boulder County.

### **Project Effects**

A 1,000-foot segment of the ditch (5BL4164.4) crosses under the Burlington Northern and Santa Fe (BNSF) Railroad in an existing siphon pipe. In order to construct a new BNSF railroad bridge over State Highway 7, a temporary railroad alignment is necessary approximately 25 feet east of the current road alignment. The temporary railroad alignment will require part of the ditch to be placed in a 100-foot long pipe. CDOT will remove the pipe and restore the open ditch after removal of the temporary rail grade alignment. The railroad will remain on its current alignment.

Since CDOT will restore this 1,000-foot segment to its original function and appearance, we have determined that these improvements will result in *no adverse effect* to the entire ditch. Please refer to the enclosed plan sheet for additional information.

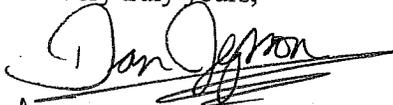
### **Finding of *De Minimis* Impact**

CDOT initially consulted with the SHPO regarding eligibility and effects for this ditch in correspondence dated March 24, 2005. At that time, we determined that the segment in the project area lacked integrity and the project would result in *no historic properties affected*. The SHPO concurred with these determinations in correspondence dated March 29, 2005, but in subsequent correspondence dated August 12, 2005, the SHPO revised that decision and determined that the entire Enterprise Ditch is NRHP-eligible. On May 31, 2006, Boulder County's Land Use Department/Historic Preservation Advisory Board was offered the opportunity to comment on eligibility and effects to the Enterprise Ditch via letter. We did not receive a response from the Committee to this request within the 30-day review period. Copies of the Section 106 correspondence are attached for your review.

Based on the information presented above and in the attached documentation, the effects of the proposed improvements noted above constitute a *de minimis* impact and the requirements of 23 USC 138 and 49 USC 303 have been satisfied. This finding is considered valid unless new information is obtained or the proposed effects change to the extent that consultation under Section 106 must be reinitiated.

If you concur with this finding, please sign below.

Very truly yours,



*for* Brad Beckham, Manager  
Environmental Programs Branch

Enclosures: Section 106 correspondence  
Site form for 5BL4164.4  
Project plans

cc: Carol Parr, Region 4  
File/CF

I concur: Michael A. Vanderhooft 2/22/07  
*for* David A. Nicol, PE Date  
Administrator, Colorado Division  
Federal Highway Administration

# Historic Resources



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

RECEIVED

MAR 28 2007

Muller Engineering Company, Inc.

12300 W. Dakota Ave., Ste. 180  
Lakewood, CO 80228

December 4, 2006

REC'D DEC 07 2006

Colorado Federal Aid Division

Ms. Carol Legard  
Advisory Council on Historic Preservation  
1100 Pennsylvania Avenue, NW  
Washington, DC 20004

Dear Ms. Legard:

Subject: Memorandum of Agreement, Colorado Department of Transportation Project  
STA 0072-0013, State Highway 7 Environmental Assessment, Boulder County, CO

Transmitted herewith is the fully executed Memorandum of Agreement (MOA) for the Colorado Department of Transportation (CDOT) project referenced above. The Federal Highway Administration (FHWA) and Colorado State Historic Preservation Officer (SHPO) have agreed that the proposed project will have an Adverse Effect on two historic properties: the Cottonwood Ditch # 2 (5BL4488/5BL4488.2) and the Colorado Southern-Burlington Northern Railroad (5BL400/5BL400.5) in Boulder County. CDOT is a participant in this agreement as an invited signatory.

In accordance with the process set forth in the Council regulations, Section 800.6(b)(1)(iv), mitigation measures and measures considered to avoid or minimize the undertaking's adverse effects have been agreed upon with the SHPO and are outlined in the MOA. There have been no substantive revisions or additions to the documentation previously provided to the Council, nor additional views expressed by the public concerning this project.

If you have questions, please contact CDOT Assistant Staff Historian Robert Autobee at (303) 757-9758.

Sincerely yours,

*Melinda Castillo*

*for* David A. Nicol, P.E.  
Division Administrator

Enclosure: Copy of MOA for ACHP files

cc: Thomas E. Norton, CDOT Executive Director

Attn: R. Autobee, CDOT Environmental Programs (w/original MOA)

Karla Harding, CDOT Region 4 Director ✓

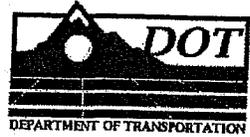
Attn: S. Elmquist, CDOT Region 4 Env. Manager



# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9011



November 20, 2006

Mr. David Nicol, P.E.  
Division Administrator  
Federal Highway Administration  
12300 W. Dakota Avenue, Suite 180  
Lakewood, CO 80228

RE: CDOT Project STA 0072-0013, State Highway 7 Environmental Assessment, Boulder County,  
(SA 14802)

Dear Mr. Nicol:

Enclosed for your signature is the Memorandum of Agreement (MOA) between FHWA and the State Historic Preservation Officer (SHPO) for the project referenced above, which will adversely affect two historic properties: the Cottonwood Ditch #2 (5BL4488/5BL4488.2) and the Colorado Southern-Burlington Northern Railroad (5BL400/5BL400.5).

CDOT has signed the MOA as an invited signatory. Once you have affixed your signature in the designated location, please forward a **copy** of the executed document to Carol Legard at the Advisory Council on Historic Preservation (Council) for filing. A draft transmittal letter to the Council is enclosed on CD. The Council was notified of the adverse effect to this historic property on July 18, 2006, but elected not to participate in consultation in correspondence dated October 20, 2006.

Please send the **original fully executed MOA** and a copy of all of your correspondence with the Council to CDOT Senior Staff Historian Lisa Schoch for our files. If you have questions or require additional information, please contact Ms. Schoch at (303) 512-4258.

Very truly yours,

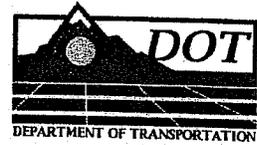
  
for Brad Beckham, Manager  
Environmental Programs Branch

Enclosures (Original MOA for signature)

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
Shumate Building  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



November 14, 2006

Ms. Georgiana Contiguglia  
State Historic Preservation Officer  
Colorado Historical Society  
1300 Broadway  
Denver, CO 80203

**SUBJECT:** Memorandum of Agreement for Signature, Project STA 0072-0013, State Highway 7  
Environmental Assessment, Boulder County (CHS #44809)

Dear Ms. Contiguglia:

Enclosed for your signature is one copy of the original Memorandum of Agreement (MOA) for the transportation undertaking referenced above. The project will adversely affect two historic properties, the Colorado Southern-Burlington Northern Railroad (5BL400/5BL400.5) and the Cottonwood Ditch #2 (5BL4488/5BL4488.2).

The irrigation ditch and railroad will be recorded prior to construction so that there will be a permanent record of their present appearance and history. Recordation shall consist of Level II documentation as determined in consultation with your staff, and established in OAHP form #1595, *Historical Resource Documentation: Standards for Level I, II, and III Documentation*.

Please sign and return the document to CDOT Senior Staff Historian Lisa Schoch at the address on this letterhead. The document was modeled after a sample MOA provided by your office and uses standard language agreed upon by our respective agencies.

This procedure is consistent with the process outlined in the Advisory Council on Historic Preservation's regulations, 36 CFR Part 800. You will receive a copy of the original document when fully executed. If you have questions or require additional information, please contact Ms. Schoch at (303) 512-4258.

Very truly yours,

  
Brad Beckham, Manager  
Environmental Programs Branch

Enclosure: Original copy of signed MOA

cc: Carol Parr, CDOT Region 4  
F/CF

**MEMORANDUM OF AGREEMENT  
BETWEEN THE FEDERAL HIGHWAY ADMINISTRATION  
AND THE COLORADO STATE HISTORIC PRESERVATION OFFICER  
REGARDING STATE HIGHWAY 7 ENVIRONMENTAL ASSESSMENT**

**COLORADO DEPARTMENT OF TRANSPORTATION  
PROJECT STA 0072-0013, BOULDER COUNTY**

**WHEREAS**, the Federal Highway Administration (FHWA) has determined that Project STA 0072-0013 will have an adverse effect on the Cottonwood Ditch #2 (5BL4488/5BL4488.2) and the Colorado-Southern Burlington Northern Railroad (5BL400/5BL400.5) both of which are eligible to the National Register of Historic Places. FHWA has consulted with the Colorado State Historic Preservation Officer (SHPO) pursuant to 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. Section 470f); and

**WHEREAS**, FHWA has consulted with the Colorado Department of Transportation (CDOT) regarding the effects of the undertaking on historic properties and has invited CDOT to sign this MOA as an invited signatory; and

**WHEREAS**, in accordance with 36 CFR 800.6(a)(1), FHWA has notified the Advisory Council on Historic Preservation (Council) of its adverse effect determination with specified documentation, and the Council has elected not to participate in the consultation pursuant to 36 CFR 800.6(a)(1)(iii); and

**WHEREAS**, the historic properties that will be affected by the MOA are:

**Colorado Southern-Burlington Northern Railroad (5BL400/5BL400.5):** The entire railroad is considered eligible under National Register Criterion A for its association with the history of rail transportation in Boulder County. A 2500-foot segment of the railroad was evaluated for this project and was found to retain sufficient integrity to support the overall eligibility of the railroad.

**Cottonwood Ditch #2 (5BL4488/5BL4488.2):** The entire 3-mile ditch is considered eligible to the National Register under Criterion A for its importance in the history of agricultural development in Boulder County. The segment of the ditch in the project area has sufficient integrity to support the overall eligibility of the ditch.

**NOW, THEREFORE**, FHWA and the Colorado SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

**STIPULATIONS**

FHWA shall ensure that the following measures are carried out:

**I. MITIGATION**

The irrigation ditch and railroad will be recorded prior to construction so that a permanent record exists of their history and present appearance. This will include historic research and documentation.

**A. ARCHIVAL DOCUMENTATION**

CDOT shall ensure that the ditch and railroad are documented in accordance with the guidance for

Level II documentation found in Office of Archaeology and Historic Preservation (OAHP) Form #1595, *Historical Resource Documentation: Standards for Level I, II, and III Documentation*. CDOT shall consult with the SHPO to determine the appropriate Level II recordation measures.

1) CDOT shall ensure that all documentation activities will be performed or directly supervised by architects, historians, photographers and/or other professionals meeting the minimum qualifications in their field as specified in the Secretary of Interior's Professional Qualifications Standards (36 CFR 61, Appendix A).

2) CDOT shall provide originals of all records resulting from the documentation to the SHPO and a local library or archive designated by the SHPO.

## II. DURATION

This agreement will be null and void if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, FHWA may consult with the other signatories to reconsider the terms of the agreement and amend it in accordance with Stipulation IV below.

## III. MONITORING AND REPORTING

Each year following the execution of this agreement until it expires or is terminated, FHWA shall provide all parties to this agreement a summary report detailing work undertaken pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and/or objections received in FHWA's efforts to carry out the terms of this agreement. Failure to provide such summary report may be considered noncompliance with the terms of this MOA pursuant to Stipulation V, below.

## IV. DISPUTE RESOLUTION

Should any party to this agreement object at any time to actions proposed or the manner in which the terms of this MOA are implemented, FHWA shall consult with the objecting party(ies) to resolve the objection. If FHWA determines, within 30 days, that such objection(s) cannot be resolved, FHWA will:

A. Forward all documentation relevant to the dispute to the Council in accordance with 36 CFR 800.2(b)(2). Upon receipt of adequate documentation, the Council shall review and advise FHWA on the resolution of the objection within 30 days. Any comment provided by the Council, and all comments from the parties to the MOA, will be taken into account by FHWA in reaching a final decision regarding the dispute.

B. If the Council does not provide comments regarding the dispute within 30 days after receipt of adequate documentation, FHWA may render a decision regarding the dispute. In reaching its decision, FHWA will take into account all comments regarding the dispute from the parties to the MOA.

C. FHWA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged. FHWA will notify all parties of its decision in

writing before implementing that portion of the Undertaking subject to dispute under this stipulation. FHWA's decision will be final.

**V. AMENDMENTS AND NONCOMPLIANCE**

If any signatory to this MOA, including any invited signatory, determines that its terms will not or cannot be carried out or that an amendment to its terms must be made, that party shall immediately consult with the other parties to develop an amendment to this MOA pursuant to 36 CFR 800.6(c)(7) and 800.6(c)(8). The amendment will be effective on the date a copy signed by all of the original signatories is filed with the Council. If the signatories cannot agree to appropriate terms to amend the MOA, any signatory may terminate the agreement in accordance with Stipulation VI, below.

**VI. TERMINATION**

If the MOA is not amended following the consultation set out in Stipulation IV above, it may be terminated by any signatory or invited signatory. Within 30 days following termination, the FHWA shall notify the signatories if it will initiate consultation to execute an MOA with the signatories under 36 CFR 800.6(c)(1) or request the comments of the Council under 36 CFR 800.7(a) and proceed accordingly.

Execution of this Memorandum of Agreement by FHWA and Colorado SHPO and the submission of documentation and filing of this document with the Council pursuant to 36 CFR 800.6(b)(1)(iv) prior to FHWA's approval of this undertaking, and implementation of its terms evidence that FHWA has taken into account the effects of this undertaking on historic properties and afforded the Council an opportunity to comment.

**SIGNATORIES:**

**Federal Highway Administration**

*Michael E. Vandenberg*

12/4/06

for David Nicol, P.E., Division Administrator

Date

**Colorado State Historic Preservation Officer**

*Georgianna Contiguglia*

Nov. 15, 2006

Georgianna Contiguglia, SHPO

Date

**INVITED SIGNATORY:**

**Colorado Department of Transportation**

*Tom Norton*

11/9/06

for Tom Norton, Executive Director

Date



COLORADO  
HISTORICAL  
SOCIETY

RECEIVED

MAY 03 2007

Muller Engineering Company, Inc.

*June* The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137  
*March* 24, 2006

Brad Beckham  
Manager, Environmental Programs Branch  
Colorado Department of Transportation  
Department of Transportation  
Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, CO 80222

Re: CDOT Project STA 0072-013, SH 7, Enterprise Ditch Segment 5BL.4164.4. (CHS #44809)

Dear Mr. Beckham,

Thank you for your additional information correspondence dated May 31, 2006 and received by our office on June 2, 2006 regarding the above-mentioned project. We appreciate your staff's work in submitting the additional information.

After review of the submitted information, we concur with the determination of *no adverse effect* under Section 106 of the National Historic Preservation Act for the Enterprise Ditch/5BL.4164. We acknowledge the *de minimis* notification under Section 4(f) of the Department of Transportation Act for this project.

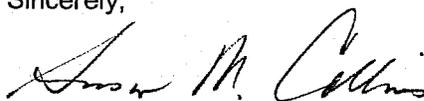
If unidentified archaeological resources are discovered during construction, work must be interrupted until the resources have been evaluated in terms of the National Register criteria, 36 CRF 60.4, in consultation with this office.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,

  
Georgianna Contiguglia  
State Historic Preservation Officer

0006 1111



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

TO: Colorado Department  
of Transportation  
ATTN: Ms. Carol Parr, Environmental  
FROM: Federal Highway Administration  
Colorado Division  
Reg 4

**Colorado Federal Aid Division**

Subject: ACTION: State Highway 7, Cherryvale Road to 75<sup>th</sup>  
Boulder County, Colorado  
Environmental Assessment (EA) and Section 4f Evaluation

Date: June 14, 2006

From: *Scott P. Sands*  
for David A. Nicol, P.E.  
Division Administrator

Reply to  
Attn of: HDA-CO

To: David Ortez  
Office of Chief Counsel  
Western Legal Services, HCC-WE

Attached is one copy of the subject document for this Colorado project for legal sufficiency review.  
Questions on this submittal should be directed to Mr. Scott Sands, of this office, at (720) 963-3014.

Attachment

cc: (Memorandum only)  
Mr. Karla Harding, Director, Region 4, CDOT  
Attn: Ms. Carol Parr, Environmental





U.S. Department of Transportation

Federal Highway Administration

TO: Colorado Department of Transportation  
ATTN: Ms. Carol Parr, R-4 Environ. Mgr.  
FROM: Federal Highway Administration Colorado Division

In Reply Refer To:  
HDA-CO

Colorado Federal Aid Division

RECEIVED

Ms. Carol Legard  
Advisory Council on Historic Preservation  
1100 Pennsylvania Avenue, NW  
Washington, DC 20004

JUL 28 2006

Muller Engineering Company, Inc.

Dear Ms. Legard:

SUBJECT: Documentation for Finding of Adverse Effect for  
Colorado Department of Transportation Project STA 0072-013  
State Highway 7 Environmental Assessment, Boulder County

Transmitted herewith is the Documentation of Finding of Adverse Effect for Colorado Department of Transportation (CDOT) STA 0072-013, State Highway 7 Environmental Assessment in Boulder County.

The Federal Highway Administration (FHWA) and the Colorado State Historic Preservation Officer (SHPO) have agreed that the proposed undertaking will have an Adverse Effect on the Cottonwood Ditch #2 (5BL4488/5BL4488.2) and the Colorado Southern-Burlington Northern Railroad (5BL400/5BL400.5), both of which are eligible to the National Register of Historic Places.

FHWA is submitting this Documentation for Finding of Adverse Effect, pursuant to the Advisory Council Regulations, 36 CFR Part 800, Section 800.6 (a) (1). In accordance with the process set forth in the regulations, mitigation measures have been agreed upon with the SHPO and are outlined in the request for concurrence of effects (Attachment C of the Documentation).

If there are any questions regarding this project, please contact CDOT Senior Staff Historian Lisa Schoch at (303) 512-4258.

Sincerely yours,

*David A. Nicol*  
for David A. Nicol, P.E.  
Division Administrator

Enclosures (Copy of Documentation of Adverse Effect for CDOT Project STA 0072-013)

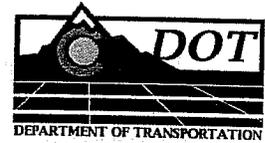
cc: Mr. Scott Sands, Operations Engineer, FHWA, CO Division  
Ms. Carol Parr, Region 4, Environmental Manager, CDOT  
Ms. Lisa Schoch, Environmental Programs Branch, CDOT



# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



May 31, 2006

Ms. Denise Grimm  
Historic Preservation Advisory Board  
Boulder County Land Use Department  
P.O. Box 471  
Boulder, CO 80306

**SUBJECT:** Revised Determination of Effect, Enterprise Ditch Segment 5BL4164.4, CDOT Project STA 0072-013, State Highway 7 Environmental Assessment

Dear Ms. Grimm:

This letter and the attached materials constitute the request for comments on a determination of effect for a segment of the Enterprise Ditch (5BL4164.4) associated with the Environmental Assessment referenced above. We have also included a notification of Section 4(f) *de minimis*, which is described in more detail below.

### **Consultation Background**

We initially consulted with your office regarding eligibility and effects for this ditch in correspondence dated March 24, 2005. At that time we determined that the segment in the project area lacked integrity and the project would result in *no historic properties affected*. Your office did not provide any official comments on those determinations. However, the SHPO concurred with the determinations in correspondence dated March 29, 2005, and in a subsequent letter SHPO determined that the *entire* Enterprise Ditch is National Register-eligible. Because the eligibility status of the entire ditch changed, and since our original correspondence regarding this segment of ditch did not provide a detailed description of effects, we are providing that additional information and a revised effects determination in this submittal.

### **EFFECTS DETERMINATION**

**Enterprise Ditch (5BL4164.4):** This segment of the ditch crosses under the BNSF railroad in an existing siphon pipe. In order to construct a new BNSF railroad bridge over State Highway 7, a temporary railroad alignment would be required 25 feet to the east of the current alignment. The effects to the railroad were described in a letter to you dated March 24, 2005. The temporary BNSF alignment will require part of the Enterprise Ditch to be placed in approximately 100 feet of temporary pipe. The temporary pipe will be removed and the open ditch restored when the temporary railroad alignment is removed. The ultimate railroad alignment will remain on its current alignment. Please see the attached plan sheet for more information. Because the ditch segment will be restored to its original function and appearance and because it has already been determined that this segment lacks integrity, CDOT has determined that these improvements will result in *no adverse effect* to the entire ditch.

## SECTION 4(F) AND *DE MINIMIS*

### Background

In addition to Section 106 of the National Historic Preservation Act (NHPA), FHWA must comply with Section 4(f), which is codified at both 49 U.S.C. § 303 and 23 U.S.C. § 138. Until recently Section 4(f) required that any time a proposed federally-approved or federally-funded highway project would result in any "use" of land designated as a Section 4(f) resource, which includes listed or eligible historic properties under the NHPA, FHWA must perform an evaluation ("Avoidance Analysis") to determine whether there is a "feasible and prudent" alternative that would avoid the Section 4(f) resource.<sup>1</sup>

With regard to this project, FHWA has determined that the impact to the Enterprise Ditch (5BL4164.4), while causing *no adverse effect* for purposes of the NHPA, may nonetheless be a "use" for purposes of Section 4(f).

However, Congress recently amended Section 4(f) when it enacted the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (Public Law 109-59, enacted August 10, 2005) ("SAFETEA-LU"). Section 6009 of SAFETEA-LU added a new subsection to Section 4(f), which authorizes FHWA to approve a project that uses Section 4(f) lands that are part of a historic property without preparation of an Avoidance Analysis, if it makes a finding that such uses would have "*de minimis*" impacts upon the Section 4(f) resource, with the concurrence of the relevant SHPO.

More specifically, with regard to Section 4(f) resources that are historic properties (like those that would be affected by the proposed CDOT undertaking), Section 6009(a)(1) of SAFETEA-LU adds the following language to Section 4(f):<sup>2</sup>

(b) De Minimis Impacts. --

(1) REQUIREMENTS.--

(A) REQUIREMENTS FOR HISTORIC SITES.--The requirements of this section shall be considered to be satisfied with respect to an area described in paragraph (2) if the Secretary determines, in accordance with this subsection, that a transportation program or project will have a *de minimis* impact on the area.

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<sup>1</sup> As currently codified, the pertinent language of Section 4(f) reads as follows:

[T]he Secretary shall not approve any program or project . . . which requires the use of any . . . land from an historic site of national, State, or local significance as so determined by such officials unless

- (1) there is no feasible and prudent alternative to the use of such land, and
- (2) such program includes all possible planning to minimize harm to such park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use.

23 U.S.C. § 138; 49 U.S.C. § 303 (c). This analysis would usually be required under what is referred to as the first prong of Section 4(f). A *de minimis* determination does not relieve FHWA of its responsibility under the second prong to "minimize harm" to the historic sites.

<sup>2</sup> This provision will be codified as 23 U.S.C. § 138(b). Section 6009(a)(2) of SAFETEA-LU adds identical language at 49 U.S.C. § 303(d).

\*\*\*\*\*

(C) CRITERIA.--In making any determination under this subsection, the Secretary shall consider to be part of a transportation program or project any avoidance, minimization, mitigation, or enhancement measures that are required to be implemented as a condition of approval of the transportation program or project.

(2) HISTORIC SITES.--With respect to historic sites, the Secretary may make a finding of de minimis impact only if--

(A) the Secretary has determined, in accordance with the consultation process required under section 106 of the National Historic Preservation Act (16 U.S.C. 470f), that--

(i) the transportation program or project will have no adverse effect on the historic site; or

(ii) there will be no historic properties affected by the transportation program or project;

(B) the finding of the Secretary has received written concurrence from the applicable State historic preservation officer or tribal historic preservation officer (and from the Advisory Council on Historic Preservation if the Council is participating in the consultation process); and

(C) the finding of the Secretary has been developed in consultation with parties consulting as part of the process referred to in subparagraph (A).

On December 13, 2005, FHWA issued its "Guidance for Determining *De Minimis* Impacts to Section 4(f) Resources" which indicates that a finding of de minimis can be made when the Section 106 process results in a *no adverse effect* or *no historic properties affected* determination, when the SHPO is informed of FHWA's intent to make a de minimis impact finding based on their written concurrence in the Section 106 determination, and when FHWA has considered the views of any consulting parties participating in the Section 106 process. This new provision of Section 4(f) and the associated guidance are, in part, the basis of this letter, and of FHWA's determination and notification of de minimis impacts to the Boulder County Historic Preservation Advisory Board with respect to the proposed project. At this time we are notifying the Section 106 consulting parties per Section 6009(b)(2)(C).

#### **Notification of *De Minimis* Finding**

The project has been determined to have *no adverse effect* on the Enterprise Ditch (5BL4164.4), as indicated above. As part of the Section 106 consultation process, the State Historic Preservation Officer (SHPO) was also afforded the opportunity to concur on these effects determinations in correspondence dated May 31, 2006. We have also notified the SHPO of the *de minimis* finding.

As a local historic commission with a potential interest in this historic resource, we welcome your comments regarding the Section 106 effect determination and the Section 4(f) *de minimis* finding outlined

Ms. Grimm  
May 31, 2006  
Page 4

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herein. Should you elect to respond, we request that you do so within 30 days of receipt of this letter. If you have questions or require additional information, please contact CDOT Senior Staff Historian Lisa Schoch at (303) 512-4258.

Very truly yours,

  
for Brad Beckham, Manager  
Environmental Programs Branch

Enclosure: Plan Sheet

cc: ~~Carol Papp, CDOT Region 4~~  
F/CF/RF

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



RECEIVED

JUN 19 2006

Muller Engineering Company, Inc.

May 31, 2006

Ms. Georgianna Contiguglia  
State Historic Preservation Officer  
Colorado Historical Society  
1300 Broadway  
Denver, CO 80203

SUBJECT: Revised Determination of Effect, Enterprise Ditch Segment 5BL4164.4, CDOT Project STA 0072-013, State Highway 7 Environmental Assessment

Dear Ms. Contiguglia:

This letter and the attached materials constitute the request for concurrence on a determination of effect for a segment of the Enterprise Ditch (5BL4164.4) associated with the Environmental Assessment referenced above.

### **Consultation Background**

We initially consulted with your office regarding eligibility and effects for this ditch in correspondence dated March 24, 2005. At that time we determined that the segment in the project area lacked integrity and the project would result in *no historic properties affected*. You concurred with these determinations in correspondence dated March 29, 2005, but in subsequent correspondence dated August 15, 2005, you determined that the *entire* Enterprise Ditch is National Register-eligible. Because the eligibility status of the entire ditch changed, and since our original correspondence regarding this segment of ditch did not provide a detailed description of effects, we are providing that additional information and a revised effects determination in this submittal.

### **EFFECTS DETERMINATION**

**Enterprise Ditch (5BL4164.4):** This segment of the ditch crosses under the BNSF railroad in an existing siphon pipe. In order to construct a new BNSF railroad bridge over State Highway 7, a temporary railroad alignment would be required 25 feet to the east of the current alignment. The effects to the railroad were described in a letter to you dated March 24, 2005. The temporary BNSF alignment will require part of the Enterprise Ditch to be placed in approximately 100 feet of temporary pipe. The temporary pipe will be removed and the open ditch restored when the temporary railroad alignment is removed. The ultimate railroad alignment will remain on its current alignment. Please see the attached plan sheet for more information. Because the ditch segment will be restored to its original function and appearance and because it has already been determined that this segment lacks integrity, CDOT has determined that these improvements will result in *no adverse effect* to the entire ditch.

### **NOTIFICATION OF SECTION 4(F) DE MINIMIS DETERMINATION**

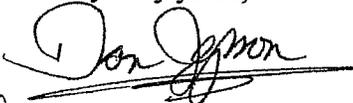
The project has been determined to have *no adverse effect* on the Enterprise Ditch (5BL4164/5BL4164.4). Based on this finding, FHWA may make a *de minimis* finding for the Section 4(f) requirements for this historic property. Your written concurrence on the *no adverse effect* finding as outlined above will be

evidence that consultation requirements of Section 6009 of SAFETEA-LU, as they will be codified at 23 U.S.C. § 138(b)(2)(B) and (C), and 49 U.S.C. § 303(d)(2)(B) and (C), are satisfied.

This revised effects determination and the *de minimis* notification have also been forwarded to the Boulder County Historic Preservation Advisory Board for review. Once we receive their comments, we will forward them to you.

We request your concurrence with the revised determination of effect outlined herein and acknowledgment of the *de minimis* notification. Your response is necessary for the Federal Highway Administration's compliance with Section 106 of the National Historic Preservation Act, and the Advisory Council on Historic Preservation's regulations. Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Senior Staff Historian Lisa Schoch at (303) 512-4258.

Very truly yours,

  
for Brad Beckham, Manager  
Environmental Programs Branch

Enclosure: Plan Sheet

cc: ~~Carol Parr, CDOT Region 4~~  
F/CF/RF



COLORADO  
HISTORICAL  
SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

March 24, 2006

Brad Beckham  
Manager, Environmental Programs Branch  
Colorado Department of Transportation  
Department of Transportation  
Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, CO 80222

Re: CDOT Project STA 0072-013, SH 7, Cottonwood Ditch #25BL.4488.2/5BL.4883.3  
(CHS #448019)

Dear Mr. Beckham,

Thank you for your additional information correspondence dated August 4, 2005 and received by our office on August 8, 2005 regarding the above-mentioned project. We appreciate your staff's work in submitting the additional information.

After review of the submitted information, we concur with the finding of *adverse effect* under Section 106 of the National Historic Preservation Act (Section 106) for resource 5BL.4488.2/segment of Cottonwood Ditch #2, and the finding of *no adverse effect* under Section 106 for resource 5BL.4488.3/segment of Cottonwood Ditch #2.

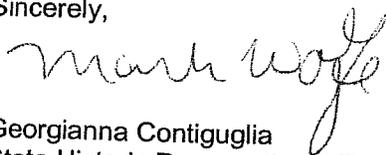
If unidentified archaeological resources are discovered during construction, work must be interrupted until the resources have been evaluated in terms of the National Register criteria, 36 CRF 60.4, in consultation with this office.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

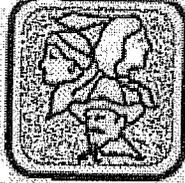
Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,



for  
Georgianna Contiguglia  
State Historic Preservation Officer



# COLORADO HISTORICAL SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

March 24, 2006

Brad Beckham  
Manager, Environmental Programs Branch  
Colorado Department of Transportation  
Department of Transportation  
Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, CO 80222

Re: CDOT Project STA 0072-013, SH 7, Enterprise Ditch Segment 5BL 4164.4 (CHS #44809)

Dear Mr. Beckham,

Thank you for your additional information correspondence dated May 31, 2006 and received by our office on June 2, 2006 regarding the above-mentioned project. We appreciate your staff's work in submitting the additional information.

After review of the submitted information, we concur with the determination of *no adverse effect* under Section 106 of the National Historic Preservation Act for the Enterprise Ditch/5BL 4164. We acknowledge the *de minimis* notification under Section 4(f) of the Department of Transportation Act for this project.

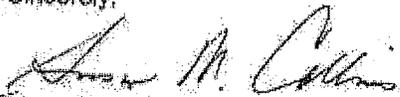
If unidentified archaeological resources are discovered during construction, work must be interrupted until the resources have been evaluated in terms of the National Register criteria, 36 CFR 60.4, in consultation with this office.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,

  
Georgianna Contiguglia  
State Historic Preservation Officer

Troy

# MEMORANDUM

DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



**DATE:** August 24, 2005

**TO:** Carol Parr, Region 4 Environmental

**FROM:** Lisa Senoch, Environmental Programs

**SUBJECT:** SHPO response, State Highway 7 Environmental Assessment, Eligibility and Effects and Historic Property Boundary Revisions

The SHPO reviewed our request for concurrence on eligibility and effects determinations and a historic property boundary revision. A summary of the SHPO response is provided below:

- 1) The SHPO concurred with the proposed boundary revision for the Butler-Smith property (5BL8917).
- 2) The SHPO also concurred with FHWA and CDOT's determination that the project will result in *no adverse effect* for the following properties: 5BL8917, 5BL9021, 5BL9024, and 5BL9029.
- 3) The SHPO did not concur with our determination that work on the Enterprise Ditch will result in *no historic properties affected*. They conducted additional research and have determined that the *entire ditch* is eligible for the National Register of Historic Places (NRHP) under Criterion A for association with irrigation and agricultural development in Boulder County. The SHPO did state, however, that the segment of the Enterprise Ditch (5BL4164.2) in the project area exhibits a low degree of integrity and that the project will result in *no adverse effect* to the eligible Enterprise Ditch.

With regard to the Enterprise Ditch, because the SHPO has determined that the entire irrigation ditch is eligible, any impacts to it need to be evaluated to determine if there is a Section 4(f) use. I have not discussed this issue with FHWA, but our office has completed programmatic-level Section 4(f) evaluations for other projects with similar impacts to linear resources. I assume a similar evaluation will be necessary in this case since the entire ditch is considered eligible. I will discuss this with FHWA and provide some guidance on how to proceed.

We are still awaiting a response from the Boulder County Historic Preservation Advisory Board, who was contacted in correspondence dated August 4, 2005. I will forward a copy of this letter to them to aid in their review. I will send the Boulder County response to you once I receive it.

I have attached a copy of the SHPO response for your file.

cc: Mike Vanderhoof, FHWA  
 Gray Clark/Lisa Powell, Muller Engineering  
 Gina McAfee, Carter & Burgess  
 File/CF/RF

TVOY

# MEMORANDUM

DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



**DATE:** August 24, 2005

**TO:** Carol Parr, Region 4 Environmental

**FROM:** Lisa Schoch, Environmental Programs

**SUBJECT:** SHPO response, CDOT Project STA 0072-010, State Highway 7, Cherryvale Road to 75<sup>th</sup> Street, Boulder County, SA 11873

The SHPO reviewed the additional information provided by FHWA/CDOT regarding the siphon associated with the Cottonwood Ditch #2 (5BL4488.2). The SHPO did not concur with our determination that the siphon is a non-contributing part of the entire Cottonwood Ditch #2. Instead, they determined that the siphon contributes to the overall significance of the Cottonwood Ditch #2, but its replacement will result in *no adverse effect* to the entire eligible irrigation ditch because the plans indicate that the proposed siphon replacement will be close in size to the existing siphon.

However, as we discussed with FHWA, because the *entire* ditch is eligible, and this segment with the siphon still retains sufficient integrity, a programmatic-level Section 4(f) evaluation for this resource is necessary. Let me know if you have any questions about this, and if this evaluation will be drafted by Carter & Burgess or our staff.

I've sent a copy of the SHPO response to the Boulder County Historic Preservation Advisory Board. I've also attached a copy of the SHPO response for your file.

cc: Mike Vanderhoof, FHWA  
Gray Clark/Lisa Powell, Muller Engineering  
Gina McAfee, Carter & Burgess  
File/CF/RF



COLORADO  
HISTORICAL  
SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

August 15, 2005

Brad Beckham  
Manager, Environmental Programs Branch  
Colorado Department of Transportation  
Department of Transportation  
Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, CO 80222

Re: CDOT Project STA 0072-013, State Highway 7 Environmental Assessment; Determinations of Eligibility and Effect and Historic Property Boundary Revisions. (CHS #44809)

Dear Mr. Beckham,

Thank you for your additional information correspondence dated August 4, 2005 and received by our office on August 8, 2005 regarding the above-mentioned project. We appreciate your staff's work in submitting the additional information.

After review of the submitted additional information, we concur with the revised boundary for resource 5BL.8917/Butler-Smith Property.

After review of the finding of effects, we concur with the finding of no adverse effect for the properties listed below.

- 5BL.8917/Butler-Smith Property
- 5BL.9021/Gas Station and House
- 5BL.9024/Harburg House
- 5BL.9029/DeBacker-Tenenbaum House

As a result of your revised information, our office has conducted additional research regarding resource 5BL.4164.2/Enterprise Ditch. According to a report titled *Cultural Resource Inventory of the Sombrero Marsh, City of Boulder Open Space* (dated March 1, 2000; BL.LG.R115), the Enterprise Ditch is significant because of its association with the development of water storage and irrigation in Boulder County. In another report titled *Cultural Resources of City of Boulder Open Space* (dated March 2001; BL.LG.R125), the Enterprise Ditch, which began in 1865, was found to be eligible under National Register Criteria A for its significant association with the agricultural/irrigation history in Boulder County.

After review of the above information and survey forms on file associated with resource 5BL.4164/Enterprise Ditch, we recommend that the entire ditch is eligible for the National Register of Historic Places under National Register Criteria A for its significant association with the irrigation/agricultural history of Boulder County. Also, we reviewed your submitted information regarding the segment 5BL.4164.2 and concur that the segment has a low degree of integrity, as stated in your cover letter. Therefore, in our opinion, we recommend that the proposed project would result in a finding of *no adverse effect* for the entire Enterprise Ditch.

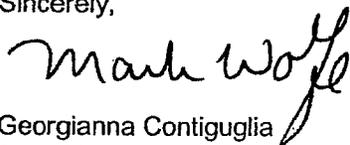
If unidentified archaeological resources are discovered during construction, work must be interrupted until the resources have been evaluated in terms of the National Register criteria, 36 CFR 60.4, in consultation with this office.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

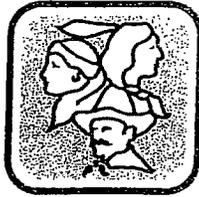
Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,



for Georgianna Contiguglia  
State Historic Preservation Officer



COLORADO  
HISTORICAL  
SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

August 12, 2005

Brad Beckham  
Manager, Environmental Programs Branch  
Colorado Department of Transportation  
Department of Transportation  
Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, CO 80222

Re: CDOT Project STA 0072-013, State Highway 7 Environmental Assessment; Determinations of Eligibility and Effect and Historic Property Boundary Revisions. (CHS #44809)

Dear Mr. Beckham,

Thank you for your additional information correspondence dated August 4, 2005 and received by our office on August 8, 2005 regarding the above-mentioned project. We appreciate your staff's work in submitting the additional information.

After review of the submitted additional information, we concur that the period of significance for resource 5BL.4488.2 is from 1863 to 1955. The siphon was constructed during the period of significance and it helped to maintain the use and function of an important ditch that played a significant role in the agricultural development of this area of Boulder County. Siphons were often added after the original period of construction for a ditch or canal but within the period of significance. According to the draft *Irrigation and Water Supply Ditches and Canals in Colorado* by Michael Holleran (April 14, 2005), siphons are identified as significant associated property types of a ditch or canal. Therefore, in our opinion, we continue to concur with the original 2002 assessment from Survey Form 5BL.4488.2 that the segment (resource 5BL.4488.2) supports the overall eligibility of the Cottonwood Ditch #2/resource 5BL.4488 under National Register Criterion A in the area of agriculture.

In our opinion, the replacement of the existing siphon with a new siphon will result in a finding of *no adverse effect* (36 CFR 800.5(b)). The siphon is one element of many that support the overall eligibility of the National Register-eligible Cottonwood Ditch #2. It also appears from the construction drawings that the proposed siphon will be close in size to the existing siphon. While the removal and replacement of the siphon would lessen the integrity of the Cottonwood Ditch #2, it would not significantly diminish the qualities, such as its historic association to the agricultural history of the area, that make the resource eligible for the National Register.

If unidentified archaeological resources are discovered during construction, work must be interrupted until the resources have been evaluated in terms of the National Register criteria, 36 CRF 60.4, in consultation with this office.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

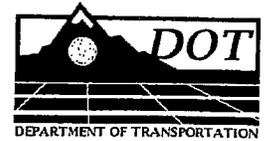
Sincerely,

for   
Georgianna Contiguglia  
State Historic Preservation Officer

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



August 4, 2005

Ms. Denise Grimm  
Boulder County  
Historic Preservation Advisory Board  
Boulder County Land Use Department  
P.O. Box 471  
Boulder, CO 80306

**SUBJECT:** Section 106 Issues, CDOT Project STA 0072-013, State Highway 7 Environmental Assessment

Dear Ms. Grimm:

This letter and the attached materials constitute CDOT's request for comment on a revised boundary and effects determinations for historic properties associated with the Environmental Assessment (EA) referenced above. We consulted with you regarding a number of Section 106-related issues in correspondence dated March 24, 2005. This submittal includes the following elements:

- Revised boundary information for the Butler-Smith property (5BL8917)
- Effects determinations for additional properties in project APE

### **REVISED HISTORIC BOUNDARY, BUTLER-SMITH PROPERTY**

**5BL8917, Butler-Smith Property:** The Butler-Smith house, initially surveyed for the Arapahoe Road feasibility study, was determined eligible under Criterion C as an excellent example of an 1880s farmhouse with clapboard siding and a Victorian front porch. At the time of the survey in 2001, the historic boundary was defined as the extent of the legal ownership boundary, which included a barn to the south of the main house and a house and two garages on an adjoining property, also to the south. At that time, the house and garages to the south were determined to be non-contributing, but the barn was determined to be contributing. The original boundary also included a pasture to the west.

In March 2005, FHWA and CDOT proposed amending the boundary of the property so that it included only the historic house and barn, and some of the landscaping around the house and barn that includes the driveway from Cherryvale Road. The house to the south and the two garages do not convey the significance of the property and have been excluded from the boundary. Your office and the State Historic Preservation Officer (SHPO) requested that we address whether the agricultural field/pasture to the west is part of the historic boundary. We have determined that the agricultural field/pasture to the west *is indeed* part of the historic boundary. This change is reflected in the revised architectural inventory form and on the attached aerial photo of the property.

### **EFFECTS DETERMINATIONS**

The following information describes effects to the National Register-eligible properties in the APE that were not addressed in our submittal of March 24, 2005. All of these effects are based on the Preferred Alternative identified in the EA (Alternative 2), which involves the widening of SH 7 (Arapahoe Road)

between Cherryvale Road and 75<sup>th</sup> Street to incorporate additional turn lanes, shoulders, and in some locations additional through lanes. The project will have two through lanes in each direction between Cherryvale Road and the Boulder Valley School District (BVSD) entrance, and one lane in each direction from the BVSD entrance to 75<sup>th</sup> Street. There will be two through lanes in each direction through the 75<sup>th</sup> Street intersection. Bike lanes and sidewalks are also included for the entire project. The project will require the replacement of the existing BNSF railroad bridge over SH7.

**5BL8917, Butler-Smith Property:** The road in this area is already a 4-lane facility, and the only improvements will involve defining the right turn lane and curb and gutter. Additional vegetation will be removed in the right-of-way between Arapahoe Road and the house. All improvements will be limited to the existing road right-of-way (ROW). There will be no direct impacts to the house or barn. A 25 square-foot temporary easement for construction of the curb return may be required. Although the roadway widening will move toward the property, the improvements will remain within the existing right-of-way and there will be no difference in the elevation or grade of the road that would cause visual impacts that would diminish the qualities that make this property eligible to the National Register. The proposed improvements will also not result in any noise increases that will alter the significance of this property. Please see Exhibit 1 for more information. FHWA and CDOT have determined that the project will result in *no adverse effect* to the Butler-Smith property.

**5BL9021, Gas Station and House:** When Arapahoe Road is reconstructed, the southwest corner of this property will be required for sidewalk and curb and gutter, as there is currently no sidewalk. This triangle of property is presently paved and has been used as part of the highway. In consultation with your staff in March 2005, it was determined that this triangle of property does not contribute to the overall significance of the property.

There will be no direct impacts to the elements of the property within the historic boundary. The sidewalk will be closer than the existing edge of pavement in the areas within CDOT right-of-way, but the visual effect of a closer sidewalk will not diminish the qualities that make this property significant. A curb cut from 63<sup>rd</sup> Street will be installed on the existing roadway right-of-way. In addition, a 400-square-foot temporary construction easement will be required to construct a private access on this property. The existing access off 63<sup>rd</sup> will be closed and a new access—about 10 feet wide and unpaved—will be built to the north. Please see Exhibit 2 for more information.

Some tree removal may be required for construction, but these trees are on public right-of-way; two large pine trees close to the house that may be part of the setting of the property will remain in place. For the preferred alternative the road will be widened to the south, so the project improvements will actually be farther away from this property and the roadway elevation will not change. As such there will be no visual alterations that will affect the historic property. CDOT has determined that there will be no noise increases associated with the project, and consequently no issue related to increased noise at and near this property. We have determined that the project will result in *no adverse effect* to 5BL9021.

**5BL9024, Harburg House:** For the preferred alternative, there will be minor improvements to two existing property driveways, which will involve asphaltting the drives within the ROW. No work will be undertaken on private property across the ROW line except for two temporary construction easements (600 square feet) required to complete the work. No vegetation will be removed.

An existing public road on the west side of the Harburg property will require reconstruction and a temporary easement (4450 square feet) on the property will be required to complete the work. This roadway appears to be within the boundary of the historic property. In addition, the project will involve

the replacement of the headwall and wingwalls on the outlet end of a segment of the Enterprise Ditch (5BL4164.2) that runs through the property. This segment of ditch was initially determined *not eligible* to the NRHP in March 2002, in consultation with your office. It was evaluated as a separate linear resource and was not recorded as a feature of the eligible Harburg property. The work to replace the headwall and wingwalls will occur within existing CDOT right-of-way for the preferred alternative. A temporary easement on the Harburg property may be required to remove the existing headwall and wingwalls and to construct the new headwall and wingwalls but this will not involve any permanent impacts to the Harburg property. Please see Exhibit 3 for more information.

As indicated above, because the road is being widened to the south, the improvements will actually be farther away from this property. The noise study for the project indicates that there is only a minimal change in noise levels from the existing noise levels to the modeled levels associated with the built project. CDOT has determined that this change in noise levels will not diminish the qualities that make this property historically significant. The roadway widening will move the alignment south of the property and the roadway elevation will remain the same, so there are no changes to the visual setting of the roadway that will diminish the qualities that make this historic property significant. As noted above, there will be no noise increases associated with the project, and therefore no issue related to increased noise at and near this property.

CDOT has determined that the improvements outlined above will not diminish the qualities of significance of this property, and the project will thus result in *no adverse effect* to 5BL9024.

**5BL9029, DeBacker-Tenenbaum House:** When Arapahoe Road is widened a retaining wall may be constructed along a portion of the road ROW north of the DeBacker-Tenenbaum property, but will not directly impact the landscaping or buildings on the property. The BNSF railroad, located west of the property, will be temporarily realigned so it is east of its existing location, but this work will not directly impact 5BL9029. However, a temporary easement of approximately 2,000 square feet will be required to build the fill slope for the railroad shoe-fly alignment, which is a temporary improvement. These fill slopes will be located partially within the historic property boundary, and the limit of the fill may impact some of the landscaping along the west boundary of the property. With the exception of a single juniper bush, the vegetation impacted by the toe of slope is not part of the original plantings that contribute to the property's significance. A temporary retaining wall will be built to protect the juniper bush that is part of the original planting. The retaining wall will be removed after construction is complete. Please see Exhibit 4 for a visual representation of this historic property and the planned work.

There will be some slight increases in noise levels in this area once the project is built. Increases between existing future modeled noise levels for the preferred alternative range between 1.4 and 1.9 decibels, which is not a significant increase to the human ear and will not diminish the qualities that make this property eligible to the National Register.

Although there will be some temporary visual effects associated with the construction of the project, the permanent improvements—the retaining wall, realignment of the railroad, fill slopes, and impacts to vegetation—will not introduce a visual element that will diminish the qualities that make this property significant. CDOT has determined that the project will result in *no adverse effect* to 5BL9029.

**5BL4164.2, Enterprise Ditch:** The project will involve the replacement of the concrete box culvert that currently carries the Enterprise Ditch under SH 7, and will include minor realignment of approximately 200 feet of the ditch on the south side of SH 7. The segment that will be impacted was determined to have a low degree of integrity due to changes in setting. At the time of the original evaluation in 2001,

the *entire* seven-mile ditch was found *field not eligible* due to diminished integrity, but no official determination has been made. Based on the field determination, CDOT has determined that the proposed work will result in *no historic properties affected*.

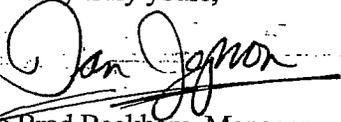
Several other properties were identified as State Register-eligible or eligible for local landmark designation in the 2002 Section 106 consultation. These include the Arapahoe School (5BL409) and Goodview Hill/Veteran's Memorial park (5BL516). Because these are not National Register-eligible properties, we did not evaluate potential project impacts on them.

We request your comment on the boundary revisions and effects determinations described herein. Your response is necessary for the Federal Highway Administration's compliance with Section 106 of the National Historic Preservation Act, and the Advisory Council on Historic Preservation's regulations.

We have also sent this request to the SHPO for compliance purposes. We will forward their response to you once we hear from them. We have also attached for your files the SHPO's recent response regarding this project.

Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Senior Staff Historian Lisa Schoch at (303) 512-4258.

Very truly yours,

  
Brad Beckham, Manager  
Environmental Programs Branch

Enclosures: Site Form for 5BL8917  
Exhibits 1-4

cc: Mike Vanderhoof, FHWA  
Carol Parr, CDOT Region 4  
Gina McAfee, Carter & Burgess  
Gray Clark/Lisa Powell, Muller Engineering Company

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



August 4, 2005

Ms. Georgianna Contiguglia  
State Historic Preservation Officer  
Colorado Historical Society  
1300 Broadway  
Denver, CO 80203

**SUBJECT:** Additional Information Submittal, Cottonwood Ditch #2 (5BL4488.2); CDOT Project STA 0072-010, State Highway 7, Cherryvale Road to 75<sup>th</sup> Street, Boulder County

Dear Ms. Contiguglia:

This transmittal is in response to your letter of July 6, 2005, in which you requested additional information regarding a siphon associated with segment 5BL4488.2 of the Cottonwood Ditch #2, which is within the limits of the intersection reconstruction project referenced above.

Your questions and our responses are outlined as follows:

- 1) What information is the 1931 date based on?

The 1931 date of the siphon is based on information from the Level II documentation for the Cottonwood Ditch #2, which was approved by your office in 2003. The ca. 1920s date of the siphon that appears in the original inventory form came from 2001 interviews with Dick Gilbert, Cottonwood Ditch #2 secretary, and Robert Carlson, Boulder County Water Commissioner. None of the historical records of the ditch company are available to researchers, and this therefore limits reliable sources for ditch history.

- 2) Did the construction of the 1931 siphon continue the ditch's use as a significant irrigation ditch in Boulder County?

In 1931 the construction of a railroad bridge impacted the ditch where it intersects Arapahoe Road (SH 7), approximately a quarter of a mile west of the 75<sup>th</sup> Street intersection. Because the railroad crossing west of the ditch was dangerous, a bridge across Arapahoe Road was constructed and excavation was necessary to carry the roadway beneath it. Cottonwood Ditch #2 is about 200 feet east of the railroad tracks, so the excavation to lower the road also required the lowering of the ditch in this area. A siphon was installed to continue the flow of the ditch. This work did impact a small portion of the open character of the ditch, but not its historic function. The construction of the 1931 siphon allowed the ditch to function as it did historically and still does today.

- 3) What is the period of significance for the ditch?

The period of significance is 1863 to 1955.

4) Why is the 1931 siphon no longer part of the history of the ditch?

We do not dispute that the siphon is part of the *history* of the ditch—it has clearly been a feature of the ditch since 1931 and was constructed during the period of significance. However, we do not believe that this underground pipe conveys the *feeling and association* of this open earth-lined irrigation feature. The physical integrity of the pipe is poor; it is cracked, leaking, and in need of replacement. Furthermore, construction of the siphon required the entire ditch to be lowered in this area. For these reasons, we do not believe that the segment of ditch that runs through the siphon—and the physical structure of the siphon proper—contribute to the overall significance of the ditch.

We have also determined that the proposed work to replace the siphon, as described in our letter of July 1 2005, will result in *no adverse effect* to this historic irrigation feature.

We request your concurrence with the determinations of eligibility and effect outlined above. Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Senior Staff Historian Lisa Schoch at (303)512-4258.

Very truly yours,

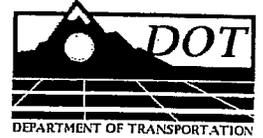
  
for Brad Beckham, Manager  
Environmental Programs Branch

cc: Mike Vanderhoof, FHWA  
Carol Parr, CDOT Region 4  
Gina McAfee, Carter & Burgess  
Gray Clark, Muller Engineering Company  
Denise Grimm, Boulder County Historic Preservation Advisory Board

# MEMORANDUM

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



**DATE:** July 19, 2005

**TO:** Carol Parr, Region 4

**FROM:** Lisa Schoch, Environmental Programs Branch

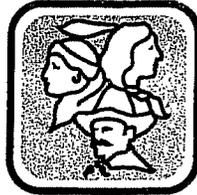
**SUBJECT:** SHPO response, Project STA 0072-010, Cottonwood Ditch #2 (5BL4488.2), State Highway 7 Road to 75<sup>th</sup> Avenue, Boulder County

The SHPO has responded to FHWA/CDOT's request for a determination of eligibility and effect to the Cottonwood Ditch #2 (segment 5BL4488.2) and has requested additional information to determine if the siphon contributes to the overall significance of the ditch. I have attached the SHPO response for your review, and request that the historical consultant Barbara Norgren assist in addressing the following questions about the siphon so that I can prepare a response to SHPO:

- 1) What information is the 1931 date based on?
- 2) Why is the 1931 siphon no longer a part of the history of the ditch?
- 3) Did the construction of the 1931 siphon continue the ditch's use as a significant irrigation ditch in Boulder County?
- 4) What is the period of significance for the ditch?

In order to gain the SHPO concurrence on our eligibility and effects determination for the Cottonwood Ditch #2 (segment 5BL4488.2), we need to respond to their request for additional information. At this point the SHPO is unable to concur with our findings. Please contact me with any questions or concerns.

cc: [REDACTED]  
Barbara Norgren, Historical Consultant  
File/CF/RF



**COLORADO  
HISTORICAL  
SOCIETY**

**The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137**

July 6, 2005

Brad Beckham  
Manager, Environmental Programs Branch  
Colorado Department of Transportation  
Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, CO 80222

Re: CDOT Project STA 0072-010, Cottonwood Ditch #2 (5BL.4488.2) State Highway 7 from Cherryvale Road to 75<sup>th</sup> Street, Boulder County CO. (CHS #44809)

Dear Mr. Beckham,

Thank you for your submission dated July 1, 2005 and received by our office on that same date regarding the above-mentioned project.

After review of the submitted information, we are unable to concur with the finding of not eligible for resource 5BL.4488.2. According to your cover letter, the original documentation for the resource 5BL.4488.2 stated that the siphon dated to the 1920s and was part of the history of the ditch. The Re-evaluation Form states that, "In 1931, to eliminate the dangerous railroad crossing on Arapahoe Rd. just west of the ditch, the road was lowered to pass under a new railroad bridge. The ditch was put into a siphon to go under the lowered road." The survey form also records the date of the siphon as 1931 and states that the siphon no longer contributes to the significance of the ditch, which is under Criterion A. What information is the 1931 date based on? Why is the 1931 siphon no longer a part of the history of the ditch? Did the construction of the 1931 siphon continue the ditch's use as a significant irrigation ditch for Boulder County (National Register Criterion A)?

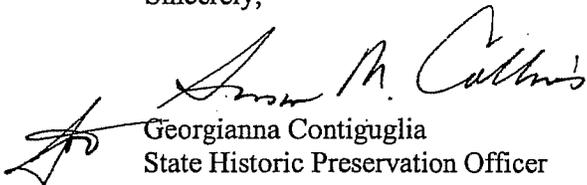
In order to understand whether or not the siphon contributes to the ditch, it is our opinion that the period of significance of the ditch needs to be addressed. On the original August 2001 survey form, the siphon with a construction date of c.1920 was considered contributing to the Cottonwood Ditch #2, but no period of significance was addressed. The form appears to use the date of construction of the ditch and the 50-year cut-off date for the period of significance. We recommend further consultation regarding the period of significance to determine whether or not the 1931 siphon contributes to the ditch. The methodology would be same in determining the significance and integrity of alterations or additions to a historic house during its period of significance.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

Sincerely,



Georgianna Contiguglia  
State Historic Preservation Officer

Troy

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



July 1, 2005

Ms. Denise Grimm  
Historic Preservation Advisory Board  
Boulder County Land Use Department  
P.O. Box 471  
Boulder, CO 80306

**SUBJECT:** Determinations of Eligibility and Effect, Cottonwood Ditch #2 (5BL4488.2); CDOT Project STA 0072-010, State Highway 7, Cherryvale Road to 75<sup>th</sup> Street, Boulder County

Dear Ms. Grimm:

This letter and the attached materials constitute CDOT's request for comments on eligibility and effects determinations for segment 5BL4488.2 of the Cottonwood Ditch #2, which is within the limits of the Arapahoe Road (State Highway 7)/North 75<sup>th</sup> intersection reconstruction project in Boulder County.

### **Project Background**

Segment 5BL4488.2 of the Cottonwood Ditch #2 was recorded in September 2001 and determined eligible for the National Register in consultation with your office in February 2002. During that consultation, CDOT determined that there would be an adverse effect to a 500-foot section of segment 5BL4488.2. A Memorandum of Agreement was executed and Level II documentation was completed for those impacts. Later, it was determined that the segment of the ditch in the project area could be avoided, so ultimately it was not impacted by the proposed project. Current plans involve replacement of a siphon that is part of this same ditch segment.

### **ELIGIBILITY DETERMINATIONS**

The entire 3-mile Cottonwood Ditch #2 (5BL4488) is considered eligible to the National Register of Historic Places under Criteria A. As part of the original survey for the intersection project, segment 5BL4488.2 was found officially eligible in 2002. The initial survey of this ditch segment indicated that the feature included a 1920s-era siphon beneath Arapahoe Road, and that this siphon was "part of the history of the ditch." In June 2005, CDOT conducted a re-evaluation of the ditch segment and determined that the section of ditch in the siphon under the road is a non-contributing part both of the ditch segment and the overall Cottonwood Ditch #2. Please see the attached re-evaluation form for more information about the integrity of the siphon.

### **EFFECTS DETERMINATIONS**

The Cottonwood Ditch #2 currently crosses Arapahoe Road just east of the Colorado Southern-Burlington Northern railroad bridge in an inverted siphon pipe. Current plans involve replacing this siphon for the following reasons: 1) the siphon is leaking and in deteriorating condition, and there are concerns that the

pipe may fail in the near future; 2) the intersection reconstruction requires that a storm sewer pipe be constructed beneath the existing siphon pipe, but there are concerns about supporting the siphon during construction; and 3) the roadway will be reconstructed above the siphon pipe and replacement of the siphon would reduce the amount of reconstruction required in the future. The project involves replacing the inlet or south end of the siphon and approximately three-quarters of the pipe. Because the siphon lacks the historical integrity to support the eligibility of segment 5BL4488.2 and the entire eligible Cottonwood Ditch #2, FHWA and CDOT have determined that the work to replace the siphon will result in *no adverse effect* to the entire ditch. Please see the attached graphic showing the proposed impacts to the siphon beneath Arapahoe Road.

We request your comment on the determinations of eligibility and effect outlined above. Your response is necessary for the Federal Highway Administration's compliance with Section 106 of the National Historic Preservation Act, and the Advisory Council on Historic Preservation's regulations.

We have also forwarded this information to the State Historic Preservation Officer (SHPO) for Section 106 compliance purposes. We will forward their response to you once we hear from them.

Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Senior Staff Historian Lisa Schoch at (303)512-4258.

Very truly yours,

  
for Brad Beckham, Manager  
Environmental Programs Branch

Enclosures

Re-Evaluation Form, 5BL4488.2  
Graphic—Proposed impacts to siphon

cc: Mike Vanderhoof, FHWA  
Carol Parr/Renee Galeano-Popp, CDOT Region 4  
Gina McAfee, Carter & Burgess  
Gray Clark, Muller Engineering Company



COLORADO  
HISTORICAL  
SOCIETY

The Colorado History Museum 1300 Broadway Denver, Colorado 80203-2137

March 29, 2005

Brad Beckham  
Manager, Environmental Programs Branch  
Colorado Department of Transportation  
Department of Transportation  
Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, CO 80222

Re: CDOT Project STA 0072-013, State Highway 7 Environmental Assessment; Determinations of Eligibility and Effect and Historic Property Boundary Revisions. (CHS #44809)

Dear Mr. Beckham,

Thank you for your correspondence dated March 24, 2005 and received by our office on that same date regarding the above-mentioned project.

After review of the submitted information, we concur with the proposed boundary adjustment for resource 5BL.9021/Gas Station and House. We are not able to complete our review of the boundary adjustment for resource 5BL.8917/Butler-Smith House. The original survey form completed in 2001 does not include photographs of the buildings south of the main residence and described as non-contributing. Please submit photographs to aid in reviewing the historic integrity of the properties. The proposed western edge of the boundary, as illustrated in the attached map of the Re-Evaluation Form, shows the boundary line running through a historic tree. In reviewing the pictures from the 2001 survey form, the trees in this area appear to be mature trees associated with the historic landscaping. The boundary justification explains that the properties to the south should be excluded because they do not have historic integrity. However, the justification does not address the western boundary line or why the agricultural field to the west should be excluded. If the field was historically associated with the house and still retains integrity, it should be included within the property boundary.

We concur with the finding of eligible for the National Register of Historic Places (NRHP) for resource 5BL.9021/Gas Station and House; resource 5BL.400.5/Colorado Southern-Burlington Northern Railroad segment; and resource 5BL.4488.3/Cottonwood Ditch #2 segment. We also concur with the finding of not eligible for the NRHP for resource 5BL.9617/7195 Arapahoe Road and resource 5BL.4164.4/Enterprise Ditch.

After review of the effect determinations, we concur with the finding of *adverse effect* under Section 106 for resource 5BL.400.5/Colorado Southern Burlington Northern Railroad segment and resource 5BL.4488.3/Cottonwood Ditch #2. We also concur with the finding of *no historic*

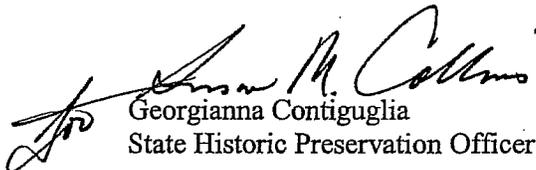
*properties affected* under Section 106 for resource 5BL.4164/Enterprise Ditch and resource 5BL.9617/7195 Arapahoe Road.

We request being involved in the consultation process with the local government, which as stipulated in 36 CFR 800.3 is required to be notified of the undertaking, and with other consulting parties. Additional information provided by the local government or consulting parties might cause our office to re-evaluate our eligibility and potential effect findings.

Please note that our compliance letter does not end the 30-day review period provided to other consulting parties.

If we may be of further assistance, please contact Amy Pallante, our Section 106 Compliance Coordinator, at (303) 866-4678.

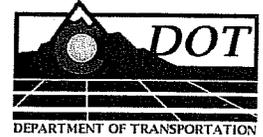
Sincerely,

  
Georgianna Contiguglia  
State Historic Preservation Officer

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



March 24, 2005

Ms. Georgianna Contiguglia  
State Historic Preservation Officer  
Colorado Historical Society  
1300 Broadway  
Denver, CO 80203

**SUBJECT:** Determinations of Eligibility and Effect and Historic Property Boundary Revisions  
CDOT Project STA 0072-013, State Highway 7 Environmental Assessment

Dear Ms. Contiguglia:

This letter and the attached materials constitute CDOT's request for concurrence on proposed historic boundary revisions and on determinations of eligibility and effect for historic properties associated with the Environmental Assessment referenced above. As you are aware, SH 7 is a principal east-west arterial roadway serving as a commuter and intra-regional facility for the communities of Lafayette, Louisville, Erie and Boulder as well as other communities east. CDOT, Boulder County, the City of Boulder and other local jurisdictions have identified SH 7 as an important regional arterial roadway. Population and employment growth in the City of Boulder and suburban areas east in Boulder County has brought increases in traffic along the SH 7 corridor.

### **Project Background**

The historic properties identified for this project were initially identified in September 2001. These resources were surveyed as part of a feasibility study that was conducted by CDOT for the Arapahoe Road corridor between Cherryvale Road and North 75<sup>th</sup> Street. This feasibility study identified improvements to the 75<sup>th</sup> Street intersection as the highest priority. During the design phase of the intersection improvements, we consulted with your office about these resources in correspondence dated February 19, 2002, in which we provided the history survey report and our Determinations of Eligibility and Effect for the intersection improvements. Your office was also a signatory to the Memorandum of Agreement that outlined mitigation measures for a segment of the Cottonwood Ditch #2 in the project area. Our office also consulted about determinations of effect in additional correspondence in September and December 2003.

With the exception of the newly recorded resources provided in this submittal (see below), the historic properties associated with the current EA were evaluated as part of the survey report for the feasibility study. Complete effects determinations for this EA project area will be forwarded to you at a later date. This preliminary submittal includes the following elements:

- Revised historic boundary for Butler-Smith House (5BL8917)
- Revised historic boundary for Gas Station and House (5BL9021)
- Eligibility determination for new segment of Cottonwood Ditch #2 (5BL4488.3)
- Eligibility determination for Colorado Southern-Burlington Northern RR segment (5BL400.5)
- Eligibility determination for Enterprise Ditch (5BL4614.4)

- Eligibility determination for 7195 Arapahoe Road (5BL9617)
- Effects determination for Colorado Southern Burlington Northern RR segment (5BL400.5)
- Effect determinations for Cottonwood Ditch #2 (5BL4488.3)
- Effect determinations for Enterprise Ditch (5BL4614.4) and property at 7195 Arapahoe (5BL9617)

### REVISED HISTORIC BOUNDARIES

**Butler-Smith House (5BL8917):** The Butler Smith House, initially surveyed for the Arapahoe Road feasibility study, was determined eligible under Criterion C as an excellent example of an 1880s farmhouse with clapboard siding and a Victorian front porch. At the time of the survey in 2001, the historic boundary was defined as the extent of the legal ownership boundary, which included a barn to the south of the main house and a house and two garages on an adjoining property, also to the south. At that time, the house to the south was determined to be non-contributing, but the barn was determined to be contributing. The original boundary also included a pasture to the west. FHWA and CDOT propose amending the boundary of the property so that it only includes the historic house and barn, and some of the landscaping around the house and barn that includes the driveway from Cherryvale Road. The house to the south and the two garages do not convey the significance of the property and have been excluded from the boundary. Please refer to the site form and revised boundary map for additional information.

**Gas Station and House (5BL9021):** The Gas Station and associated house were also initially surveyed for the Arapahoe Road feasibility study, and assigned site number 5BL8919. The property was determined eligible in 2001 under Criterion C for possessing distinctive characteristics of a type, method, and period of construction from the 1920s to 1950s in rural Boulder County. In the initial survey, the historic property boundary was defined as the extent of the legal boundaries. Since then, it has been determined that in the southwest corner of the property a small 20ft x 20ft triangle-shaped area is currently paved and is part of the existing roadway. This triangle shaped area is no longer part of the property setting and does not convey the historical significance of the property. FHWA and CDOT propose the revision of the historic property to exclude this triangular piece of the property. Please see the revised historic boundary as depicted on the sketch map attached to the site form. Also refer to the attached aerial photo, which shows the property and the triangle-shaped area in relation to the existing road right-of-way.

### ELIGIBILITY DETERMINATIONS

**Cottonwood Ditch #2 (5BL4488.3):** The entire 3-mile Cottonwood Ditch #2 (5BL4488) is considered eligible to the National Register of Historic Places (NRHP) under Criteria A. As part of the original survey for the intersection project, segment 5BL4488.2 was found officially eligible in March 2002. This new segment (5BL4488.3) is approximately 1500 feet in length and starts on the south side of Arapahoe Road and follows the north, east and south property lines of the Tenenbaum property until it reaches the Colorado Southern - Burlington Northern railroad line southwest of the property. The ditch crosses under the railroad and extends southwest parallel to the railroad for a short distance. This segment of ditch was found to retain sufficient integrity to contribute to the overall significance of the entire ditch.

**Colorado Southern-Burlington Northern RR segment (5BL400.5):** A 200-foot segment of the Colorado Southern Burlington Northern Railroad segment was also initially surveyed in 2001 for the Arapahoe Road feasibility study. This segment has been extended to include 2500 feet of the railroad both north and south of Arapahoe Road. The new segment is eligible under Criterion A for its association with the history of rail transportation in Boulder County. Please refer to the attached Reevaluation form and photo.

**Enterprise Ditch (SBL4164.4):** The Enterprise Ditch is a newly recorded resource; a 1000-foot segment of the ditch was evaluated for this project. The rural setting of this segment has been compromised by light industrial development and the ditch has been piped where it runs through these industrial properties. For these reasons, this segment does not retain sufficient integrity and is considered *not eligible*. Please see the attached site form and photos for more information about the eligibility of this resource.

**7195 Arapahoe Road (SBL9617):** This property consists of a main residential building and some associated outbuildings. The main house was built in 1930 and its integrity has been compromised by numerous modifications, for which there are no known dates. It does not retain the integrity to qualify for eligibility to the National Register under any of the NRHP Criteria and has been determined *not eligible*. Please refer to the attached site form and photographs for more information.

### EFFECTS DETERMINATIONS

**Colorado Southern Burlington Northern RR segment (SBL400.5):** The preferred alternative involves the construction of a temporary alignment offset 25 feet to the east of the existing alignment and the construction of a bridge along this alignment over SH 7 (see the BNSF Alternative graphic). This temporary alignment is required so that the new, longer bridge over State Highway 7 can be constructed while train operations can continue on the temporary alignment. The ultimate railroad alignment will follow the existing alignment. The following features are part of this alternative:

- To construct the temporary alignment, approximately 500 feet of the existing railroad track will be temporarily impacted along the southern curve and approximately 600 feet of existing track will be temporarily impacted along the northern curve (see A on the attached graphic).
- The widening of State Highway 7 will require the removal of approximately 25 to 35 feet of existing track on the north side of the highway. This portion of the track alignment will ultimately be on the future bridge structure over State Highway 7 (please see B on the attached graphic).
- A temporary bridge will be required to carry the temporary railroad alignment over the Cottonwood Ditch (C on the attached graphic). This temporary bridge can be removed following the project.

FHWA and CDOT have determined that the permanent impact to 25 to 35 feet of the railroad segment will result in an *adverse effect* to the historic Colorado Southern Burlington Northern RR segment (SBL400.5) because that portion of the railroad will be removed.

**Cottonwood Ditch #2 (SBL4488.3):** As noted above, for the preferred alternative a temporary bridge will be required to carry the temporary railroad alignment over the Cottonwood Ditch #2 (C on the attached graphic). This temporary bridge will be removed following the project. In addition, a permanent bridge will be required to replace the existing railroad bridge over the Cottonwood Ditch #2. The proposed bridge will be similar in configuration to the existing bridge (approximately 15-foot span vs. existing 12-foot span), and will not alter the current alignment of the ditch and the ditch will retain its natural earth bottom.

The Cottonwood Ditch #2 currently crosses SH 7 just east of the Colorado Southern Burlington Northern railroad bridge in an inverted siphon pipe. This existing structure will be replaced with a new inverted siphon. In order to accommodate the SH 7 improvements, the inlet end of the siphon pipe (south end) will be located at the existing inlet end and the north end of the siphon pipe will be located approximately

20 feet north of the existing outlet end of the siphon pipe. This 20-foot portion of the existing open ditch will be piped. FHWA and CDOT have determined that this will result in an *adverse effect* to this eligible irrigation ditch.

**Enterprise Ditch (5BL4164.4) and 7195 Arapahoe Road (5BL9617)**

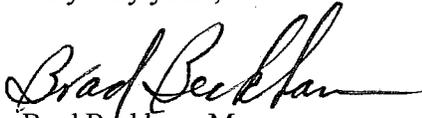
Neither of these resources is NRHP-eligible, and as such the project will result in *no historic properties affected*.

We hereby request your concurrence with the determinations of eligibility and effect, and the boundary revisions described herein within 30 days of receipt. Given your past reviews of this project corridor, we would appreciate an expedited review. Your response is necessary for the Federal Highway Administration's compliance with Section 106 of the National Historic Preservation Act, and the Advisory Council on Historic Preservation's regulations.

We have also sent this request to the Boulder County Historic Preservation Advisory Board for review and comment. We will forward their response to you once we hear from them.

Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Staff Historian Lisa Schoch at (303) 512-4258.

Very truly yours,



Brad Beckham, Manager  
Environmental Programs Branch

Enclosures

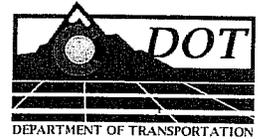
Site Forms for 5BL400.5, 5BL4488.3, 5BL4614.4, 5BL8917, 5BL9021, 5BL9617  
Graphic—BNSF Alternative  
Aerial photo—Gas Station and ROW

cc: Carol Parr, CDOT Region 4  
Helen Peiker, CDOT Region 4  
Gina McAfee, Carter & Burgess  
Gray Clark, Muller Engineering Company

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259



RECEIVED  
MAR 28 2005

Muller Engineering Company, Inc.

March 24, 2005

Ms. Denise Grimm  
Historic Preservation Advisory Board  
Boulder County Land Use Department  
P.O. Box 471  
Boulder, CO 80306

SUBJECT: Determinations of Eligibility and Effect, and Historic Property Boundary Revisions,  
CDOT Project STA 0072-013, State Highway 7 Environmental Assessment

Dear Ms. Grimm:

This letter and the attached materials constitute CDOT's request for comment on proposed historic boundary revisions and determinations of eligibility and effect for historic properties associated with the Environmental Assessment referenced above. As you are aware, SH 7 is a principal east-west arterial roadway serving as a commuter and intra-regional facility for the communities of Lafayette, Louisville, Erie and Boulder, as well as other communities east. CDOT, Boulder County, the City of Boulder and other local jurisdictions have identified SH 7 as an important regional arterial roadway. Population and employment growth in the City of Boulder and suburban areas east in Boulder County has brought increases in traffic along the SH 7 corridor.

### Project Background

The historic properties surveyed for this project were initially identified in September 2001. These resources were inventoried as part of a feasibility study conducted by CDOT for the Arapahoe Road corridor between Cherryvale Road and North 75<sup>th</sup> Street. The feasibility study identified improvements to the 75<sup>th</sup> Street intersection as the highest priority. During the design phase for the intersection improvements, we consulted with your office about these resources in correspondence dated September 9, 2003, in which we provided the history survey report and Section 106 consultation materials for your review. Your office responded to the initial submittal in correspondence dated November 19, 2003. In a letter dated March 8, 2004, we requested your comment on effects findings associated with the intersection project.

With the exception of the newly recorded resources provided in this submittal (see below), the historic properties associated with the current EA were evaluated as part of the survey report for the feasibility study. Complete effects determinations for the EA project area will be forwarded to you at a later date. This submittal includes the following elements:

- Revised historic boundary for Butler-Smith House (5BL8917)
- Revised historic boundary for Gas Station and House (5BL9021)
- Eligibility determination for new segment of Cottonwood Ditch #2 (5BL4488.3)
- Eligibility determination for Colorado Southern-Burlington Northern RR segment (5BL400.5)
- Eligibility determination for Enterprise Ditch (5BL4614.4)
- Eligibility determination for 7195 Arapahoe Road (5BL9617)

- Effects determination for Colorado Southern Burlington Northern RR segment (5BL400.5)
- Effect determinations for Cottonwood Ditch #2 (5BL4488.3)
- Effect determinations for Enterprise Ditch (5BL4616.4) and 7195 Arapahoe Road (5BL9617)

#### REVISED HISTORIC BOUNDARIES

**Butler-Smith House (5BL8917):** The Butler Smith House, initially surveyed for the Arapahoe Road feasibility study, was determined NRHP eligible under Criterion C as an excellent example of an 1880s farmhouse with clapboard siding and a Victorian front porch. At the time of the survey in 2001, the historic boundary was defined as the extent of the legal ownership boundary, which included a barn to the south of the main house and a house and two garages on an adjoining property, also to the south. At that time the house to the south was determined to be non-contributing, but the barn was determined to be contributing. The original boundary also included a pasture to the west. FHWA and CDOT propose amending the boundary of the property so that it includes only the historic house and barn, and some of the landscaping around the house and barn that includes the driveway from Cherryvale Road. The house to the south and the two garages do not convey the significance of the property and have been excluded from the boundary. Please refer to the site form and revised boundary map for additional information.

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#### ELIGIBILITY DETERMINATIONS

**Cottonwood Ditch #2 (5BL4488.3):** The entire 3-mile Cottonwood Ditch #2 (5BL4488) is considered eligible to the National Register of Historic Places (NRHP) under Criteria A. As part of the original survey for the intersection project, segment 5BL4488.2 was found officially eligible in March 2002. This new segment (5BL4488.3) is approximately 1500 feet in length and starts on the south side of Arapahoe Road and follows the north, east and south property lines of the Tenenbaum property until it reaches the Colorado Southern - Burlington Northern railroad line southwest of the property. The ditch crosses under the railroad and extends southwest parallel to the railroad for a short distance. This segment of ditch retains sufficient integrity to contribute to the overall significance of the entire ditch.

**Colorado Southern - Burlington Northern RR segment (5BL400.5):** A 200-foot segment of the Colorado Southern - Burlington Northern Railroad segment was also initially surveyed in 2001 for the Arapahoe Road feasibility study. This segment has been extended to include 2500 feet of the railroad both north and south of Arapahoe Road. The new segment is eligible under Criterion A for its association with the history of rail transportation in Boulder County. Please refer to the attached Site Reevaluation Form and photo.

**Enterprise Ditch (SBL4164.4):** The Enterprise Ditch is a newly recorded resource; a 1000-foot segment of the ditch was evaluated for this project. The rural setting of this segment has been compromised by light industrial development and the ditch has been piped where it runs through the industrial properties. For these reasons, this segment does not retain sufficient integrity and is considered *not eligible*. Please see the attached site form and photos for more information about the eligibility of this resource.

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### EFFECTS DETERMINATIONS

**Colorado Southern - Burlington Northern RR segment (SBL400.5):** The preferred alternative involves the construction of a temporary alignment offset 25 feet to the east of the existing alignment, and the construction of a bridge along this alignment over SH 7 (see the BNSF Alternative graphic). The temporary alignment is required so that the new, longer bridge over Highway 7 can be constructed while train operations continue on the temporary alignment. The ultimate railroad alignment will follow the existing alignment. The following features are part of this alternative:

- To construct the temporary alignment, approximately 500 feet of the existing railroad track will be temporarily impacted along the southern curve, and approximately 600 feet of existing track will be temporarily impacted along the northern curve (see A on the enclosed graphic).
- The widening of State Highway 7 will require the removal of approximately 25 to 35 feet of existing track on the north side of the highway. This portion of the track alignment will ultimately be on the future bridge structure over the highway (see B on the enclosed graphic).
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will be piped. FHWA and CDOT have determined that this will result in an *adverse effect* to this eligible irrigation ditch.

**Enterprise Ditch (5BL4164.4) and 7195 Arapahoe Road (5BL9617):** Neither of these resources is NRHP-eligible, and as such the project will result in *no historic properties affected*.

We request your comments on the determinations of eligibility and effect, as well as the boundary revisions, described herein within 30 days of receipt. Given your past reviews of this project corridor, we would appreciate an expedited review. Your response is necessary for the Federal Highway Administration's compliance with Section 106 of the National Historic Preservation Act, and the Advisory Council on Historic Preservation's regulations.

We have concurrently sent a request for eligibility and effects review to the State Historic Preservation Officer (SHPO) for review and comment. We will forward their response to you when received.

Thank you in advance for your prompt attention to this matter. If you require additional information, please contact CDOT Staff Historian Lisa Schoch at (303) 512-4258.

Very truly yours,

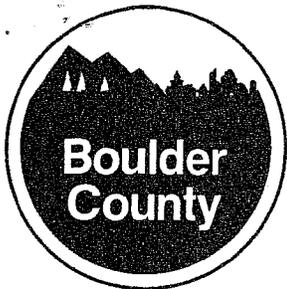


for Brad Beckham, Manager  
Environmental Programs Branch

Enclosures

Site Forms (5BL400.5, 5BL4488.3, 5BL4614.4, 5BL8917, 5BL9021, 5BL9617)  
Graphic—BNSF Alternative  
Aerial photo—Gas Station and ROW

cc: Carol Parr, CDOT Region 4  
Helen Peiker, CDOT Region 4  
Gina McAfee, Carter & Burgess  
Gray Clark, Muller Engineering



# Land Use Department

Courthouse Annex  
2045 13th Street • 13th & Spruce Streets • Boulder, Colorado 80302 • (303) 441-3930

January 4, 2005

Mark Gosselin  
CDOT  
1050 Lee Hill Rd.  
Boulder, CO 80302

Re: Highway 7-Arapaho Road widening, Boulder County  
CDOT Project STA 0072-010, SH 7, Arapahoe Road

Dear Mark:

Thank you and everyone for coming to our November 4, 2004 Historic Preservation Advisory Board meeting, and for the opportunity to comment on this project. The Boulder County Historic Preservation Advisory Board discussed the project and the affected properties at their meeting and asked that a letter be sent outlining their concerns.

There is still concern about the impact of the project on the historic landscaping and we would urge CDOT to follow up with Clark Misner on the County's offer to help maintain replanted trees.

At earlier meetings we discussed our concern about the Brown-Debacker farm and this was once again raised as an issue. The board indicated that it was once the property of Peter M. Housel who was the first probate judge elected in Boulder County and was a prominent local pioneer. I've attached information from the book, *Historic Homes of Boulder County*, which features this property. Considering this information the property might be eligible for the National Register.

There were a number of questions raised regarding how context and setting affect eligibility. Some members expressed a concern that properties were written off as ineligible because they had incompatible development around them. They then raised the concern that the impact of the widening project would negatively impact the context and setting of the corridor as a whole.

The Goodview Hill/Veterans' Memorial Park is another area of concern. The use of cut slopes and/or retaining walls in this area could have a major impact on the park area.

*We would like to be able to comment on the design plans for widening as they become available. The HPAB is concerned about the historic corridor and would like to be able to provide feedback on the overall design of the project.* If you have any questions or concerns, please feel free to call me at (303) 441-3930.

Sincerely,

Denise Grimm  
Planner II

cc: SHPO, Barbara Norgren, Brad Bechham, Karla Harding, letter log, Arapaho Rd. file



From "Historic Homes of Boulder County"  
by Jane Valentine Banker

1979

## Brown-DeBacker Farm

Every Fourth of July and Colorado Day, for more than half a century, the stars and stripes and the Colorado banner have flown over the DeBacker home at 7602 Arapahoe Avenue. The flags remind the family of their heritage, which includes grandparents who immigrated to the United States and who, as farmers and freighters, helped settle Colorado.

The house was built in stages. The original part was probably constructed in the early 1870s by Boulder's first school teacher Abner Brown. This two-story section now contains the dining room and a bedroom downstairs, and two bedrooms upstairs. It is in the middle of the present structure. What were once exterior walls are made of grout; the upstairs floors have the original wide pine boards. A five-sectioned bow window is a focal point in the dining room.

About 1907 an addition was put on the front, and in 1963 a new section was added at the back. The exterior looks like a typical turn-of-the-century Colorado farmhouse. It is frame construction, with a large porch and white pillars. The interior is arranged with the formal living area at the front and a kitchen-family room across the back.

The second owner of the house was Peter Housel, a native of Pennsylvania who had come to Colorado with a group of gold seekers in 1859. His wife and children joined him, and the family lived in Gold Hill for a while.

They later moved to Boulder, and in 1862, Housel was elected the first probate judge of Boulder County. The family lived near Valmont, but after the railroad came into that area, they sold the property and moved to Arapahoe Road.

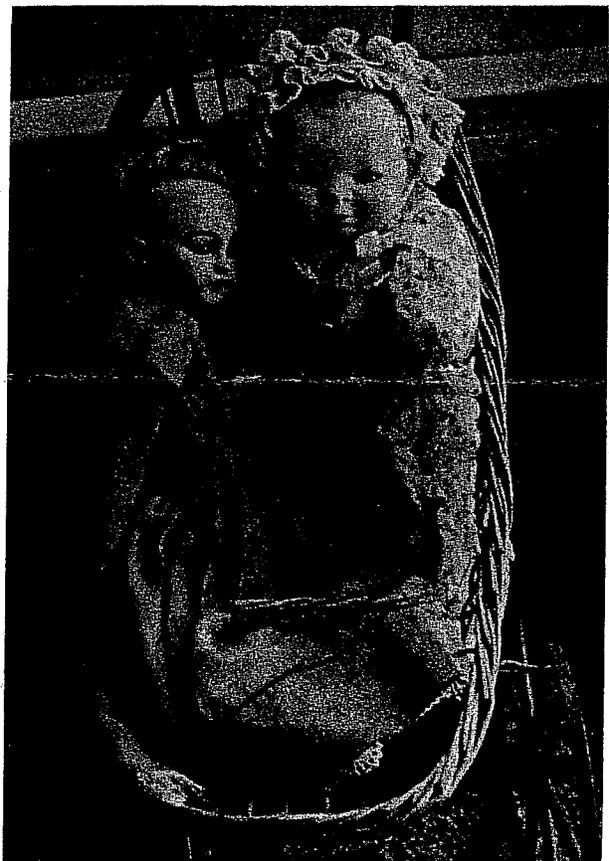
In an article in the *Boulder Daily Camera* (March 16, 1950), Miriam Rieder, Housel's granddaughter, stated: "This land was bought from Abner Brown. He had purchased it from the state for \$480, and had fallen behind with his payments. The Housels took over from him in 1875, and the deed from the State is dated 1882."

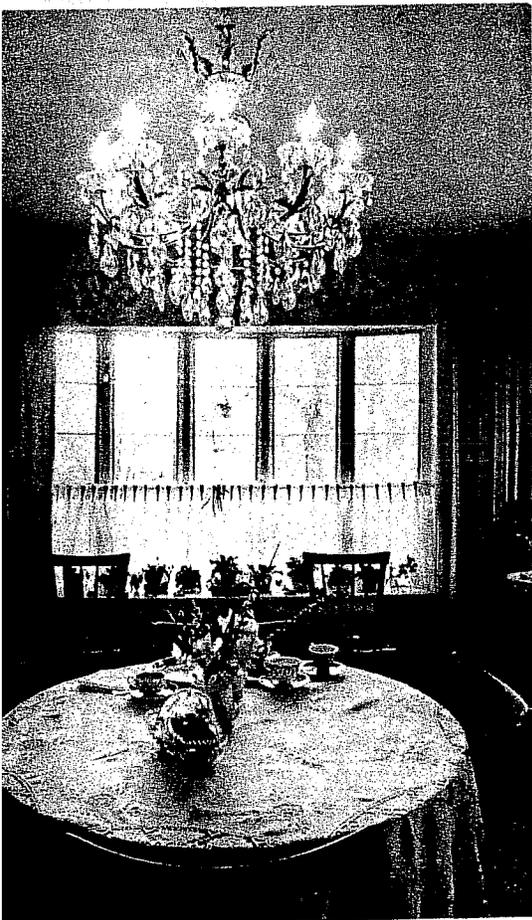
Mrs. Rieder said that the Housels planted "hundreds of cottonwood trees." After one hundred years many of the trees still lined the property. Housel was one of the organizers of the Fairview school on east Arapahoe, which for many years was known as the Housel school.

In 1900 Judge Housel sold the house to Hugh and Nellie McGillivray, who had then recently come to Boulder from Forestburg, South Dakota. The McGillivrays' daughter Katheryn attended Fairview elementary school and graduated from Mount Saint Gertrude Academy in Boulder. On June 5, 1907, she married Jerome DeBacker.

DeBacker was born near Antwerp, Belgium, in January 1881. That spring his parents, Leopold and Rosalie DeBacker, set out with him across the North Atlantic for the United States. The voyage, aboard an old side-wheeler, lasted six weeks.

Leopold's older brother John had settled some twenty years earlier in the Fairview district of Boulder County. He had written to Leopold about the opportunities the area offered, and encouraged him to take up farming. Although Leopold had worked only as a carpenter in Belgium, he bought eighty acres on Little Dry Creek and began farming.





Archeological/  
Paleontological Resources

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

Environmental Programs Branch  
4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9259

RECEIVED



January 14, 2005

JAN 20 2005

Ms. Georgianna Contiguglia  
State Historic Preservation Officer  
Colorado Historical Society  
1300 Broadway  
Denver, CO 80203

ONE/OAIF

RECEIVED

APR 14 2006

Muller Engineering Company, Inc.

Dear Ms. Contiguglia:

**Subject:** Eligibility and Effects Determination (Archaeology), Project STA 0072-013, SH 7, Cherryvale to 75<sup>th</sup> St. Environmental Assessment

Enclosed for your review is the archaeological resources survey report for the Colorado Department of Transportation (CDOT) project referenced above. The undertaking proposes the reconstruction and widening of State Highway 7 (Arapahoe Road) between Cherryvale Road and North 75<sup>th</sup> Street in Boulder County, an action being documented in an Environmental Assessment. The Area of Potential Effects (APE) established for the archaeological inventory includes 3.6 km (1.95 mi) segment of Arapahoe Road (mileposts 54.8-57.05), and involves the highway right-of-way (ROW) and a band of private property extending 45 m north and south of the ROW. In addition, improvements are proposed at the North 63<sup>rd</sup> Street and North 75<sup>th</sup> Street intersections, and also to the Burlington Northern Railroad crossing near the east end of the corridor, all of which were subsumed within the APE.

A file search conducted at the Office of Archaeology and Historic Preservation revealed that portions of the study area were previously surveyed, but no archaeological resources had been documented within or near the APE. A pedestrian survey of the study area was completed in December 2004, resulting in the documentation of three historic archaeological resources (5BL5458, 5BL9621, and 5BL9622).

Site 5BL5458 was first documented in 1995 as a single family residence; in 2001 the site was reevaluated, at which time it was evaluated as officially not eligible for listing on the National Register of Historic Places (NRHP). The 2004 inventory found that the primary living structure has been removed, leaving only a garage, well, and assorted concrete pavement intact. The site exhibits no evidence of potentially significant archaeological deposits, and as such CDOT concurs with the existing determination of not NRHP eligible.

Site 5BL9621 also consists of the remains of a residential property. All structural remains have been removed, including foundations, leaving only a driveway, a cistern, a small concrete foundation, random small depressions, three large (probably pond) depressions, and a recent tree limb enclosure and tree house. There is no evidence of significant subsurface cultural deposition and archival data indicates that the property is not associated with significant historic figures or events. Based on its diminished integrity, the lack of supporting archival documentation, and the lack of significant archaeological deposition, 5BL9621 is recommended as not eligible to the National Register.

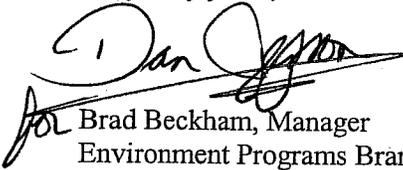
Site 5BL9622 is comprised of a refuse dump located in an abandoned gravel pit on the north end of Hoover Hill, south of SH 7. Several deposits of historic trash are extant, situated primarily in the eastern two-thirds

of the pit, and include construction material and residential debris. There is no evidence of excavation and burial of materials. The refuse appears to date primarily from the 1940s to 1960s, although there is one deposit clearly from the 1970s. This does not represent a designated community or county dump, but instead appears to have been limited to isolated dumping episodes by local residents. Based on the recent nature of the materials and lack of significant historic archaeological strata, 5BL9622 is recommended as not eligible for nomination to the National Register.

All three sites discussed above and in the accompanying report are recommended as not eligible for inclusion on the NRHP, and consequently no historic properties will be affected by the project. We request your concurrence with the eligibility and effects determinations for the sites outlined herein. A concurrence line is provided below for your convenience.

If you have questions or require additional information in order to complete your review, please contact CDOT Senior Staff Archaeologist Dan Jepson at (303)757-9631, or via Email at [daniel.jepson@dot.state.co.us](mailto:daniel.jepson@dot.state.co.us).

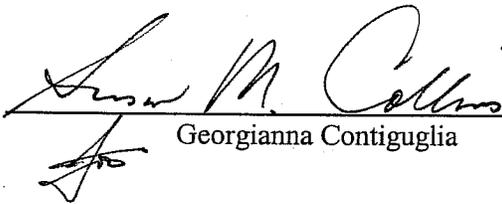
Very truly yours,

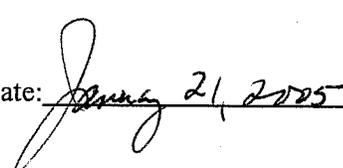
  
Brad Beckham, Manager  
Environment Programs Branch

Enclosure

cc: CF

I concur:

  
Georgianna Contiguglia

Date: 

# STATE OF COLORADO

## DEPARTMENT OF TRANSPORTATION

4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9011



**DATE:** October 12, 2004

**TO:** Carol Parr

**FROM:** Steven M. Wallace *SM Wallace*

**SUBJECT:** Paleontological assessment for project STA 0072-013, State Highway 7  
Environmental Assessment, Cherryvale Road – East

Attached are two copies of the paleontological assessment report for project STA 0072-013, State Highway 7 Environmental Assessment, Cherryvale Road – East, submitted September 30, 2004, by Dr. Emmett Evanoff for Centennial Archaeology, Inc.. I have read the report and found it acceptable. As a result of the negative findings in Dr. Evanoff's report, I am recommending paleontological clearance with no attached mitigation stipulations for project STA 0072-013, and for any future construction projects permitted by the approval of the SH 7, Cherryvale Road – East EA. If paleontological resources are uncovered during project construction, I should be notified immediately.

SMW:smw

cc: RF, CF, Wallace



# SOUTHERN UTE INDIAN TRIBE

August 11, 2004

Mr. Dan Jepson  
CDOT Native American Consultation Liaison  
Colorado Federal Aid Division  
12300 W. Dakota Avenue, Suite 180  
Lakewood, Colorado 80228

Re: State Highway 7, Cherryvale to 75<sup>th</sup> St. Environmental Assessment,  
Boulder County, Colorado

Dear Mr. Jepson:

I have reviewed your letter regarding the proposed improvements to a segment of State Highway 7 in eastern Boulder County, Colorado. At this time, the Southern Ute Tribe does not object to The Federal Highway Administration and Colorado Department of Transportation's Environmental Assessment that will address congestion and safety issues. In the event of inadvertent discoveries of Native American cultural sites, artifacts or human remains, the Southern Ute Indian Tribe would appreciate immediate notification.

Should you have any questions or require additional information, please do not hesitate to contact me at the number listed below, extension 2209.

Sincerely,

*Neil B. Cloud*

Neil B. Cloud  
NAGPRA Coordinator

Cc: Howard D. Richards Sr., Chairman  
Southern Ute Indian Tribe

**FEDERAL HIGHWAY ADMINISTRATION/COLORADO DEPARTMENT OF TRANSPORTATION  
SECTION 106 TRIBAL CONSULTATION INTEREST RESPONSE FORM**

**PROJECT:** State Highway 7, Cherryvale to 75<sup>th</sup> St. Environmental Assessment

The SO. UTE IND. TRIBE Tribe  is not] (circle one) interested in becoming a consulting party for the Colorado Department of Transportation project referenced above, for the purpose of complying with Section 106 of the National Historic Preservation Act and its implementing regulations (36 CFR 800). If your tribe will be a consulting party, please answer the questions below.

Signed: Neil B. O'Connell - NAGPRA COOR.  
Name and Title

**CONSULTING PARTY STATUS [36 CFR §800.2(c)(3)]**

Do you know of any specific sites or places to which your tribe attaches religious and cultural significance that may be affected by this project? ALSO, OUR ORIGINAL HOME LAND.

Yes  No If yes, please explain the general nature of these places and how or why they are significant (use additional pages if necessary). Locational information is not required.  
SAME AS ABOVE.

**SCOPE OF IDENTIFICATION EFFORTS [36 CFR §800.4(a)(4)]**

Do you have information you can provide us that will assist us in identifying sites or places that may be of religious or cultural significance to your tribe?

Yes  No If yes, please explain. IF YOU ARE AT A CERTAIN LOCATION,

**CONFIDENTIALITY OF INFORMATION [36 CFR §800.11(c)]**

Is there any information you have provided here, or may provide in the future, that you wish to remain confidential?

Yes  No  If yes, please explain.

**Please complete and return this form within 60 days via US Mail or fax to:**

Dan Jepson, Section 106 Native American Liaison  
Colorado Department of Transportation  
Environmental Programs Branch  
4201 E. Arkansas Ave.  
Denver, CO 80222  
FAX: (303)757-9445



U.S. Department  
Of Transportation  
**Federal Highway  
Administration**

**Colorado Federal Aid Division**  
12300 W. Dakota Avenue  
Suite 180  
Lakewood, CO 80228

August 4, 2004

Mr. Howard Richards, Chairman  
Southern Ute Indian Tribe  
P.O. Box 737  
Ignacio, CO 81137

Dear Mr. Richards:

**Subject:** Request for Section 106 Consultation; State Highway 7, Cherryvale  
to 75<sup>th</sup> St. Environmental Assessment, Boulder County, Colorado

The Federal Highway Administration (FHWA) and Colorado Department of Transportation (CDOT) are presently gathering information for inclusion in an Environmental Assessment (EA) that will address the effects of proposed improvements to a segment of State Highway 7 in eastern Boulder County, Colorado. The study area is located in a fast-growing residential and commercial section of the City of Boulder that has become increasingly congested as a result of rising population and traffic volumes. The EA will address congestion and safety issues, and upgrade out-dated transportation facilities in an effort to improve mobility and the efficiency of the overall transportation system along the State Highway 7 corridor. Pursuant to the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) implementing regulations (40 CFR 1500-1508), FHWA and CDOT are documenting the potential social, economic and environmental consequences of this action. Please refer to the enclosed maps for specific locational information.

The FHWA will serve as the lead agency for this undertaking, and CDOT staff will facilitate the tribal consultation process. The agencies are seeking the participation of regional Native American tribal governments in cultural resources consultation for the undertaking, as described in Section 106 of the National Historic Preservation Act and implementing regulations 36 CFR 800 et seq. As a consulting party, you are offered the opportunity to identify concerns about cultural resources and comment on how the project might affect them. Further, if it is found that the project will impact cultural resources that are eligible for inclusion on the National Register of Historic Places and are of religious or cultural significance to your tribe, your role in the consultation process may also include participation in resolving how best to avoid, minimize, or mitigate those impacts. It is our hope that by describing the proposed undertaking we can be more effective in protecting areas important to American Indian people. If you have interest in this undertaking and in cultural resources that may be of religious or cultural significance to your tribe, we invite you to be a consulting party.



Mr. Howard Richards  
August 4, 2004  
Page 2

The Area of Potential Effect (APE) for the project, as defined in 36 CFR 800.16(d), is located in a partially developed suburban area that includes both residential and commercial properties (see the enclosed aerial photo and APE map). A comprehensive survey and assessment of historic properties within the APE has not yet been conducted. Once this task has been completed, all interested parties and consulting tribes will be apprised of the results and asked to comment.

The Denver/Boulder metropolitan area is home to a number of urban Indian people. As such, if you are aware of members of your tribe living in proximity to the State Highway 7 study area who would be interested in participating in the NEPA consultation process on some level, please notify us so that we may facilitate that interaction.

We are committed to ensuring that tribal governments are informed of and involved in decisions that may impact places with cultural significance. If you are interested in becoming a consulting party for the State Highway 7 EA project, please complete and return the enclosed Consultation Interest Response Form to CDOT Native American consultation liaison Dan Jepson within 60 days at the address or facsimile number listed at the bottom of that sheet. Mr. Jepson can also be reached via Email at [Daniel.Jepson@dot.state.co.us](mailto:Daniel.Jepson@dot.state.co.us), or by telephone at (303) 757-9631. The 60-day period has been established to encourage your participation at this early stage in project development. Failure to respond within this time frame will not prevent your tribe from becoming a consulting party at a later date. However, studies and decision-making will proceed and it may become difficult to reconsider previous determinations or findings, unless significant new information is introduced.

Thank you for considering this request for consultation.

Sincerely yours,



*f07* Douglas Bennett  
Acting Division Administrator

Enclosures

cc: Mr. Neil Cloud, NAGPRA Representative  
D. Jepson, CDOT Env. Programs  
C. Parr, CDOT Region 4  
T. Halouska, Carter-Burgess  
S. Sands (FHWA)

MR. HOWARD RICHARDS  
CHAIRMAN  
SOUTHERN UTE INDIAN TRIBE  
P.O. BOX 737  
IGNACIO, CO 81137

MR HAROLD CUTHAIR  
UTE MOUNTAIN UTE TRIBE  
PO BOX 348  
TOWAOC CO 81334

MS MAXINE NATCHEES  
CHAIRWOMAN, UINTAH & OURAY  
TRIBAL BUSINESS COMMITTEE  
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FT DUCHESNE UT 84026

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CHAIRMAN, NORTHERN  
ARAPAHO TRIBE BUSINESS COUNCIL  
P.O. BOX 396  
FORT WASHAKIE, WY 82514

MR. BILL BLIND, VICE CHAIRMAN  
CHEYENNE AND ARAPAHO BUSINESS  
COMMITTEE, CHEYENNE AND ARAPAHO TRIBES  
OF OKLAHOMA  
P.O. BOX 38  
CONCHO, OK 73022

MS. GERI SMALL  
CHAIRWOMAN  
NORTHERN CHEYENNE TRIBE  
P.O. BOX 128  
LAME DEER, MT 59043

MR. HAROLD C. FRAZIER, CHAIRMAN  
CHEYENNE RIVER SIOUX TRIBAL COUNCIL  
P.O. BOX 590  
EAGLE BUTTE, SD 57625

MR. GEORGE E. HOWELL  
PRESIDENT  
PAWNEE NATION OF OKLAHOMA  
P.O. BOX 470, BLDG. 64  
PAWNEE, OK 74058

MR. GEORGE TAHBONE  
ACTING VICE CHAIR  
KIOWA TRIBE OF OKLAHOMA  
P.O. BOX 369  
CARNEGIE, OK 73015

MR. WALLACE COFFEY  
CHAIRMAN, COMANCHE TRIBAL  
BUSINESS COMMITTEE  
P. O. BOX 908  
LAWTON, OK 73502

MR. CHARLES W. MURPHY  
CHAIRMAN, STANDING  
ROCK SIOUX TRIBAL COUNCIL  
P.O. BOX D  
FORT YATES, ND 58538

MR. CHARLES COLOMBE, PRESIDENT  
ROSEBUD SIOUX TRIBE  
P.O. BOX 430  
ROSEBUD, SD 57570

MS. ELAINE ATZITTY  
COUNCIL REPRESENTATIVE  
WHITE MESA UTE TRIBAL COUNCIL  
PO BOX 7096  
WHITE MESA, UT 84511

CHAIRMAN  
CROW CREEK SIOUX TRIBAL COUNCIL  
P.O. BOX 658  
FORT THOMPSON, SD 57325

MR. JOHN YELLOWBIRD, PRESIDENT  
OGLALA SIOUX TRIBAL COUNCIL  
P.O. BOX H  
PINE RIDGE, SD 57770

**Original Letters Mailed  
to all of the above**

MR WILLIAM L PEDRO  
NAGPRA REPRESENTATIVE  
CHEYENNE & ARAPAHO TRIBES  
OF OKLAHOMA  
PO BOX 41  
CONCHO OK 73022

MR JOE BIG MEDICINE  
NAGPRA REPRESENTATIVE  
CHEYENNE & ARAPAHO TRIBES  
OF OKLAHOMA  
500 S LEACH, APT 36  
WATONGA OK 73772

MR ALONZO SANKEY  
NAGPRA REPRESENTATIVE  
CHEYENNE & ARAPAHO TRIBES/OKLA  
P. O. BOX 836  
CANTON, OK 73724

MR GORDON YELLOWMAN  
NHPA/TRANSPORTATION PLANNER  
CHEYENNE & ARAPAHO TRIBES/OKLA  
ROADS CONSTRUCTION PROGRAM  
PO BOX 137  
CONCHO OK 73022

MR GILBERT BRADY  
TRIBAL HISTORIC PRESERVATION  
OFFICER  
NORTHERN CHEYENNE TRIBE  
P.O. BOX 128  
LAME DEER MT 59043

REVEREND GEORGE DAINGKAU  
NAGPRA REPRESENTATIVE  
KIOWA TRIBE OF OKLAHOMA  
118 N STEPHENS  
HOBART OK 73015

MR JIMMY ARTERBERRY  
THPO/NAGPRA – DIRECTOR  
COMANCHE NATION OF OK  
PO BOX 908  
LAWTON OK 73502

MR ROBERT GOGGLES  
NAGPRA REPRESENTATIVE  
NORTHERN ARAPAHO TRIBE  
PO BOX 396  
FORT WASHAKIE, WY 82514

MR HOWARD BROWN, CHAIR  
ECONOMIC DEVELOPMENT COMMISSION  
NORTHERN ARAPAHO TRIBE  
PO BOX 9079  
ARAPAHOE, WY 82510

MS ALICE ALEXANDER  
TRIBAL HISTORIC PRESERVATION OFFICER,  
PAWNEE NATION/OKLA  
PO BOX 470  
PAWNEE, OK 74058

MR NEIL CLOUD  
NAGPRA REPRESENTATIVE  
CULTURE PRESERVATION OFFICE  
SOUTHERN UTE INDIAN TRIBE  
P.O. BOX 737  
IGNACIO, CO 81137

MS BETSY CHAPOOSE, DIRECTOR  
CULTURAL RIGHTS & PROTECTION  
OFFICE  
NORTHERN UTE TRIBE  
PO BOX 190  
FT DUCHESNE UT 84026

MR TERRY G KNIGHT  
NAGPRA REPRESENTATIVE  
UTE MOUNTAIN UTE INDIAN TRIBE  
PO BOX 102  
TOWAOC, CO 81334

MR JIM PICOTTE  
NAGPRA REPRESENTATIVE  
CHEYENNE RIVER SIOUX TRIBE  
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EAGLE BUTTE, SD 57625

TIM MENTZ  
STANDING ROCK SIOUX TRIBE  
CULTURAL RESOURCE PLANNER  
PO BOX D  
FT YATES, ND 58538

TERRY GRAY  
(ROSEBUD SIOUX)  
NAGPRA COORDINATOR  
SGU HERITAGE CENTER  
BOX 675 – RSTSCRM COMMITTEE  
ROSEBUD, SD 57555

# LWCF/6(f) Resources



# Parks and Open Space Department

5201 St. Vrain Road • Longmont, Colorado 80503 • (303) 678-6200 • Fax: (303) 678-6180  
Fairgrounds: 9595 Nelson Road • Longmont, Colorado 80501 • (303) 678-6235 • Event Line: (303) 441-3927

PROJECT: STA 0072-013  
LOCATION: SH 7 EA  
CODE: 14802

May 17, 2005

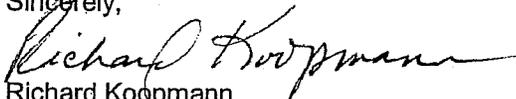
Colorado Department of Transportation  
1050 Lee Hill Road  
Boulder, CO 80302  
Attn: Mark Gosselin

Dear Mr. Gosselin,

This letter concerns impacts to Legion Park with regard to proposed road improvements associated with the State Highway 7 (SH 7) Environmental Assessment. The Boulder County Parks and Open Space Department agrees that the proposed road improvements will not have an adverse impact on the use of Legion Park, and that the project meets the criteria for temporary occupancy as outlined in the Section 4(f) regulations. An agreement between the Colorado Department of Transportation (CDOT) and Boulder County with regard to the following is currently in negotiation.

1. According to CDOT the project will require approximately one year to construct. The time required for the construction of the main access and removal of the secondary access will take less than one month. The duration of construction of the cut slopes along SH 7 will take approximately two months. The cut slopes are a result of the lowering of the hill adjacent to Legion Park and are not related to the construction of the Legion Park access. This work will take place under temporary easements and the ownership of Legion Park will not change. We consider the scope of work to be minor in nature and magnitude. The main access will require minor improvements to re-connect to SH 7. The secondary access will be removed to improve safety. The cut slopes are considered minor and will not change the use of the park in any way.
2. The project will not have any adverse impacts to Legion Park and the park will remain open during construction activities.
3. The affected portion of the Legion Park property will be returned to a condition that will not impact the use of the park or diminish the park setting.

Sincerely,

  
Richard Koopmann  
Resource Planning Manager

Cc.  
Ron Stewart: County Open Space  
Carol Parr, CDOT – R4Environmental  
Lisa Schoch, CDOT  
Gray Clark, Muller Engineering  
File

# STATE OF COLORADO

## COLORADO STATE PARKS

1313 Sherman Street, Room 618  
Denver, Colorado 80203  
Phone (303) 866-3437  
FAX (303) 866-3206



**FILE COPY**

SH 7

December 5, 2001

Kirk Webb  
Environmental Planner  
Carter-Burgess, Inc.  
216 16th Street Mall  
Denver, CO 80202

RE: LWCF 6(f) Boundaries

Dear Mr. Webb:

This letter is in response to your request for LWCF properties and 6(f) boundaries within the limits of project #070702.400.1.0001.

No LWCF 6(f) boundaries in T1N, R70W, Sections 25, 26, 27, 34, 35 and 36 will be impacted by the project. Specifically, this area is two hundred feet west of Cherryvale Road along SH 7 to two thousand feet east of 75th Street; and two hundred and fifty feet north of the railroad grade as it crosses north of Legion Park, and two hundred and fifty feet south of where it crosses 75th Street. The nearest 6(f) boundary is north of the project area within Sawhill Ponds which will not be affected by the project.

Thank you for your cooperation. Please contact me with any questions.

Sincerely,

Tom Easley  
Statewide Programs Manager  
Enclosures

Bill Owens  
Governor

Greg E. Walcher  
Executive Director  
Department of  
Natural Resources

Laurie Mathews  
Director  
Colorado State Parks

*Colorado Board of P.  
and Outdoor Recreai*

Robin (Bob) Herneic  
Chair

Edward C. Callaway  
Secretary

Howard Kenison  
GOCO Representativ

Doug Cole  
Member

John W. Singletary  
Member

DEPARTMENT OF TRANSPORTATION

4201 East Arkansas Avenue  
Denver, Colorado 80222  
(303) 757-9011



January 10, 2006

Margie Perkins  
Director, Air Pollution Control Division  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, CO 80222

Re: SH-7, Cherryvale Road to 75<sup>th</sup> Street Environmental Assessment

Dear Ms. Perkins:

The Colorado Department of Transportation is preparing an environmental assessment for proposed improvements to State Highway 7 (Arapahoe Road) between Cherryvale Road and 75<sup>th</sup> Street east of Boulder (see attached project vicinity map). Alternatives being evaluated include widening the existing segment of SH-7 to four lanes and intersection improvements (see attached project alternatives map).

The results of the traffic analysis showed that for any of the build alternatives, the two signalized intersections in the area included in the project improvements under the preferred alternative would operate at level of service (LOS) C or better in the year 2030 (please see attached traffic analysis summary). EPA modeling guidance states that intersections that operate at LOS C or better are not likely to cause a violation of the federal 8-hour average carbon monoxide (CO) standard. Thus, CO hotspot modeling for these intersections is not required.

One of the intersections reported in the EA, the intersection of 75<sup>th</sup> Street and SH-7, is projected to operate at LOS D with the preferred alternative. This intersection, however, was improved under a separate action and will not be changed with the preferred alternative for this project. Cleared under a categorical exclusion in 2002-2003 (please refer to the attached clearance letter prepared for this analysis in 2002), this intersection was modeled at that time, using estimated volumes for the 2025 future year. The resulting worst case 8-hour CO concentration was 5.5 ppm, which is below the 9.0 ppm standard. The traffic volumes that were used for that analysis were compared to the most recent projections developed for this EA to ensure that the 2002 analysis would still be appropriate. It was determined that the traffic volumes used for the previous analysis were higher than the most recent projections, thus the previous analysis represents a worst-case scenario that demonstrates that the CO standard will not be exceeded with the current project.

This project was originally included in the conforming 2025 Interim Denver Regional Transportation Plan (RTP) and the DRCOG 2003-2008 (now 2005-2010) Transportation Improvement Program (TIP #1997-033, STIP-ID# DR2072).

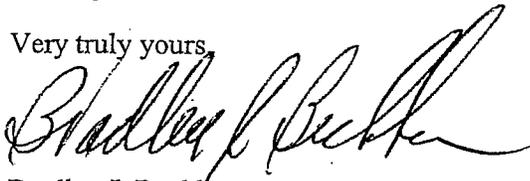
Pursuant to the conformity provisions of the Clean Air Act Amendments of 1990, this project will not:

- (i) cause or contribute to any new violation of any standard;
- (ii) increase the frequency or severity of any existing violations of any standard;
- (iii) delay timely attainment of any standard or any required interim emission reductions.

If you concur with the results of the air quality analysis and the conclusions regarding conformity of this project, please sign below and return this letter by February 10, 2006.

Thank you.

Very truly yours,



Bradley J. Beckham  
Manager  
CDOT Environmental Programs Branch

I Concur: Margie M. Perkins 1-19-06  
Margie Perkins, Director Date



DEPARTMENT OF THE ARMY  
CORPS OF ENGINEERS, OMAHA DISTRICT  
DENVER REGULATORY OFFICE, 9307 S. PLATTE CANYON ROAD  
LITTLETON, COLORADO 80128-6901

December 18, 2001

Ms. Laura Backus  
Carter & Burgess, Inc.  
216 16<sup>th</sup> Street, Suite 1700  
Denver, CO 80202

**RE: Approved Jurisdictional Determination, Colorado Department of Highway Transportation  
Arapahoe Road Improvements, Wetlands  
Corps File No. 200180866**

Dear Ms. Backus:

Reference is made to the above-mentioned project on behalf of the applicant, Colorado Department of Transportation. This project is located in Sections 27 and 34 west 1/2, Section 26 and 35, and Sections 25 and 36, Township 1 North, Range 70 West, Boulder County, Colorado.

This project has been reviewed in accordance with Section 404 of the Clean Water Act under which the U.S. Army Corps of Engineers regulates the discharge of dredged and fill material, and any excavation activities associated with a dredged and fill project, into waters of the United States. Waters of the United States include ephemeral, intermittent and perennial streams, their surface connected wetlands and adjacent wetlands and certain lakes, ponds, drainage ditches and irrigation ditches that have a nexus to interstate commerce.

Based upon the ruling by the Supreme Court in the matter of Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, No. 99-1178 (January 9, 2001), the Department of the Army's regulatory jurisdiction over isolated, non-navigable, intrastate waters has been eliminated if the sole nexus to interstate commerce was use of the waters by migratory birds. Wetlands that are surface connected or adjacent to a river/tributary are waters of the United States. Bed and bank areas (Other Waters) that connect to a larger river system are also waters of the United States.

Wetlands 1, 4a, 4b, 6a, 6b, 6d, 9a, 9b, 9c and 9d are a waters of the U.S. If a proposed activity requires work in these waters of the U.S., a proponent of the project should notify this office for proper Department of the Army permits. The attached **Jurisdictional Determination** form provides the basis jurisdiction for these waters. This letter is to inform you that our office considers the **wetland delineation maps and report dated November 29, 2001** for this project accurate and acceptable.

If the applicant wishes to appeal this approved jurisdictional determination the attached **Notification of Administrative Appeal Options** form should be completed and sent to this office. This jurisdictional delineation is valid for a period of five years from the date of this letter unless new information warrants revision of the determination before the expiration date.

Wetlands 2a, 2b, 2c, 2d, 3, 5a, 5b, 5c, 5d, 5e, 7a, 7b, 7c, 6c, 8a, 8b, and 8c are not waters of the U.S.

If you have any questions concerning this matter, please feel free to call me at (303) 979-4120 and reference Corps File No. 200180866.

Sincerely,



Terry McKee  
Natural Resource Specialist

tm



*Knowledge to Go Places*

May 9, 2005

Laura Backus  
Environmental Scientist  
Carter & Burgess  
216 Sixteenth Street Mall, Suite 1700  
Denver, CO 80202

**Colorado Natural Heritage Program**  
Colorado State University  
8002 Campus Delivery  
Fort Collins, Colorado 80523-8002  
(970) 491-1309  
FAX: (970) 491-3349  
www.cnhp.colostate.edu

Dear Laura:

The Colorado Natural Heritage Program (CNHP) is in receipt of your request for information regarding the SH 7 proposed project area of interest. In response, I have searched our Biological and Conservation Datasystem (BCD) for natural heritage elements (occurrences of significant natural communities and rare, threatened or endangered plants and animals) documented from the vicinity of the area specified in your request, specifically within the vicinity of the boundaries between Sections 27 and 34 (west 1/2), Sections 26 and 35, and Sections 25 and 36, Township 1 North, Range 70 West in Boulder County.

The enclosed report describes natural heritage resources known from this area and gives location (by Township, Range, and Section), precision information, and the date of last observation of the element at that location. This report includes elements known to occur within the specified project site, as well as elements known from similar landscapes near the site. Please note that "precision" reflects the resolution of original data. For example, an herbarium record from "4 miles east of Colorado Springs" provides much less spatial information than a topographic map showing the exact location of the occurrence. "Precision" codes of Seconds, Minutes, and General are defined in the footer of the enclosed report.

The report also outlines the status of known elements. We have included status according to Natural Heritage Program methodology and legal status under state and federal statutes. Natural Heritage ranks are standardized across the Heritage Program network, and are assigned for global and state levels of rarity. They range from "1" for critically imperiled or extremely rare elements, to "5" for those that are demonstrably secure.

You may notice that some occurrences do not have sections listed. Those species have been designated as "sensitive" due to their rarity and threats by human activity. Peregrine falcons, for example, are susceptible to human breeders removing falcon eggs from their nests. For these species, CNHP does not normally provide location information beyond township and range. Please contact us should you require more detailed information for sensitive occurrences.

There are CNHP designated Potential Conservation Areas (PCAs) located within your project area (see enclosed site report and PCA map). In order to successfully protect populations or occurrences, it is necessary to delineate conservation areas. These conservation areas focus on capturing the ecological processes that are necessary to support the continued existence of a particular element of natural heritage significance. Conservation areas may include a single occurrence of a rare element or a suite of rare elements or significant features.



The goal of the process is to identify a land area that can provide the habitat and ecological processes upon which a particular element or suite of elements depends for their continued existence. The best available knowledge of each species' life history is used in conjunction with information about topographic, geomorphic, and hydrologic features, vegetative cover, as well as current and potential land uses. The proposed boundary does not automatically exclude all activity. It is hypothesized that some activities will cause degradation to the element or the process on which they depend, while others will not. Consideration of specific activities or land use changes proposed within or adjacent to the preliminary conservation planning boundary should be carefully considered and evaluated for their consequences to the element on which the conservation unit is based.

The Colorado Division of Wildlife has legal authority over wildlife in the state. CDOW would therefore be responsible for the evaluation of and final decisions regarding any potential effects a proposed project may have on wildlife. If you would like more specific information regarding these or other vertebrate species in the vicinity of the area of interest, please contact the Colorado Division of Wildlife.

The information contained herein represents the results of a search of Colorado Natural Heritage Program's (CNHP) Biological and Conservation Data System (BCD), and can be used as notice to anticipate possible impacts or identify areas of interest. Care should be taken in interpreting these data. Sensitive elements are currently known from within the proposed project area, and additional, but undocumented, elements may also exist (see enclosed reports, one with a search in the aforementioned sections only and one with a 1-mile buffer area of those sections). Please note that the absence of data for a particular area, species, or habitat does not necessarily mean that these natural heritage resources do not occur on or adjacent to the project site, rather that our files do not currently contain information to document their presence. CNHP information should not replace field studies necessary for more localized planning efforts, especially if impacts to wildlife habitat are possible.

Although every attempt is made to provide the most current and precise information possible, please be aware that some of our sources provide a higher level of accuracy than others, and some interpretation may be required. CNHP's data system is constantly updated and revised. Please contact CNHP for an update or assistance with interpretation of this natural heritage information.

The data contained in the report is the product and property of the Colorado Natural Heritage Program (CNHP), a sponsored program at Colorado State University (CSU). The data contained herein are provided on an as is, as available basis without warranties of any kind, expressed or implied, including (but not limited to) warranties of merchantability, fitness for a particular purpose, and non-infringement. CNHP, CSU and the state of Colorado further expressly disclaim any warranty that the data are error free or current as of the date supplied.

Sincerely,

Michael Menefee  
Environmental Review Coordinator

Enc.



# Conservation Site Report

**Name** Colorado Tallgrass Prairie

**Site Code** S.USCOHP\*1706

## IDENTIFIERS

**Site ID** 1805 **Site Class** Standard site

**Site Alias** South Boulder Creek

**Network of Conservation Areas (NCA)**

<u>NCA Site ID</u>	<u>NCA Site Code</u>	<u>NCA Site Name</u>
-		No Data

**Site Relations** No Data

## LOCATORS

**Nation** United States

**State** Colorado

**Quad Code** **Quad Name**

39105-H2	Louisville
40105-A2	Niwot
39105-H3	Eldorado Springs

**County**

Boulder (CO)

**Watershed Code** **Watershed Name**

10190005	St. Vrain
----------	-----------

<u>Township/Range</u>	<u>Section</u>	<u>Meridian</u>	<u>Note</u>
001S070W	02	6P	
001S070W	03	6P	
001S070W	04	6P	
001S070W	09	6P	
001S070W	10	6P	
001S070W	11	6P	
001S070W	14	6P	
001S070W	15	6P	
001S070W	16	6P	
001S070W	17	6P	
001S070W	20	6P	
001S070W	21	6P	
001N070W	34	6P	

## SITE DESCRIPTION

**Minimum Elevation**      -    **Feet**                                      -    **Meters**

**Maximum Elevation**      -    **Feet**                                      -    **Meters**

**Site Description**

The site is Boulder Creek Valley South and east of Boulder. The mesic grasslands of the valley are remnant types and mostly tall grass or mid-grass prairie.

**Key Environmental Factors**

No Data

**Climate Description**

No Data

**Land Use History**

No Data

**Cultural Features**

No Data

## SITE DESIGN

**Site Map** P - Partial

**Mapped Date** 09/12/1994

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# Conservation Site Report

Name Colorado Tallgrass Prairie

Site Code S.USCOHP\*1706

Designer Pague, C.A.

**Boundary Justification**

Includes all occurrences within the area and all adjacent habitat. The area is dissected by US 36 and Colorado 93. Note that upstream areas are important to the long term viability of this site through the management of hydrological processes.

Primary Area        3,085.66 Acres                                1,248.73 Hectares

**SITE SIGNIFICANCE**

**Biodiversity Significance Rank** B2: Very High Biodiversity Significance

**Biodiversity Significance Comments**

Biodiversity rank is based on a good (B-ranked) occurrence of a globally imperiled (G2) species.

**Other Values Rank**    No Data

**Other Values Comments**

No Data

**MANAGEMENT/PROTECTION**

**Land Use Comments**

No Data

**Natural Hazard Comments**

No Data

**Exotics Comments**

No Data

**Offsite**

No Data

**Information Needs**

No Data

**ELEMENTS OF BIODIVERSITY**

Element <u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
17998	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	G2	S2	Yes
23563	<i>Apios americana</i>	American Groundnut	G5	S1	No
23563	<i>Apios americana</i>	American Groundnut	G5	S1	No
23563	<i>Apios americana</i>	American Groundnut	G5	S1	No
21289	<i>Zapus hudsonius preblei</i>	Meadow Jumping Mouse Subsp	G5T2	S1	No
23563	<i>Apios americana</i>	American Groundnut	G5	S1	No
24811	ANDROPOGON GERARDII-SORGHASTRUM NUTANS-(SPARTINA PECTINATA)	Mesic Tallgrass Prairie	G2	S1S2	No

**REFERENCES**

**Reference ID**                                **Full Citation**

-    No Data

**ADDITIONAL TOPICS**

**Additional Topics**

No Data

**VERSION**

**Lead Responsibility**    No Data

**Version Date**        09/12/1994

**Version Author**    Pague, C.A.



### Colorado Natural Heritage Program Environmental Review

Locations and Status of Rare and/or Imperiled Species and Natural Communities known from or likely to occur within the a one-mile radius of the proposed SH 7 project area of interest in Boulder County

Report generated: 9 May 2005

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EO_ID	major group	scientific name	common name	prec	last obs	trs	grank	srank	eorank	ESA	fed stat	st stat
5,064	Birds	<i>Buteo regalis</i>	Ferruginous Hawk	G	1984-06-01	001S070W 16,21;	G4	S3B,S4N	H		BLM/ USFS	SC
7,691	Birds	<i>Buteo regalis</i>	Ferruginous Hawk	G	1993-05-17	001S070W 27;	G4	S3B,S4N			BLM/ USFS	SC
10,510	Birds	<i>Himantopus mexicanus</i>	Black-necked Stilt	M	1984-06-01	001N070W 16;	G5	S3B	H	PS		
11,057	Birds	<i>Pelecanus erythrorhynchos</i>	American White Pelican	M	1994-07-20	001N069W 30;	G3	S1B			BLM	
7,012	Fish	<i>Nocomis biguttatus</i>	Hornyhead Chub	G	1904-04-23	001N069W 11,01,02,10,17,1 8,16,15; 001N070W 14,30,31,29,27,2 3,28,32,13,22; 001N071W 34,32,35,36,27,2 5,31,26,33; 001N072W 35,36,34; 001S071W 06; 002N068W 31; 002N069W 36;	G5	SX	X		USFS	
2,724	Fish	<i>Phoxinus eos</i>	Northern Redbelly Dace	G	1903-10-01	001N070W 22;	G5	S1	H		USFS	SE
2,723	Fish	<i>Phoxinus eos</i>	Northern Redbelly Dace	M	1912-07-25	001N070W 13;	G5	S1	H		USFS	SE
11,074	Fish	<i>Phoxinus eos</i>	Northern Redbelly Dace	M	1949-11-11	001N070W 22;	G5	S1	H		USFS	SE
6,047	Insects	<i>Callophrys mossii schryveri</i>	Moss's Elfyn	G	1952-04-22	001N071W 26;	G4T3	S2S3				
10,430	Insects	<i>Callophrys mossii schryveri</i>	Moss's Elfyn	G	1962-04-14	001N071W 14;	G4T3	S2S3				



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EO_ID	major group	scientific name	common name	prec	last obs	trs	grank	srank	eorank	ESA	fed stat	st stat
5,738	Insects	<i>Callophrys mossii schryveri</i>	Moss's Elfin	G	1970-05-17	001N071W 14;	G4T3	S2S3				
8,395	Insects	<i>Erynnis martialis</i>	Mottled Dusky Wing	G	1965-06-14	001N071W 34;	G3G4	S2S3				
5,688	Insects	<i>Hesperagrion heterodoxum</i>	Painted Damselfly	G	1962-07-26	001N071W 14;	G5	S1				
10,594	Insects	<i>Hesperia ottoe</i>	Ottoe Skipper	G	1961-07-07	001S070W;	G3G4	S2	H		USFS	
10,930	Insects	<i>Hesperia ottoe</i>	Ottoe Skipper	G	1973-07-10	001S070W;	G3G4	S2	H		USFS	
5,448	Mammals	<i>Gulo gulo</i>	Wolverine	G	1870-99-99	001N071W;	G4	S1	H		USFS	SE
2,819	Mammals	<i>Plecotus townsendii pallascens</i>	Townsend's Big-eared Bat Subsp	G	9999-99-99	001N071W 34;	G4T4	S2	H		BLM/USFS	SC
2,941	Mammals	<i>Zapus hudsonius preblei</i>	Meadow Jumping Mouse Subsp	G	1913-08-04	001N069W; 001N070W; 001S069W; 001S070W;	G5T2	S1	H		LT	ST
573	Mammals	<i>Zapus hudsonius preblei</i>	Meadow Jumping Mouse Subsp	G	1918-05-31	001S070W;	G5T2	S1	H		LT	ST
5,553	Mammals	<i>Zapus hudsonius preblei</i>	Meadow Jumping Mouse Subsp	M	1967-07-20	001N070W;	G5T2	S1	H		LT	ST
5,627	Mollusks	<i>Anodontoidea ferussacianus</i>	Cylindrical Papershell	S	1912-07-02	001N070W 22;	G5	S2	H			SC
3,821	Mollusks	<i>Anodontoidea ferussacianus</i>	Cylindrical Papershell	S	1915-06-08	001N070W 26;	G5	S2	H			SC
7,866	Mollusks	<i>Anodontoidea ferussacianus</i>	Cylindrical Papershell	S	1964-10-30	001N070W 26,27;	G5	S2	H			SC
1,231	Natural Communities	STIPA COMATA - EAST	Great Plains Mixed Grass Prairie	S	1983-09-12	001N070W 35;	G2	S2	C			
1,075	Vascular Plants	<i>Apios americana</i>	American Groundnut	S	2000-08-03	001N070W 34; 001S070W 03;	G5	S1	C			

precision codes: S = "seconds", location known within 100m; M = "minutes", location known within 1 mile; G = "general", location known within 5 miles  
 name 2



### Colorado Natural Heritage Program Environmental Review

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EO_ID	major group	scientific name	common name	prec	last obs	trs	grank	srank	eorank	ESA	fed stat	st stat
5,248	Vascular Plants	<i>Aplos americana</i>	American Groundnut	S	2000-08-08	001N069W 31;	G5	S1	C			
7,042	Vascular Plants	<i>Liatris ligulistylis</i>	Gay-feather	G	9999-08-11	001S071W 12;	G5?	S1S2				
697	Vascular Plants	<i>Rotala ramosior</i>	Toothcup	M	1979-99-99	001N070W 35,34,33; 001S070W 11,04,10,02,03,09;	G5	S1	H			
1,143	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1990-09-01	001N070W;	G2	S2	C	LT		
5,874	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1993-07-30	001N070W;	G2	S2	C	LT		
5,258	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1993-08-99	001N070W;	G2	S2	C	LT		
2,717	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1994-03-08	001N070W;	G2	S2	D	LT		
4,021	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1996-08-13	001N070W;	G2	S2		LT		
4,020	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1996-08-20	001S070W;	G2	S2		LT		
8,861	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1996-08-20	001S070W;	G2	S2		LT		
1,245	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1996-08-99	001N070W;	G2	S2		LT		
2,012	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1997-08-99	001S070W;	G2	S2		LT		
4,511	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1997-08-99	001N070W; 001S070W;	G2	S2	B	LT		
6,204	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1997-08-99	001S070W;	G2	S2		LT		
6,458	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1997-08-99	001S070W;	G2	S2		LT		



## Colorado Natural Heritage Program Environmental Review

Locations and Status of Rare and/or Imperiled Species and Natural Communities known from or likely to occur within the a one-mile radius of the proposed SH 7 project area of interest in Boulder County

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EO_ID	major group	scientific name	common name	prec	last obs	trs	grank	srank	eorank	ESA	fed stat	st stat
8,185	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1997-08-99	001S070W;	G2	S2		LT		
9,786	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1997-08-99	001N070W; 001S070W;	G2	S2		LT		



## Colorado Natural Heritage Program Environmental Review

Locations and Status of Rare and/or Imperiled Species and Natural Communities known from or likely to occur within the proposed SH 7 project area of interest in Boulder County

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EO_ID	major group	scientific name	common name	prec	last obs	trs	grank	srank	eorank	ESA	fed stat	st stat
5,064	Birds	<i>Buteo regalis</i>	Ferruginous Hawk	G	1984-06-01	001S070W 16,21;	G4	S3B,S4N	H		BLM/ USFS	SC
7,691	Birds	<i>Buteo regalis</i>	Ferruginous Hawk	G	1993-05-17	001S070W 27;	G4	S3B,S4N			BLM/ USFS	SC
11,057	Birds	<i>Pelecanus erythrorhynchos</i>	American White Pelican	M	1994-07-20	001N069W 30;	G3	S1B			BLM	
7,012	Fish	<i>Nocomis biguttatus</i>	Hornyhead Chub	G	1904-04-23	001N069W 11,01,02,10,17,1 8,16,15; 001N070W 14,30,31,29,27,2 3,28,32,13,22; 001N071W 34,32,35,36,27,2 5,31,26,33; 001N072W 35,36,34; 001S071W 06; 002N068W 31; 002N069W 36;	G5	SX	X		USFS	
2,724	Fish	<i>Phoxinus eos</i>	Northern Redbelly Dace	G	1903-10-01	001N070W 22;	G5	S1	H		USFS	SE
11,074	Fish	<i>Phoxinus eos</i>	Northern Redbelly Dace	M	1949-11-11	001N070W 22;	G5	S1	H		USFS	SE
6,047	Insects	<i>Callophrys mossii schryveri</i>	Moss's Elfyn	G	1952-04-22	001N071W 26;	G4T3	S2S3				
10,430	Insects	<i>Callophrys mossii schryveri</i>	Moss's Elfyn	G	1962-04-14	001N071W 14;	G4T3	S2S3				
5,738	Insects	<i>Callophrys mossii schryveri</i>	Moss's Elfyn	G	1970-05-17	001N071W 14;	G4T3	S2S3				
5,688	Insects	<i>Hesperagrion heterodoxum</i>	Painted Damselfly	G	1962-07-26	001N071W 14;	G5	S1				



## Colorado Natural Heritage Program Environmental Review

Locations and Status of Rare and/or Imperiled Species and Natural Communities known from or likely to occur within the proposed SH 7 project area of interest in Boulder County

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EO_ID	major group	scientific name	common name	prec	last obs	trs	grank	srank	eorank	ESA	fed stat	st stat
10,594	Insects	<i>Hesperia oitoe</i>	Oitoe Skipper	G	1961-07-07	001S070W;	G3G4	S2	H		USFS	
10,930	Insects	<i>Hesperia oitoe</i>	Oitoe Skipper	G	1973-07-10	001S070W;	G3G4	S2	H		USFS	
2,941	Mammals	<i>Zapus hudsonius preblei</i>	Meadow Jumping Mouse Subsp	G	1913-08-04	001N069W; 001N070W; 001S069W; 001S070W;	G5T2	S1	H	LT		ST
573	Mammals	<i>Zapus hudsonius preblei</i>	Meadow Jumping Mouse Subsp	G	1918-05-31	001S070W;	G5T2	S1	H	LT		ST
5,553	Mammals	<i>Zapus hudsonius preblei</i>	Meadow Jumping Mouse Subsp	M	1967-07-20	001N070W;	G5T2	S1	H	LT		ST
8,821	Mollusks	<i>Anodonta ferussacianus</i>	Cylindrical Papershell	S	1915-06-08	001N070W 26;	G5	S2	H			SC
7,866	Mollusks	<i>Anodonta ferussacianus</i>	Cylindrical Papershell	S	1964-10-30	001N070W 26,27;	G5	S2	H			SC
1,231	Natural Communities	STIPA COMATA - EAST	Great Plains Mixed Grass Prairie	S	1983-09-12	001N070W 35;	G2	S2	C			
1,075	Vascular Plants	<i>Apios americana</i>	American Groundnut	S	2000-08-03	001N070W 34; 001S070W 03;	G5	S1	C			
7,042	Vascular Plants	<i>Liatris ligulistylis</i>	Gay-feather	G	9999-08-11	001S071W 12;	G5?	S1S2				
697	Vascular Plants	<i>Rotala ramosior</i>	Toothcup	M	1979-99-99	001N070W 35,34,33; 001S070W 11,04,10,02,03,09;	G5	S1	H			
4,021	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1996-08-13	001N070W;	G2	S2		LT		
1,245	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1996-08-99	001N070W;	G2	S2		LT		



## Colorado Natural Heritage Program Environmental Review

Locations and Status of Rare and/or Imperiled Species and Natural Communities known from or likely to occur within the the proposed SH 7 project area of interest in Boulder County

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EO_ID	major group	scientific name	common name	prec	last obs	trs	grank	srank	eorank	ESA	fed stat	st stat
4,511	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1997-08-99	001N070W; 001S070W;	G2	S2	B	LT		
9,786	Vascular Plants	<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	S	1997-08-99	001N070W; 001S070W;	G2	S2		LT		

# Conservation Site Report

Name Hoover Hill

Site Code S.USCOHP\*7909

## IDENTIFIERS

Site ID 586 Site Class Standard site

Site Alias None

### Network of Conservation Areas (NCA)

<u>NCA Site ID</u>	<u>NCA Site Code</u>	<u>NCA Site Name</u>
-		No Data

Site Relations No Data

## LOCATORS

Nation United States

State Colorado

### Quad Code Quad Name

40105-A2 Niwot

### County

Boulder (CO)

### Watershed Code Watershed Name

10190005 St. Vrain

<u>Township/Range</u>	<u>Section</u>	<u>Meridian</u>	<u>Note</u>
-----------------------	----------------	-----------------	-------------

001N070W	35	6P	
----------	----	----	--

## SITE DESCRIPTION

Minimum Elevation - Feet - Meters

Maximum Elevation - Feet - Meters

### Site Description

The soil is ascalon-otero, valmont (argiustolls) and the geology consists of slocum and verdos fm (pleist alluv). The site includes all aspects of slopes from 0-20 degrees at approximately 5400'. It is dominated by a small peninsular ridge and sideslope.

### Key Environmental Factors

No Data

### Climate Description

No Data

### Land Use History

No Data

### Cultural Features

No Data

## SITE DESIGN

Site Map Y - Yes Mapped Date 03/27/1997

Designer Kittel, G.M.

### Boundary Justification

Boundary includes habitat around the occurrence boundary and abuts subdivision and roads in the area.

Primary Area 85.17 Acres 34.47 Hectares

## SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

### Biodiversity Significance Comments

A fair (C-ranked) occurrence of a globally imperiled (G2 S2) community. The community is surrounded by subdivision and development which lowers the rank of the occurrence and therefore the biodiversity rank.

Other Values Rank No Data

### Other Values Comments

No Data

# Conservation Site Report

Name Hoover Hill

Site Code S.USCOHP\*7909

## MANAGEMENT/PROTECTION

### Land Use Comments

No Data

### Natural Hazard Comments

No Data

### Exotics Comments

No Data

### Offsite

No Data

### Information Needs

No Data

## ELEMENTS OF BIODIVERSITY

<u>Element</u>			<u>Global</u>	<u>State</u>	<u>Driving</u>
<u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Rank</u>	<u>Rank</u>	<u>Site Rank</u>
24703	STIPA COMATA - EAST	Great Plains Mixed Grass Prairie	G2	S2	Yes

## REFERENCES

### Reference ID      Full Citation

-      No Data

## ADDITIONAL TOPICS

### Additional Topics

No Data

## VERSION

Lead Responsibility No Data

Version Date 03/27/1997

Version Author Kittel, G.M.

# Conservation Site Report

Name South Boulder Canyon Ditch

Site Code S.USCOHP\*7769

## IDENTIFIERS

Site ID 343 Site Class Standard site  
 Site Alias None

### Network of Conservation Areas (NCA)

<u>NCA Site ID</u>	<u>NCA Site Code</u>	<u>NCA Site Name</u>
-		No Data

Site Relations No Data

## LOCATORS

Nation United States

State Colorado

### Quad Code Quad Name

40105-A2 Niwot

### County

Boulder (CO)

### Watershed Code Watershed Name

10190005 St. Vrain

<u>Township/Range</u>	<u>Section</u>	<u>Meridian</u>	<u>Note</u>
001N069W	31	6P	
001N070W	36	6P	

## SITE DESCRIPTION

Minimum Elevation - Feet - Meters

Maximum Elevation - Feet - Meters

### Site Description

A ditch which supports a rare plant on its banks surrounded by Bromus inermis, Spartina pectinata, Apocynum androsaenifolium, Thalictrum and Salix fragalis. Graminoids dominate the site. The manmade riparian zone is within city limits and is surrounded by development.

### Key Environmental Factors

No Data

### Climate Description

No Data

### Land Use History

No Data

### Cultural Features

No Data

## SITE DESIGN

Site Map P - Partial Mapped Date 03/20/1997

Designer Fayette, K.K.

### Boundary Justification

Included in the site is the intermittent flowing ditch and a small buffer surrounding the banks to deter direct disturbance especially from maintenance on the utility ditch.

Primary Area 119.61 Acres 48.41 Hectares

## SITE SIGNIFICANCE

Biodiversity Significance Rank B5: General Biodiversity Interest

### Biodiversity Significance Comments

This site is based on an occurrence of a state rare plant species.

Other Values Rank No Data

# Conservation Site Report

Name South Boulder Canyon Ditch

Site Code S.USCOHP\*7769

## Other Values Comments

No Data

## MANAGEMENT/PROTECTION

## Land Use Comments

No Data

## Natural Hazard Comments

No Data

## Exotics Comments

No Data

## Offsite

No Data

## Information Needs

No Data

## ELEMENTS OF BIODIVERSITY

<u>Element</u>	<u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
	23563	<i>Apios americana</i>	American Groundnut	G5	S1	Yes

## REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
-	No Data

## ADDITIONAL TOPICS

## Additional Topics

No Data

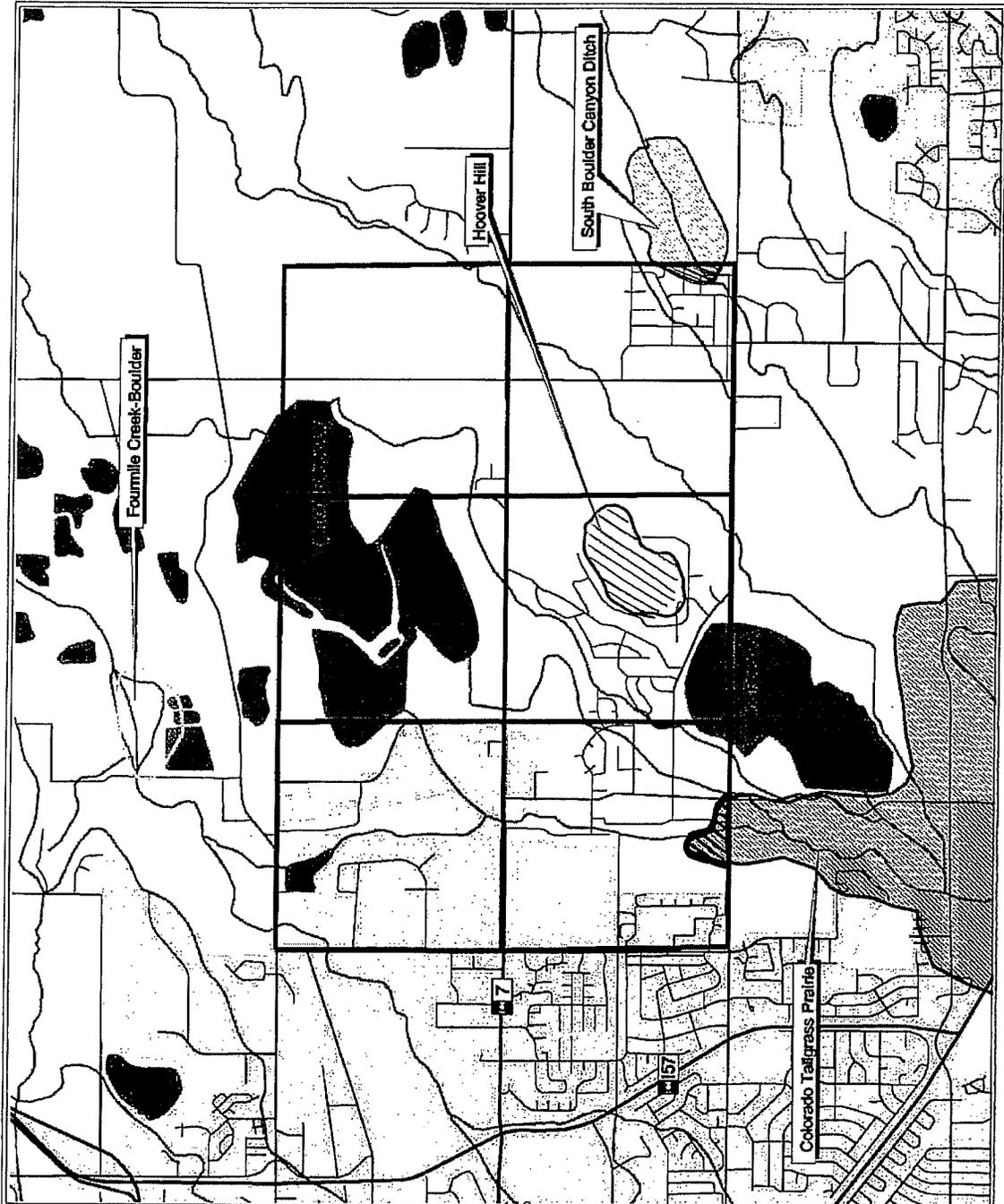
## VERSION

Lead Responsibility No Data

Version Date 03/20/1997

Version Author Fayette, K.K.

# CNHP Potential Conservation Areas (PCAs) Known from the Vicinity of the Carter & Burgess Area of Interest in Boulder County



**Colorado State University**  
*Knowledge to Go Places*

Colorado Natural Heritage Program  
Colorado State University  
8002 Campus Delivery  
Fort Collins, CO 80523-8002

Map Created  
09 May 2005  
CNHP Environmental Review m4m

- General SH7 Area of Interest
- Potential Conservation Areas
- B1: Outstanding Biodiversity Significance
- B2: Very High Biodiversity Significance
- B3: High Biodiversity Significance
- B4: Moderate Biodiversity Significance
- B5: General Biodiversity Interest
- Highways
- Major Roads
- Local Roads
- Lakes and Reservoirs
- Rivers, Streams, and Creeks
- Municipal Boundaries

The accuracy of the data shown on this map is not guaranteed. The Colorado Natural Heritage Program is not responsible and shall not be liable to the user for incidental, consequential or special damages arising from its use or interpretation.

The absence of data for a particular area or habitat does not necessarily mean that an species does not occur or is adjacent to the project area, rather that our files do not currently contain information to document their presence.

Although every effort is made to provide the most current and precise information possible, please be aware that errors of our records provide a higher level of accuracy than other information. The program may be updated. Check's data system is constantly updated and may not reflect the most current information. Please contact Check's for an update or assistance with interpretation of this natural heritage information.

Data are not appropriate for site level planning or evaluation.

Universal Transverse Mercator (UTM), Nead 27, Zone 13



A4



**United States Department of Agriculture**

Natural Resources Conservation Service  
Longmont Field Office  
9595 Nelson Road – Suite D  
Longmont, CO 80501

303-776-4034 Office  
303-684-9893-FAX

tim.carney@co.usda.gov

---

*Serving Boulder, Broomfield, SW Weld, and NW Adams Counties*

January 7, 2002

Troy Halouska  
Carter – Burgess  
216 16<sup>th</sup> Street, Suite 1700  
Denver, Colorado 80202

Mr. Halouska,

As requested, enclosed find a completed Farmland Conversion Impact Rating form for the SH 7 project near Boulder.

Call if you have questions.

  
Tim Carney  
District Conservationist

# FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request	
Name Of Project SH7 (Arroyo Road) Categorical Exclusion		11/29/01	
Proposed Land Use Highway Right-of-Way		Federal Agency Involved Department of Transportation	
PART II (To be completed by SCS)		County And State Boulder County, CO	
		Date Request Received By SCS 12/6/01	

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form).		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s) Grain Corn		Farmable Land In Govt. Jurisdiction Acres: 108220 % 70		85000	212
Name Of Land Evaluation System Used LESA		Name Of Local Site Assessment System		Amount Of Farmland As Defined in FPPA Acres: 71020 % 46	Date Land Evaluation Returned By SCS 11/7/02

PART III (To be completed by Federal Agency)	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	6.06			
B. Total Acres To Be Converted Indirectly	0			
C. Total Acres In Site	11.48			

PART IV (To be completed by SCS) Land Evaluation Information	
A. Total Acres Prime And Unique Farmland	11.3
B. Total Acres Statewide And Local Important Farmland	0
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.010%
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	35.6%

PART V (To be completed by SCS) Land Evaluation Criterion	
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	91

PART VI (To be completed by Federal Agency)	Maximum Points			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))				
1. Area In Nonurban Use	15	8		
2. Perimeter In Nonurban Use	10	4		
3. Percent Of Site Being Farmed	20	5		
4. Protection Provided By State And Local Government	20	0		
5. Distance From Urban Builtup Area	n/a	0		
6. Distance To Urban Support Services	n/a	0		
7. Size Of Present Farm Unit Compared To Average	10	0		
8. Creation Of Nonfarmable Farmland	25	3		
9. Availability Of Farm Support Services	5	3		
10. On-Farm Investments	20	12		
11. Effects Of Conversion On Farm Support Services	25	0		
12. Compatibility With Existing Agricultural Use	10	8		
TOTAL SITE ASSESSMENT POINTS	160	43		

PART VII (To be completed by Federal Agency)				
Relative Value Of Farmland (From Part V)	100	91		
Total Site Assessment (From Part VI above or a local site assessment)	160	43		
TOTAL POINTS (Total of above 2 lines)	260	134		

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>
Reason For Selection:		



United States  
Department of  
Agriculture

Natural Resources  
Conservation  
Service  
(NRCS)

Longmont Field Office  
9595 Nelson Road  
Suite D  
Longmont , CO 80501-6359

---

*Serving Boulder, SW Weld, and NW Adams Counties*

Telephone: 303-776-4034 X105

tim.carney@co.usda.gov

Fax:303-684-9893

September 21, 2001

Troy Halouska  
Carter – Burgess  
216 16<sup>th</sup> Street, Suite 1700  
Denver, Colorado 80202

Mr. Halouska,

As per your request I am providing a map, soils descriptions and related references regarding soils in the vicinity of proposed improvements to SH7 in Boulder County, Colorado.

I am not currently able to provide you with this data in digital format. I hope to have such capability within the next couple of years.

Call if you have questions.

  
Tim Carney  
District Conservationist

September 5, 2001

Mr. Tim Carney  
USDA NRCS  
9595 Nelson Road  
Longmont, Colorado 80501

RE: State Highway 7 (Arapahoe Road) Categorical Exclusion

Dear Mr. Carney:

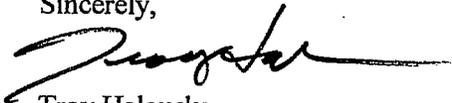
Carter & Burgess, Inc. is providing environmental consulting services for a project that would include improvements to a section of SH 7 from Cherryvale Road to 75<sup>th</sup> Street in Boulder County, Colorado. We are currently compiling the necessary documentation and coordination to prepare a Categorical Exclusion for the project. The general legal description for the project area is T1N, R70W, Sections 25, 26, 27, 34, 35 and 36.

Enclosed for your review is a highlighted USGS map of the project corridor. Could you please send us a soil survey map(s) of the area and indicate whether any soils within the legal description are Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and/or Farmland of Local Importance. If you have the map(s) in digital format, that would be preferred. If not, a hard copy will be acceptable. Also, please send a request for payment of any fees along with the products. The map(s) and information can be sent to the following address:

Carter & Burgess  
216 16<sup>th</sup> Street, Suite 1700  
Denver, CO 80202  
Attn: Troy Halouska

If you have any questions, or need further information, please call me at 303.820.4898.

Sincerely,



Troy Halouska  
Environmental Planner

Enclosure

cc: File #070702

East Boulder/Cottonwood/  
Enterprise Ditch  
Correspondance

*Love* & Associates, Inc.

341 Front Street  
Boulder, CO 80202-1873  
PHONE (303) 443-8790 FAX (303) 443-0766  
E-mail: [love@loveassociates.com](mailto:love@loveassociates.com)

September 21, 2001

Ms. Tracy Brekel  
Design Engineer  
Muller Engineering Company, Inc.  
Irongate 4, Suite 100  
777 South Wadsworth Boulevard  
Lakewood, CO 80226-4331

REF: 8620G - Enterprise Ditch crossing at Arapahoe Road, Boulder County, CO  
CDOT Project No. STA 0072-010, 11873  
MEC Project No. 01021

Dear Tracy:

I apologize in taking so long getting back to you in regards to your request for information regarding the Enterprise Ditch crossing at Arapahoe Road in Boulder County, CO. Love & Associates, Inc., as the Ditch Company's engineer, has inspected the ditch crossing (10' wide by 3' high box culvert), reviewed its current slope which is very minimal and have discussed the ditch crossing with Ditch Board members.

Based upon the current size, the maintenance problems that currently exist with this ditch crossing and taking into account long term ditch operations, we would request if the existing box culvert is to be replaced or lengthened that it be constructed, at a minimum, the same size (nothing smaller) than existing, that guard rails and handrails be provided, that CDOT install a trash rack on the upstream side of the box and CDOT provide ongoing, regular maintenance and cleaning of the trash rack and box culvert in perpetuity. We have not researched the Ditch Company records, but we believe that either CDOT or Boulder County Transportation constructed this existing box culvert structure. This particular crossing has required a considerable amount of maintenance over the years by the Ditch Superintendent due to minimal height and slope through this segment of the ditch. As can be seen by the attached photographs (one inlet, one outlet) you can see the sediment buildup which diminishes the capacity of the ditch over time. Additionally, tumble weed and trash builds up in the ditch especially over the winter months and requires a significant effort to clean out prior to ditch startup in the spring/summer.

Ms. Tracy Belker  
September 21, 2001  
Page 2 of 2

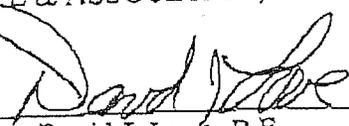
The Ditch Company requires that any proposed improvements to the ditch and its associated facilities be reviewed and approved by the Ditch Engineer and approval given to any ditch modifications. An easement/maintenance agreement will also be required prior to approval of any changes to the Ditch.

The Ditch Company requires a \$500.00 minimum design review fee to be paid to the Ditch Company by any entity requesting modifications to the Ditch prior to any review and/or approval being undertaken by the Ditch Company. This fee is a minimum fee. Depending upon how extensive the design modifications are being proposed, this fee could increase based upon the out-of-pocket expenses the Ditch Company incurs during the review process. Additionally, the Ditch Company will require that all legal expenses incurred by the Ditch Company be paid by the requesting entity if easements and/or maintenance agreements are required by the Ditch Company.

We hope this letter provides you with the answers you have asked. Please feel free to contact Nancy Love of this office if you have any other questions regarding the ditch and its operations or when you have a preliminary design you would like to have reviewed by this office on behalf of the Ditch Company.

Sincerely,

LOVE & ASSOCIATES, INC.

By 

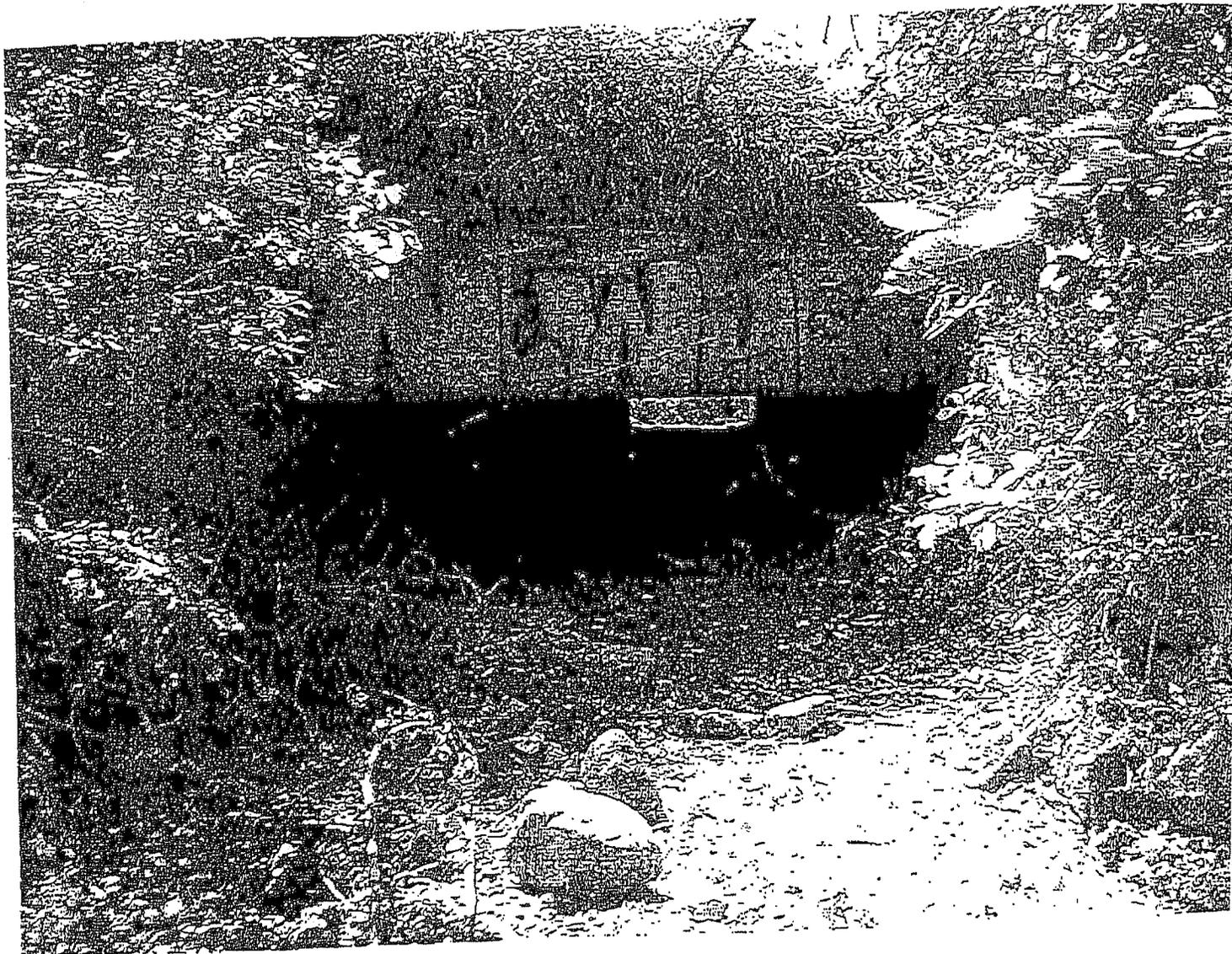
David J. Love, P.E.

Representing the Enterprise Ditch Company

Enclosure: Photographs of Ditch Inlet and Outlet  
cc: Jay Neibur, President – Enterprise Ditch Company  
Randy Rhodcs  
Bob Crifasi  
Nancy Love



Enterprise Ditch crossing at Arapahoe Road  
Boulder County, CO - upstream face



Enterprise Ditch crossing at Arapahoe Road  
Boulder County, CO - downstream face

THE ORIGINAL COTTONWOOD DITCH COMPANY  
7350 GOODHUE BLVD.  
BOULDER, CO 80303-4600

August 14, 2001

MULLER ENGINEERING COMPANY, INC.  
Tracy A. Brekel  
Irongate 4, Suite 100  
777 So. Wadsworth Blvd.  
Lakewood, CO 80226

RE: Cottonwood Ditch # 2 crossing at Arapahoe Rd.

Dear Tracy:

The trustees of the Cottonwood Ditch met on Saturday August 11, 2001 to review your letter of August 6, 2001 concerning the ditch crossing at Arapahoe Rd.

Upon reviewing the maximum flow rate in the ditch that we ever expect, your estimate of 100cfs would be satisfactory.

Our review also found that it may be possible to use the existing siphon, with some improvements, if the road widening were to be taken north of the existing roadway. There seems to be adequate room to the north side to accommodate the project. If any of the south bank is removed it would require a complete new siphon and would intrude on Bruce Tenenbaum's property.

We do not have engineering drawings of the present siphon. Perhaps you could obtain a copy from CDOT. It would also be helpful if you could furnish us a copy of any preliminary engineering drawings or sketches you might have of a proposed crossing.

With regard to the flow in the ditch, it historically runs from late April until late September. It is mandatory that we have irrigation water during that period.

The Original Cottonwood Ditch Company

  
Richard Gilbert  
Secretary/Treasurer

cc: Bob Pherson and Bruce Tenenbaum ✓

RECEIVED

AUG 16 2001

Muller Engineering Co. Inc.

File 01021 Imig

E

**MULLER ENGINEERING COMPANY, INC.**  
CONSULTING ENGINEER

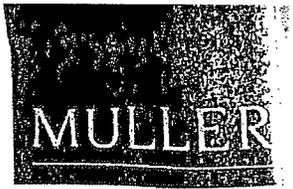
Irongate 4, Suite  
777 South Wadsworth Boulev  
Lakewood, Colorado 80226-4  
(303) 988-4

MEMORANDUM

SUBJECT: East Bldr Ditch	FILE NO: 01021
WITH: Randy Rhodes	DATE: 8/9/01
BY: TAB	TELEPHONE MEETING <input checked="" type="checkbox"/>

- he called in response to my letter
- Base Flow in Ditch approx 30 cfs -  
operates April through October
- also take storm water which  
he has no flowrate ~~flow~~ for
- can't have ditch shut down  
during operation months
- he doesn't have any info on  
existing structure size
- as long as new structure is  
comparable in size to existing,  
that is fine
- County looking into crossing at  
Cherryvale - having problems  
with mouse so nothing completed  
yet

11-11-01  
Tracy



Muller Engineering Company, Inc.  
Consulting Engineers

Ingotate 4, Suite 100  
777 South Wadsworth Boulevard  
Lakewood, Colorado 80226-4331  
TEL (303) 988-4939  
FAX (303) 988-4969

August 6, 2001

Ms. Nancy Love  
Love and Associates  
841 Front St.  
Louisville, CO 80027

RE: Enterprise Ditch crossing at Arapahoe Road  
CDOT Project # STA 0072-010, 11873  
MEC Project #01021

Dear Ms. Love:

I am writing this letter regarding the existing Enterprise Ditch crossing at Arapahoe Road, located just west of Westview Drive. As we previously discussed, Muller Engineering (MEC) has a contract with the Colorado Department of Transportation (CDOT) to complete analysis and recommendations for roadway improvements along Arapahoe Road. These improvements could potentially include the replacement of the existing bridge over the Ditch.

In order to progress into the design phase of this project, we need additional information about Enterprise Ditch. The Ditch design flowrate, including any flow variances throughout the year, is extremely important information. We have completed a preliminary analysis of the existing ditch. Assuming a slope of 0.50% (which is typical), we estimated a full ditch capacity of approximately 200 cubic feet per second (cfs). Please provide feedback to the validity of this ditch flowrate.

Please provide any other information or guidance you can regarding the design of a new crossing at Arapahoe Road. Information that would be useful includes existing structure dimensions, proposed structure requirements, necessary freeboard, construction standards, etc. The more guidance we receive from you allows us to provide efficient recommendations to CDOT.

We appreciate your cooperation in this matter. Please feel free to contact me with any concerns or questions you may have at (303)988-4939. Thank you.

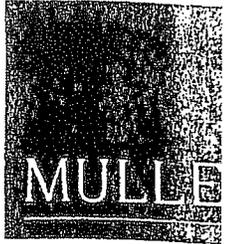
Sincerely,

MULLER ENGINEERING COMPANY, INC.

Tracy Brekel  
Design Engineer

CC: Jay Niebur, Enterprise Ditch President

~~AGG~~ / 01-021  
# Irrig



Muller Engineering Comp  
Consulting Engineers

Irongate 4, Suite 100  
777 South Wadsworth Boule  
Lakewood, Colorado 80226-  
TEL (303) 988-4939  
FAX (303) 988-4969

August 6, 2001

Mr. Randy Rhodes  
Excel Energy  
4653 Table Mountain Drive  
Golden, CO 80403

RE: East Boulder Ditch crossing at Arapahoe Road  
CDOT Project # STA 0072-010, 11873  
MEC Project #01021

Dear Randy:

I am writing this letter regarding the existing East Boulder Ditch crossing at Arapahoe Road, located just east of 63<sup>rd</sup> Street. As I previously discussed with you, Muller Engineering (MEC) has a contract with the Colorado Department of Transportation (CDOT) to complete analysis and recommendations for roadway improvements along Arapahoe Road. These improvements could potentially include the replacement of the existing bridge over the Ditch.

In order to progress into the design phase of this project, we need additional information about East Boulder Ditch. The Ditch design flowrate, including any flow variances throughout the year, is extremely important information. We have completed a preliminary analysis of the existing ditch. Assuming a slope of 0.50% (which is typical), we estimated a full ditch capacity of approximately 200 cubic feet per second (cfs). Please provide feedback to the validity of this ditch flowrate.

Please provide any other information or guidance you can regarding the design of a new crossing at Arapahoe Road. Information that would be useful includes existing structure dimensions, proposed structure requirements, necessary freeboard, construction standards, etc. The more guidance we receive from you allows us to provide efficient recommendations to CDOT.

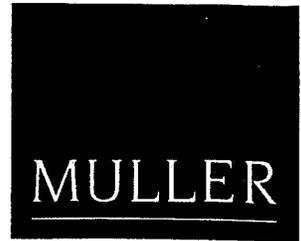
We appreciate your cooperation in this matter. Please feel free to contact me with any concerns or questions you may have at (303)988-4939. Thank you.

Sincerely,

MULLER ENGINEERING COMPANY, INC.

Tracy Brekel  
Design Engineer

~~ABC~~/01-021  
Irrig.  
O



Muller Engineering Company, Inc.  
Consulting Engineers

Irongate 4, Suite 100  
777 South Wadsworth Boulevard  
Lakewood, Colorado 80226-4331  
TEL (303) 988-4939  
FAX (303) 988-4969

August 6, 2001

Mr. Bob Pherson  
Cottonwood No. 2 Ditch  
7350 Goodhue Blvd.  
Boulder, CO 80303-4600

RE: Cottonwood Ditch No. 2 crossing at Arapahoe Road  
CDOT Project # STA 0072-010, 11873  
MEC Project #01021

Dear Bob:

I am writing this letter regarding the existing Cottonwood No. 2 Ditch crossing at Arapahoe Road, located just west of 75<sup>th</sup> Street. As I previously discussed with you, Muller Engineering (MEC) has a contract with the Colorado Department of Transportation (CDOT) to complete analysis and recommendations for roadway improvements along Arapahoe Road. These improvements could potentially include the replacement or modifications of the existing siphon under Arapahoe Road.

In order to progress into the design phase of this project, we need additional information about Cottonwood Ditch No. 2. The Ditch design flowrate, including any flow variances throughout the year, is extremely important information. We have completed a preliminary analysis of the existing ditch. Assuming a slope of 0.50% (which is typical), we estimated a full ditch capacity of approximately 100 cubic feet per second (cfs). Please provide feedback to the validity of this ditch flowrate.

Please provide any other information or guidance you can regarding the design of a new crossing (or modifications of existing crossing) at Arapahoe Road. Information that would be useful includes existing structure dimensions, proposed structure requirements, construction standards, etc. The more guidance we receive from you allows us to provide efficient recommendations to CDOT.

We appreciate your cooperation in this matter. Please feel free to contact me with any concerns or questions you may have at (303)988-4939. Thank you.

Sincerely,

MULLER ENGINEERING COMPANY, INC.

Tracy Brekel  
Design Engineer

# MEMORANDUM

- To: Carol Parr, CDOT Region. 4
- From: Lisa Powell, PE; Muller Eng.
- Date: August 23, 2004
- Proj. No. 01-021.06
- Re: **SH 7 – Cherryvale to 75<sup>th</sup> Street  
Public Open House #1 – June 17, 2004**



**Muller Engineering Company, Inc.  
Consulting Engineers**

**Irongate 4, Suite 100**  
777 S. Wadsworth Boulevard  
Lakewood, Colorado 80226  
303/988-4969 FAX  
.....

---

## Introduction

A Public Open House was held on June 17, 2004 at Platt Middle School in Boulder County for the SH 7 – Cherryvale to 75<sup>th</sup> St. project. The project was advertised in the Local Section of the *Boulder Daily Camera* on June 16, 2004. A press release was issued by CDOT to the local media and an article was included in the *Boulder Daily Camera* on June 16, 2004. Twelve signs advertising the open house were placed along the project at major intersections several days prior to the meeting. Newsletters were mailed to 250 public agency representatives, residents, and business owners along the project. The meeting format was an open house with project representatives available to address any comments or questions from attending citizens. The focus of the meeting was to present updated project information, receive ideas and suggestions and answer questions about issues and concerns.

At least seventy-one people attended the meeting as indicated by the attendance roster that is attached to the back of this document (9 people heard about the meeting through the newspaper, 33 through the signs, and 34 through the mailer). Additionally, the following is a list of project representatives that were present:

Helen Peiker, CDOT  
Carol Parr, CDOT  
Dave Davis, CDOT  
Gloria Hice-Idler, CDOT  
Megan Christen, CDOT  
Mark Gosselin, CDOT  
Gerald Fielding, CDOT  
Dan Marcucci, CDOT  
Mike Frederick, CDOT  
Mike Morgan, CDOT  
Bob Hayes, CDOT  
Stan Elmquist, CDOT  
Gray Clark, Muller Engineering  
Rob Carlson, Muller Engineering  
Lisa Powell, Muller Engineering  
Robin Lindsey, Muller Engineering  
Gina McAfee, Carter & Burgess  
David Woolfall, Carter & Burgess  
Troy Halouska, Carter & Burgess  
Tiffany McDole, Carter & Burgess  
Nadine Lee, URS

## **Discussion**

The intent of the meeting was to educate the public about the history and objectives of the project, present technical data and show existing conditions, and provide a forum for both input and questions from the public. The following is a list of the boards, displays, and handouts available at the meeting according to subject matter. Reduced copies of the graphics are attached to this document.

### **STATION ONE: PROJECT INTRODUCTION**

- ◆ Welcome / Purpose of the Open House
- ◆ Project Location and Study Area
- ◆ Project Purpose and Need
- ◆ Summary of Previous Project Work

### **STATION TWO: ENVIRONMENTAL ASSESSMENT PROCESS**

- ◆ What Is NEPA
- ◆ Environmental Assessment Process
- ◆ Contents of an Environmental Assessment
- ◆ Where We Are in the Process and Why
- ◆ What We Need From You

### **STATION THREE: EXISTING CONDITIONS**

- ◆ Land Use
- ◆ Existing Roadway System
- ◆ Existing Transit Service, Bicycle and Pedestrian Facilities
- ◆ Intersection Accident Summary
- ◆ Traffic Count Data and Level of Service
- ◆ Historic and Future Traffic in SH 7 Corridor
- ◆ Level of Service Definitions

### **STATION FOUR: ENVIRONMENTAL ISSUES**

- ◆ Historical Resources
- ◆ Wetlands
- ◆ Park, Recreation and Open Space Sites
- ◆ Potential Hazardous Materials Contamination
- ◆ Noise Monitoring Locations
- ◆ Soils That Can Be Considered Prime or Unique Farmland

### **STATION FIVE: POSSIBLE PROJECT ALTERNATIVES**

- ◆ Congestion Management Options
- ◆ Pedestrian / Bike Alternatives
- ◆ Roadway Enhancement Alternatives
- ◆ SH 7 Possible Improvement Options – Cherryvale to Westview
- ◆ SH 7 Possible Improvement Options – Westview to 75<sup>th</sup>
- ◆ SH 7 Possible Improvement Options – Burlington Northern Santa Fe Railroad Alignment
- ◆ Evaluation Criteria Matrix (2 Boards)

## **STATION SIX: PUBLIC AND AGENCY INVOLVEMENT**

- ◆ Previous Comments and Opportunities for Involvement
- ◆ What's next?

## **STATION SEVEN: COMMENTS**

- ◆ Comment Sheets
- ◆ Comment Box

Attendees were provided a comment sheet to be completed and turned in at the meeting or to mail in prior to July 15<sup>th</sup>, 2004. The comment sheet contained a question to determine the extent of alternative modes of travel along SH 7. Additionally, a handout describing the Open house format (attached) was provided. A total of 29 comment sheets were received. The individual comment sheets are attached to this document.

### **Public Comments**

The comment sheets received are summarized below:

- Preferences for improvements from Cherryvale to Westview (5 comments)
  - *Option W-2 – 2 Lane Section with Turn Lanes as required (1 comment)*
  - *Option W-3 – 6 Lane Urban Section with Transit/Auxiliary Lanes in each direction (2 comments)*
  - *Option W-4 – 4 Lane Urban Section with continuous Auxiliary Transit Lane west of Votec School (1 comment)*
  - *Option W-5 – 6 Lane Urban Section with Transit/Auxiliary Lanes in each direction and reconfigured alignment (1 comment)*
- Preferences for improvements from Westview to 75<sup>th</sup> (9 comments)
  - *Option E-2 – Intersection safety improvements at Westview Dr. and Valtec Lane (1 comment)*
  - *Option E-3 – 2 Lane Rural Section with Shoulders and Turn Lanes (2 comments)*
  - *Option E-4 – 4 Lane Rural Section with Shoulders and Turn Lanes (4 comments)*
  - *Option E-5 – 4 Lane Urban Section with Bike Lanes, Sidewalks and reconfigured Alignment (2 comments)*
- Preferences for improvements to Burlington Northern Railroad alignment (2 comments)
  - *Option R-3 – Realign Tracks east of existing location (1 comment)*
  - *Option R-3 is best for buildings at 7209 Valtec Court. Septic system is east of buildings. (1 comment)*
- Bicycle lanes/facilities should be incorporated into the project (18 comments)
- Improve traffic flow and congestion (13 comments)
- Currently use or would consider another mode of travel (12 comments)
  - *Use bicycle (7 comments)*
  - *Ride bus (5 comments)*
  - *Carpool (3 comments)*
  - *Used to bike until it became too dangerous (2 comments)*
  - *Will use light rail to Denver (2 comments)*
- Add turn lanes at intersections (11 comments)
  - *Valtec intersection (3 comments)*
  - *Westview intersection (2 comments)*
  - *Acceleration lane at Westview (3 comments)*

- Don't use another mode of travel (10 comments)
- Incorporate pedestrian facilities (sidewalks, bus stops) (9 comments)
- SH 7 should be a 4-lane facility (8 comments)
- Improve safety and decrease accidents (7 comments)
- Provide safe access to and from businesses and side roads (6 comments)
- Steep grades at hill create problems in snowy weather (5 comments)
- Property impact concerns (6 comments)
  - *Consider property impacts to businesses north of road (1 comment)*
  - *Berkelhammer property has row of large elm trees (1 comment)*
  - *Kent property has 2 rows of trees they were forced to plant (1 comment)*
  - *Myron property has row of trees they were forced to plant (1 comment)*
  - *Integrated Auto Services is concerned about loss of business due to difficult access during construction (1 comment)*
- SH 7 should be a 4-lane facility further east than 75<sup>th</sup> (to 95<sup>th</sup> or SH 287) (3 comments)
- Do not incorporate pedestrian facilities (3 comments)
- Correct/flatten slope at Westview Drive (3 comments)
- Bicycle lanes should extend further east than 75<sup>th</sup> (to 95<sup>th</sup> or SH 287) (3 comments)
- Don't expand SH 7 to 4 lanes (2 comments)
- Improve transit facilities (2 comments)
  - *Incorporate Queue Jump Lanes (1 comment)*
  - *Add Park-n-Rides east of 75<sup>th</sup> (1 comment)*
- Don't significantly lower roadway at highpoint (Legion Park) (2 comments)
- Historic gas station is an eyesore and should be removed (2 comments)
- Maintain rural setting and environment (3 comments)
- Consider impact of new housing east of SH 287 (2 comments)
- The study process is too slow (2 comments)
- Protect cottonwoods in vicinity of 75<sup>th</sup> St. (2 comments)
- Noise from Arapahoe Road (2 comments)
  - *Noise from Arapahoe can be heard in Ridgely Hills and Crestview (1 comment)*
- Improved/enhanced signalization required (2 comments)
  - *Improve signal timing at Votec and 63<sup>rd</sup> (1 comment)*
  - *New signal required at Valtec Lane (1 comment)*
- Difficulty experienced at intersections making maneuver (1 comment)
- Transit/bike improvements should be given priority (1 comment)
- Right-in/right-out access is inconvenient (1 comment)
- Leave Valmont alone (1 comment)
- Don't realign road or railroad (1 comment)
- Consolidate private drives to reduce access points (1 comment)
- Spread out peak demand or reduce it (1 comment)
- Consider reversible travel lane to accommodate peak hour traffic (1 comment)
- Reduce the number of buses and waste trucks using 63<sup>rd</sup> Street (1 comment)
- Connect Westview to the signal at Votec (1 comment)
- Do not build right-hand lane from northbound 75<sup>th</sup> to eastbound Arapahoe (1 comment)
- Place "Trucks use lower gears" sign at top of hill to keep speeds at 45 mph (1 comment)
- Move huge light pole on southeast corner of 63<sup>rd</sup> St. and SH 7 (1 comment)
- Bury approximately 500 feet of Xcel transmission lines near the mobile home park (1 comment)
- Prefers riding bike on sidewalk as on-street bike lane is dangerous for high-speed

roadway (1 comment)

- Correct push-buttons at SH 7/75<sup>th</sup> St. intersection so that cyclists can push the buttons without having to dismount (1 comment)
- Add “Yield to Bikes” signs to right-merge lanes so that motorists will yield to straight-thru cyclists (1 Comment)
- Owner of business on Valtec Lane says sidewalks are needed for the entire corridor because their employees walk along SH 7 shoulder to the west (1 comment)
- Designate the Stangle farm as a historic property on graphics (1 comment)

# MEMORANDUM

- To: Carol Parr, CDOT Region. 4
- From: Lisa Powell, PE, Gray Clark, PE; Muller Eng.
- Date: August 23, 2004
- Proj. No. 01-021.06
- Re: **SH 7 –Cherryvale to 75<sup>th</sup> Street  
Combined Summary of Public Meetings Held  
July 11, 2001, February 29, 2002, and June 17, 2004**



**MULLER**

**Muller Engineering Company, Inc.  
Consulting Engineers**

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777 S. Wadsworth Boulevard  
Lakewood, Colorado 80226  
303/988-4969 FAX  
303/988-4939

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## Introduction

Three separate public open houses have been held for the SH 7 –Cherryvale to 75<sup>th</sup> Street Studies. The July 11, 2001 and February 29, 2002 meetings were held to solicit input during the Feasibility Study. The purpose of the July, 2001 open house was to present data gathered and solicit input from the public concerning the project. The focus of the February 2002 meeting was to present recommendations for improvement and to solicit input from the public concerning the recommendations. A third Public Open House was held on June 17, 2004. This meeting was held to gather public input for the Environmental Assessment. The focus of the June 2004 meeting was to present updated project information, present possible alternatives, receive ideas and suggestions and answer questions about issues and concerns.

At total of at least 206 people attended the three meetings. At each meeting, comment sheets were available to encourage public input on the project. The following is a combined summary of the most common responses received at all three public meetings.

- Bicycle lanes/facilities should be incorporated into the project (64 comments)
  - *Bicycle lanes should be extended further east than 75<sup>th</sup> St. (12 comments)*
- Add turn lanes at intersections (43 comments)
  - *Westview intersection (11 comments)*
  - *Valtec intersection (9 comments)*
  - *Acceleration lane at Westview (3 comments)*
- SH 7 should be a 4-lane facility (33 comments)
  - *SH 7 should be a 4-lane facility further east than 75<sup>th</sup> St. (16 comments)*
- Improved/enhanced signalization (25 comments)
  - *New signal required at Valtec Lane (9 comments)*
  - *Improve signal timing at 75<sup>th</sup> St. (6 comments)*
  - *Improve signal timing at Cherryvale (3 comments)*
- Improve transit facilities (21 comments)
  - *Incorporate bus pullouts (7 comments)*
  - *Incorporate Queue Jump Lanes (6 comments)*
  - *Add Park-n-Rides (3 comments)*
- Incorporate pedestrian facilities (sidewalks, bus stops) (19 comments)
- Property impact concerns (19 comments)
- Improve traffic flow and congestion (13 comments)

- Steep grades at hill create problems in snowy weather (10 comments)
- Protect cottonwoods in vicinity of 75<sup>th</sup> St. (9 comments)
- Include noise mitigation (7 comments)
- Improve safety and decrease accidents (7 comments)

**COMMENT SHEET**

Public Open House, June 17, 2004  
Arapahoe Road (S.H. 7) – Cherryvale to 75th Street  
Environmental Assessment Study



Your suggestions and/or comments are solicited at this time regarding transportation needs on Arapahoe Road (State Highway 7) between Cherryvale and 75<sup>th</sup> Street. Input regarding the highway improvements, congestion management, bicycle, pedestrian and transit enhancements, roadway configurations, access modifications and any other comments are welcome.

Please hand in this sheet at the public meeting or mail in or fax it before July 15, 2004 to Carol Parr, Colorado Department of Transportation, 1420 2<sup>nd</sup> Street, Greeley, CO 80634, Fax 970.350.2177.

What are the most important issues to address along the SH 7 Corridor? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Would you consider or do you currently use another mode of travel (transit, bicycle, carpool) along SH 7? \_\_\_\_\_  
If yes, what type of mode would you or do you use and how often? \_\_\_\_\_

\_\_\_\_\_

Do you feel that pedestrian and bicycle enhancements should be incorporated into the project? \_\_\_\_\_  
If yes, what type of enhancements should be incorporated and where? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Additional Comments? \_\_\_\_\_

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\_\_\_\_\_  
\_\_\_\_\_

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

TELEPHONE NO. \_\_\_\_\_

# Welcome to the State Highway 7 Environmental Assessment Study Open House

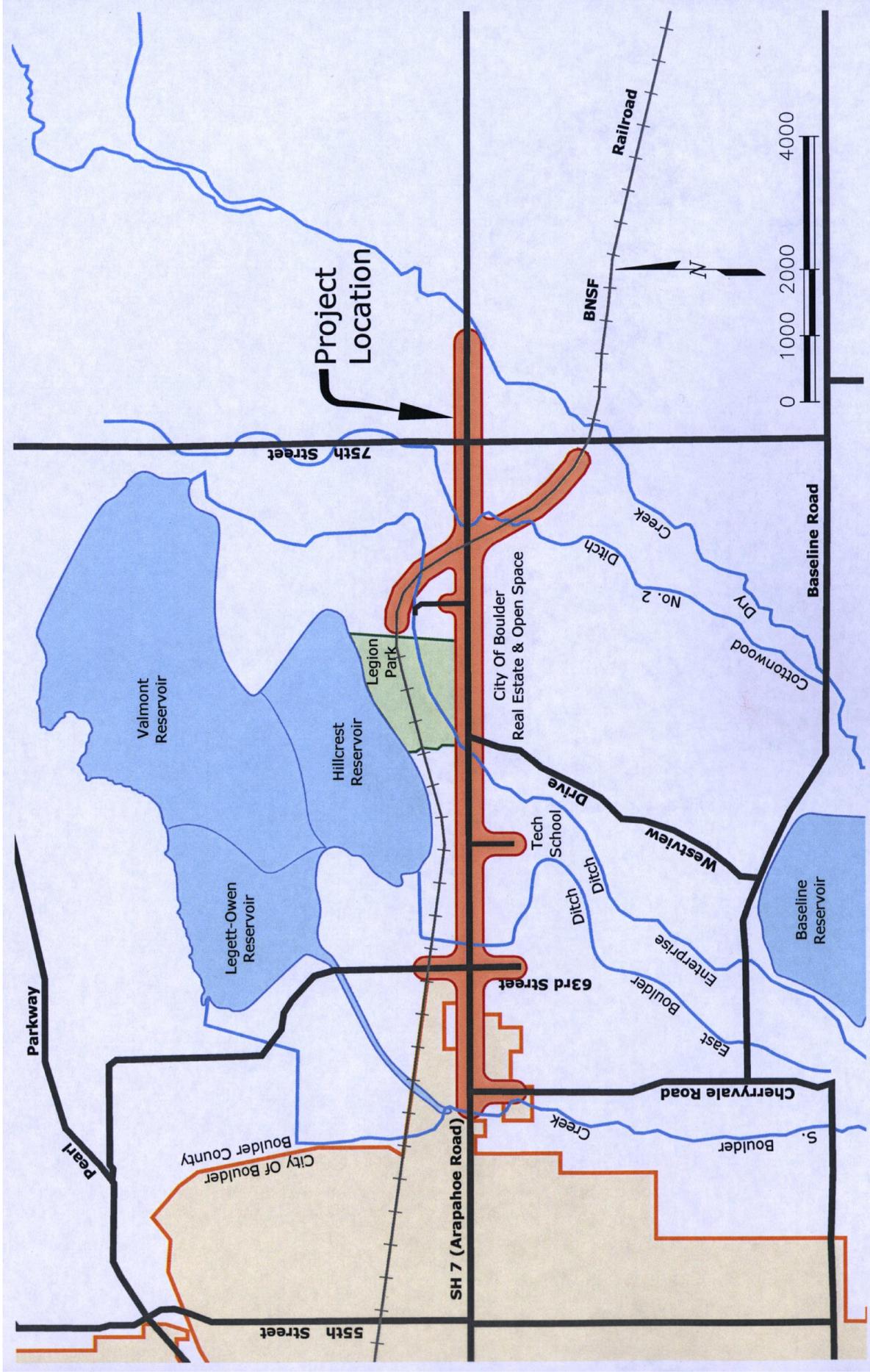
## Purpose of the Open House

- Introduce the Project Team and Purpose for the Study
- Describe the Environmental Assessment and Public Involvement Process
- Share Data that has been Gathered and Identify Critical Issues and Constraints
- Present Possible Alternatives for Improvements
- Solicit Public Feedback on Possible Alternatives
- Outline “What’s Next” in the Process

# Project Location and Study Area

SH 7

Cherryvale Rd. to 75th St.



## Project Purpose and Need

The **purpose of improvements** to the SH 7 transportation corridor is to:

- Improve safety along the corridor
- Improve the traffic operations
- Upgrade out-dated transportation facilities



- Serve population and employment growth in the surrounding communities
- Improve mobility for all modes of travel (pedestrian, bicycle, transit)
- Improve the efficiency of the transportation system

The following deficiencies and problems **identify the need** to develop solutions to the SH 7 transportation system:

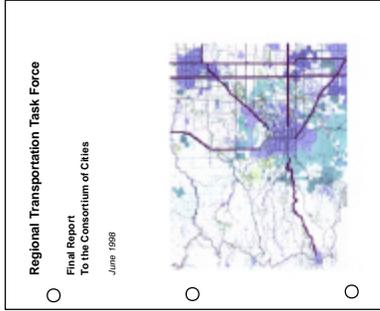
- CDOT and local jurisdictions have identified SH 7 is an important commuter and intra-regional arterial roadway.
- Traffic volumes are expected to increase 48% between 2001 and 2025 due to regional growth.
- There is insufficient capacity to meet current and future projected traffic volumes along the corridor.



- SH 7 is currently experiencing poor operating traffic conditions in the peak hours resulting in delays and long queues at signalized intersections. Future traffic growth is expected to increase these delays and queues.
- Accident history indicates congestion and access issues based upon the high percentage of intersection related crashes.
- There is a lack of adequate pedestrian, bicycle and bus stop facilities along the corridor.
- Driveway locations are poorly controlled and located.
- The out-dated highway does not meet the current standards and needs for this classification of roadway.
- Bus service along the corridor is adversely impacted by poorly operating traffic conditions, leading to delay.
- Future population and employment growth serving the communities of Lafayette, Louisville, Erie and Boulder result in increased commuter roadway needs.

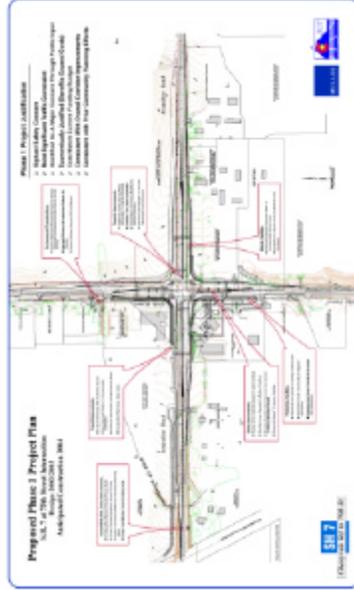


# Summary of Previous Work



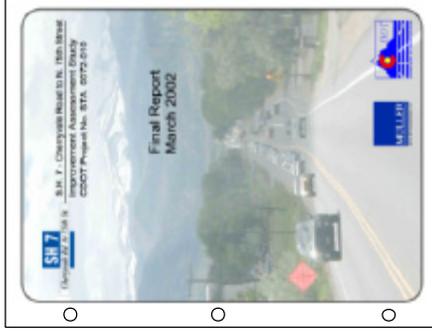
## Regional Transportation Task Force Final Report (1998)

The Boulder County Regional Transportation Task Force completed a study in 1998, which evaluated the increasing traffic congestion along six major regional corridors, including SH 7. The Final Report recommended intersection and transit improvements to SH 7.



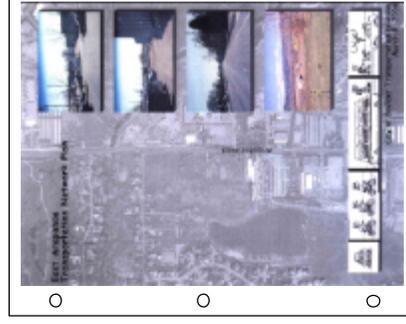
## SH 7 & 75<sup>th</sup> Intersection Improvements (2003-2004)

Following the recommendations of the *SH 7 Improvement Assessment Study*, CDOT has undertaken the design of improvements to the SH 7 and 75<sup>th</sup> Street intersection. CDOT is completing the design and anticipates construction to begin soon on these comprehensive, multi-modal improvements to the intersection of SH 7 and 75<sup>th</sup> Street.



## SH 7 Improvement Assessment Study (2002)

CDOT initiated a feasibility study in 2001 to evaluate improvement alternatives to SH 7 between Cherryvale Road and 75<sup>th</sup> Street. The study, completed in March 2002, identified an improvement project to be designed and constructed at the 75<sup>th</sup> intersection and also identified conceptual improvements to the remainder of the corridor.



## East Arapahoe Transportation Network Plan (2004)

The City of Boulder developed a network plan for Arapahoe Road (SH 7) in 2004 that defines transportation improvements for all modes of travel. The plan identified proposed multi-use paths and sidewalks, on-street bike lanes and transit improvements for SH 7 east of Cherryvale Road.

## What is NEPA?

SH 7

Charryvale Rd. to 75th St.

- *National Environmental Policy Act of 1969*
- *Directs Federal agencies to conduct environmental reviews for proposed actions*
- *Must consider potential impacts that the action will have on the social, economic and physical environment*
- *Fundamental objectives include interagency cooperation and public participation*
- *Potential project impacts and mitigation measures must be documented*
- *There are three levels of NEPA documentation*
- *The SH 7 project is an Environmental Assessment (EA), which is the middle level*

# Environmental Assessment Process

SH 7

Charryvale Rd. to 75th St.

**An Environmental Assessment (EA) process consists of the following steps:**

- 1 Scoping**  
*A public and agency process which defines the issues to be addressed.*
- 2 Data Collection**  
*Includes collection of traffic, environmental, land use and design-related data.*
- 3 Development Of Alternatives**  
*Includes initial identification of a full range of alternatives and then screening to alternatives which are reasonable. This includes the no-build alternative.*
- 4 Analysis Of Alternatives**  
*Looks at social, economic and environmental impacts of the reasonable alternatives including the no-build.*
- 5 Preparation Of Environmental Document**  
*Includes need for project, description of alternatives and environmental impacts.*
- 6 Public & Agency Review**  
*Once the EA is complete, the public and interested agencies have a chance to review and comment on the document.*
- 7 Decision Document**  
*Documents the preferred alternative and responds to comments.*

# Contents of an Environmental Assessment

SH 7

Charryvale Rd. to 75th St.

- **Define Purpose & Need**
- **Build Alternatives & No-Build Alternative**
- **Land Use**
- **Social**
- **Environmental Justice**
- **Air Quality**
- **Economic (business considerations)**
- **Pedestrians and Bicycles**
- **Visual Resources**
- **Right-of-Way**
- **Parks and Recreation**



• **Hazardous Materials**

• **Noise**

• **Water Resources/Quality**

• **Wetlands**

• **Wildlife/Fisheries**

• **Floodplains**

• **Construction Impacts**

• **Threatened & Endangered Species**

• **Historical & Archaeological**

• **Farmland**

• **Cumulative Impacts**



• **Environmental Justice**



• **Air Quality**

• **Economic**

**(business considerations)**

• **Pedestrians and Bicycles**

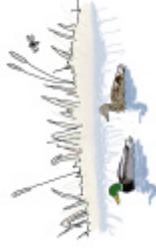


• **Visual Resources**

• **Right-of-Way**



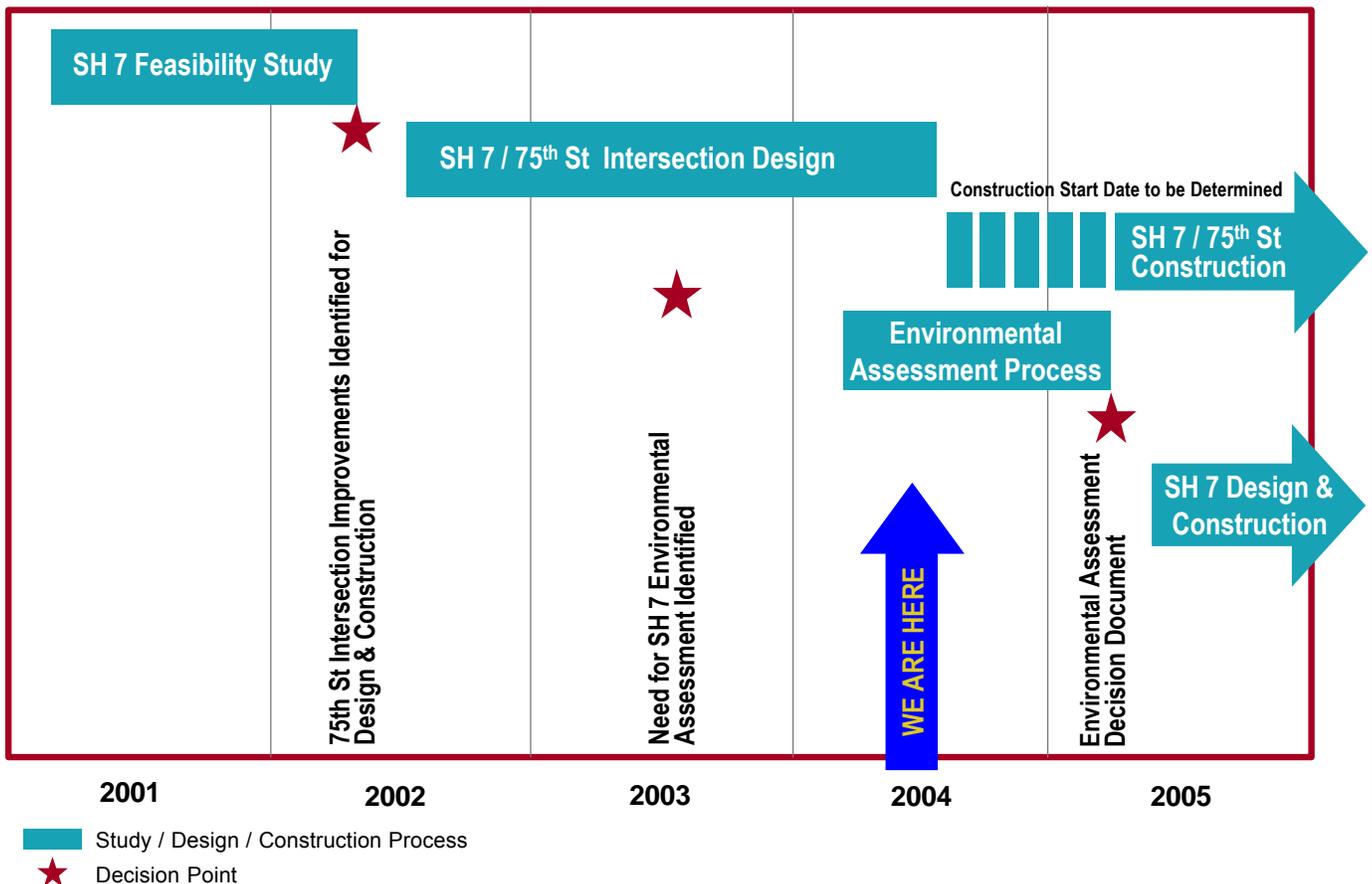
• **Parks and Recreation**



## Where We Are in the Process and Why

CDOT initiated a *process* in 2001 to *evaluate, identify, design and construct* improvements to SH 7.

- ✓ The **first** step of the CDOT *process* produced a feasibility study that evaluated alternatives and identified initial improvements based upon the highest need. The intersection of SH 7 and 75<sup>th</sup> Street was identified to be designed and constructed.
- ✓ The **second** step of the CDOT *process* resulted in the design of comprehensive, multi-modal improvements to the SH 7 and 75<sup>th</sup> Street intersection. The design is close to completion and construction of these improvements is anticipated to begin in late 2004 or early 2005.
- ✓ The on-going CDOT evaluation *process* of SH 7 has identified an additional step requiring that enhancements to the SH 7 corridor between Cherryvale Road and 75<sup>th</sup> Street be developed and evaluated to determine if significant environmental or social impacts are anticipated to result from possible improvements. The current Environmental Assessment (EA), following NEPA requirements, will evaluate these impacts.
- Should a “build” alternative be identified through the EA process, CDOT anticipates designing and constructing improvements to SH 7 between 2005 and 2008.



## What We Need From You

**Voice Your Support** – As you proceed through the presentation graphics, be sure to complete the Comment sheets. This will give CDOT direct feedback on what you think about the project and the presented alternatives.



**Ask Questions** – Representatives from CDOT and the design team are here to answer your questions.



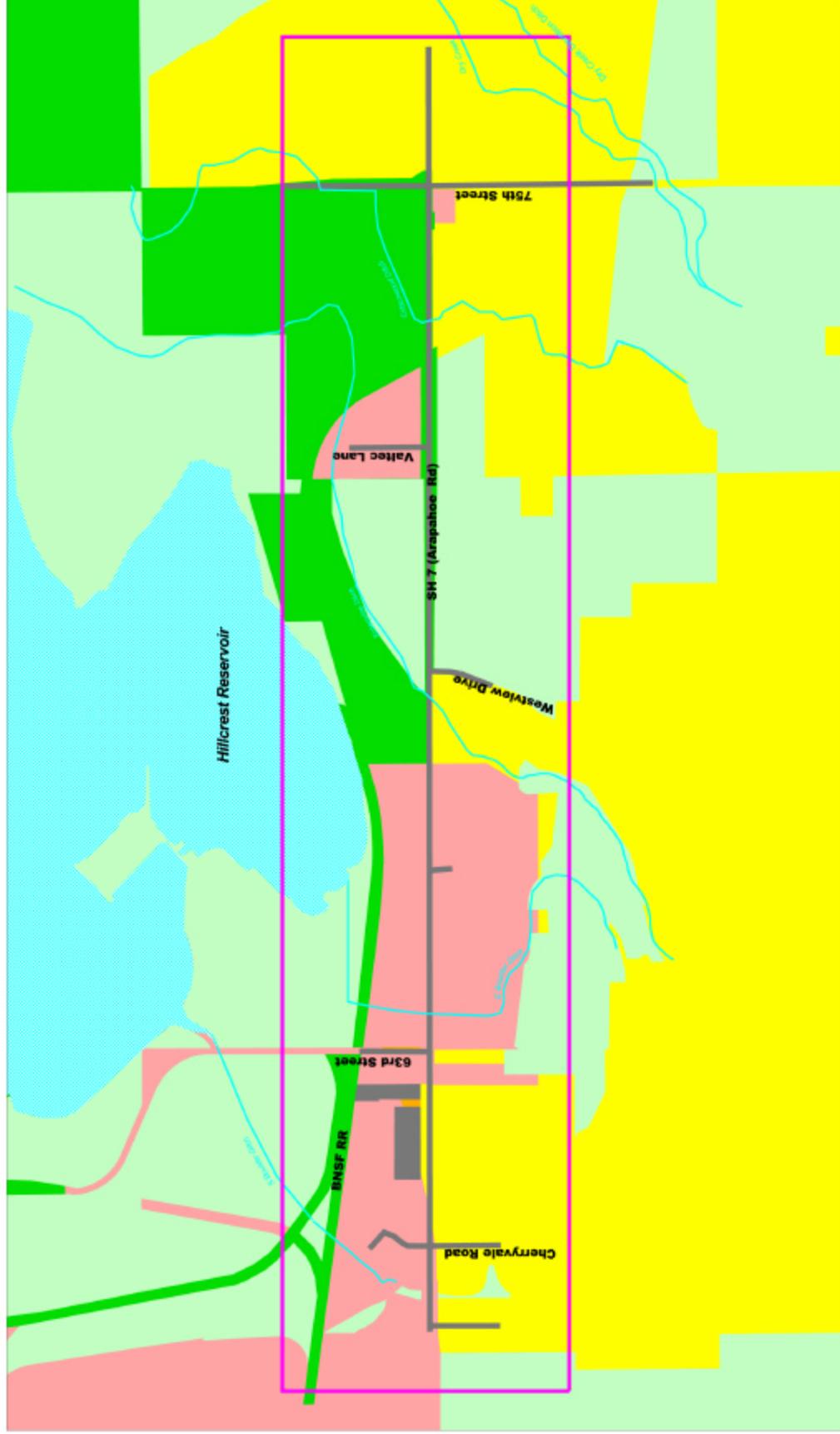
**Share Your Comments** – The main reason for this open house is for CDOT and the design team to get your feedback on the alternative design concepts. Please share your thoughts and take a few minutes to fill out a Comment Sheet.



# Land Use

SH 7

Cherryvale Rd. to 75th St.



**LEGEND**

- Project boundary (pink outline)
- Water feature (blue)
- Agricultural (light green)
- Business (light pink)
- Industrial (dark grey)
- Residential (yellow)
- Open space (light green)

Scale: 0 to 800 Feet / 0 to 300 Meters

Source: City of Aurora, Colorado Department of Public Works, 2011

# SH 7 Environmental Assessment

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# SH 7

Charryvale Rd to 75th St

## Existing Transit, Bicycle and Pedestrian Facilities



**LEGEND:**

- Jump stop
- Jump route
- Project boundary
- Trails
  - Bike path
  - On-shoulder bike path
  - Trail

Scale: 0 300 600 Feet / 0 300 Meters

North Arrow

## SH 7 Environmental Assessment

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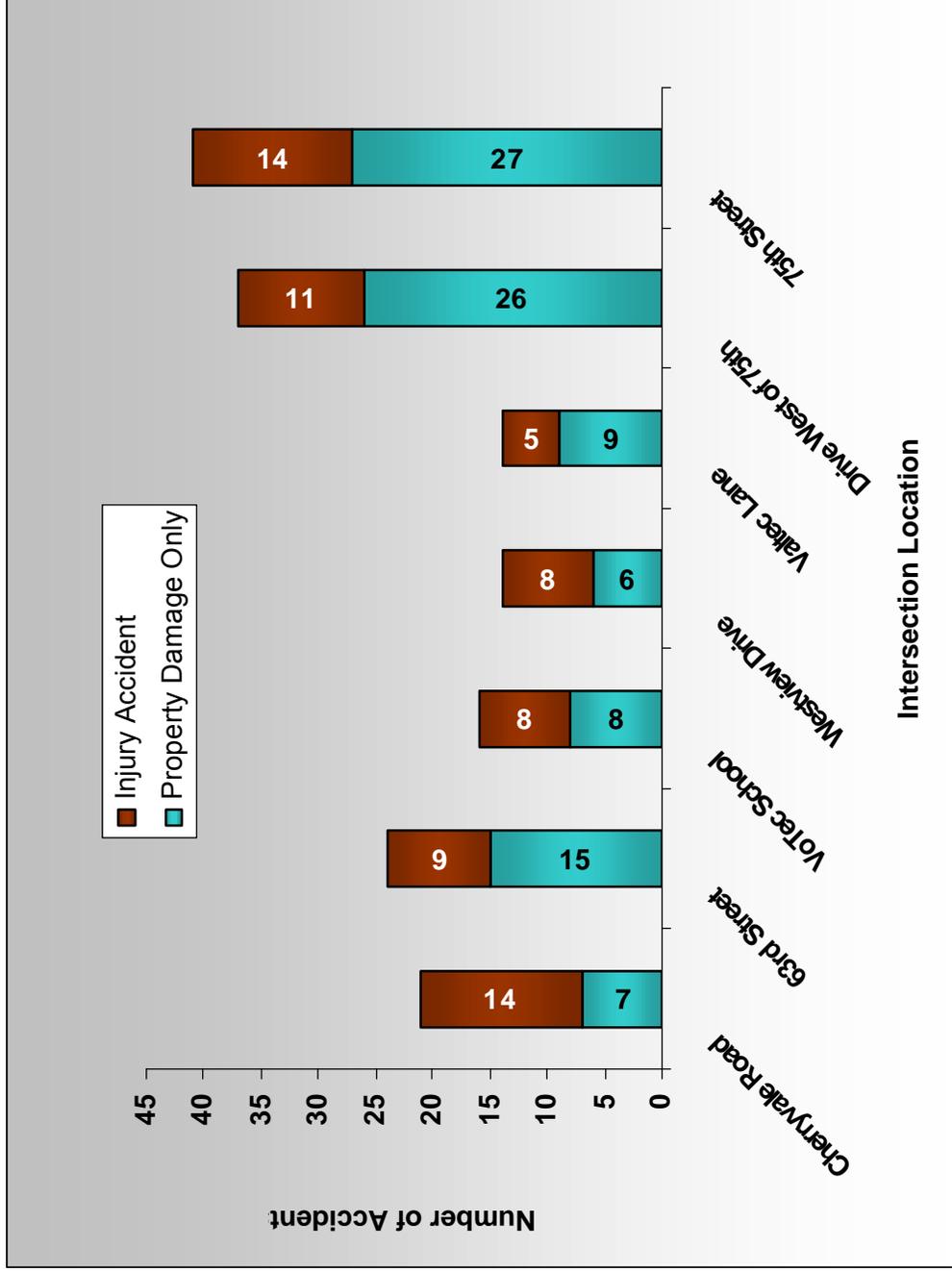


# SH 7 Arapahoe Road

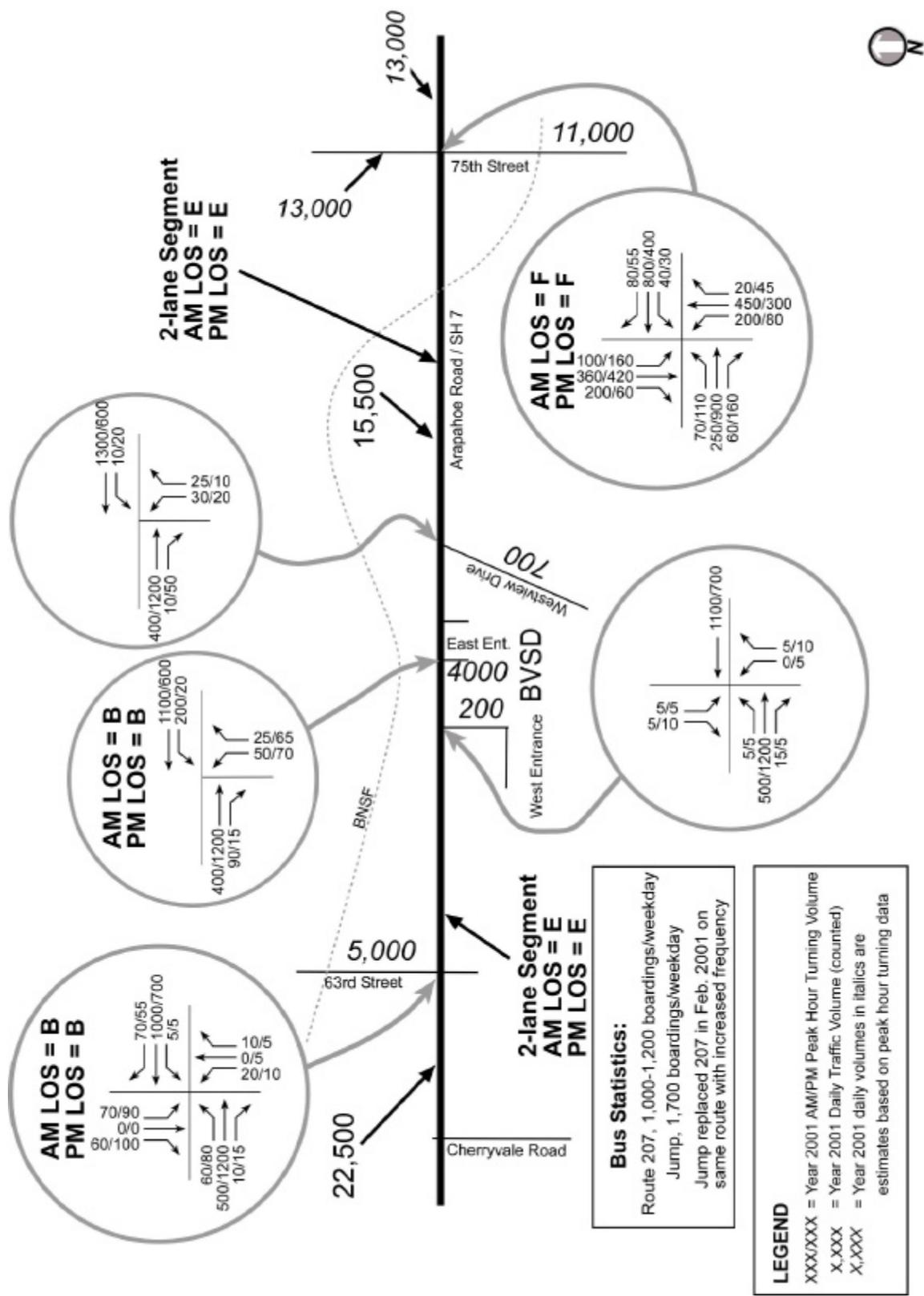
## Intersection Accident Summary March 1, 1998 to December 31, 2002

SH 7

Cherryvale Rd. to 75th St.

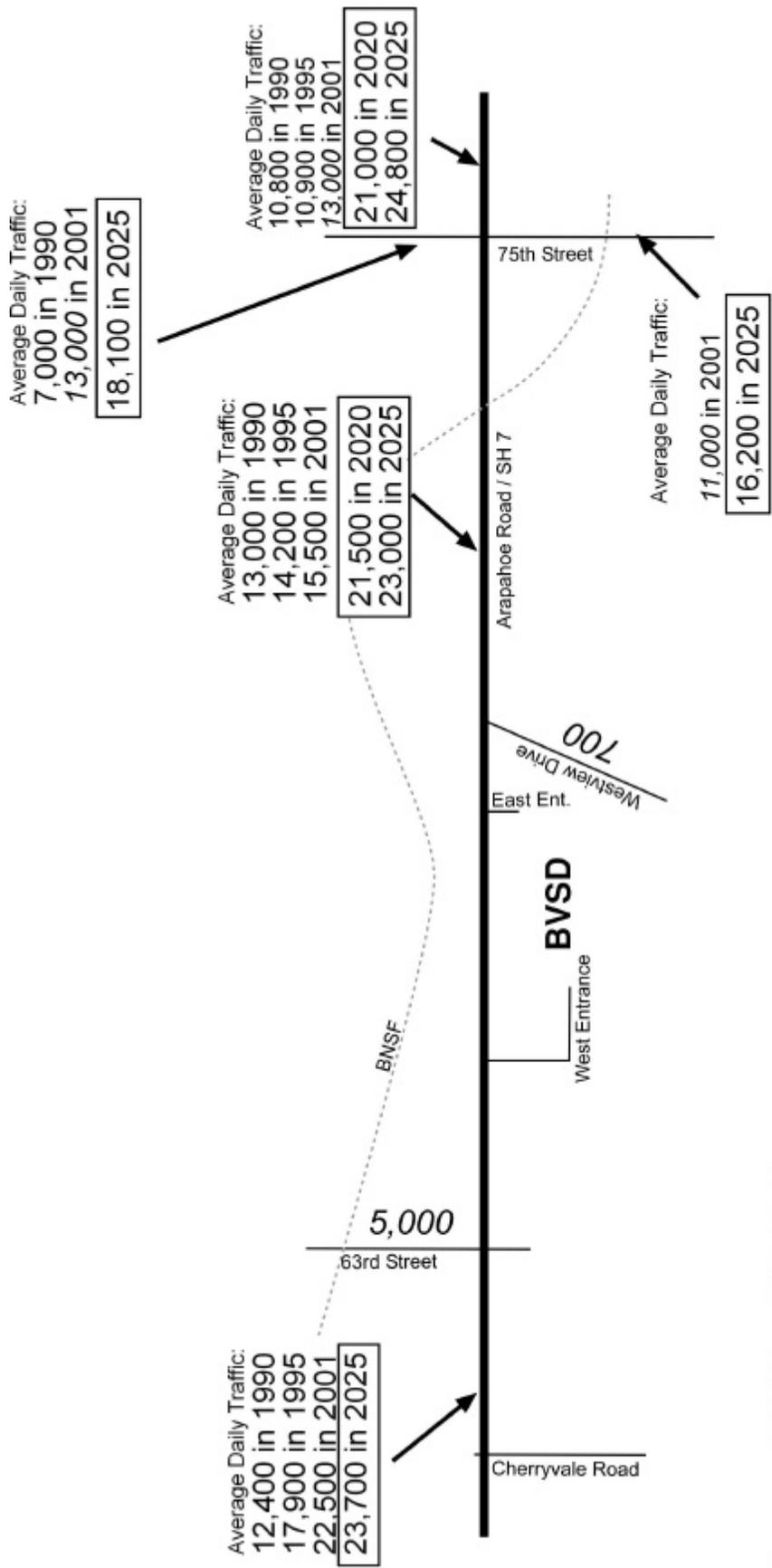


# Traffic Count Data and Level of Service



# Historic and Future Traffic in SH 7 Corridor

**SH 7**  
Cherryvale Rd. to 75th St.



Source: SH 7 Feasibility Study

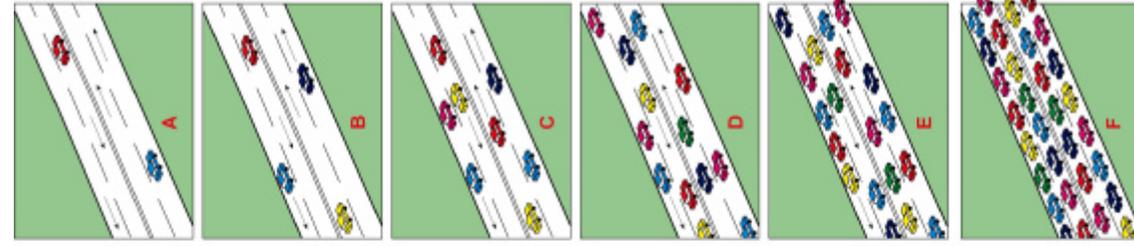
- 1990 data from City of Boulder
- 1995 data from Consortium of Cities
- 2001 data counted May, 2001
- 2020 forecasted data from feasibility study (in 2001/2002)
- 2025 raw forecasts from updated 2025 DRCOG model (Apr-2004)
- 2025 numbers are subject to revision



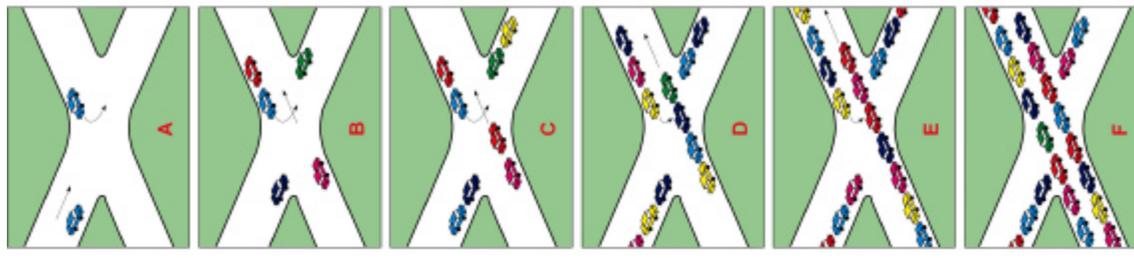
# Level of Service Definitions – Urban Arterial & Intersections

SH 7

Cherryvale Rd. to 75th St.



- LOS A Roadway Segments**  
Free flow, low traffic density
- B** Minimum delay, stable traffic flow
- C** Stable condition, movements somewhat restricted due to higher volumes, but not objectionable for motorists
- D** Movements more restricted, queues and delays may occur during short peaks, but lower demands occur often enough to permit clearing, preventing excessive backups
- E** Actual capacity of the roadway involves delay to all motorists due to congestion
- F** Forced flow with demand volumes greater than capacity resulting in complete congestion

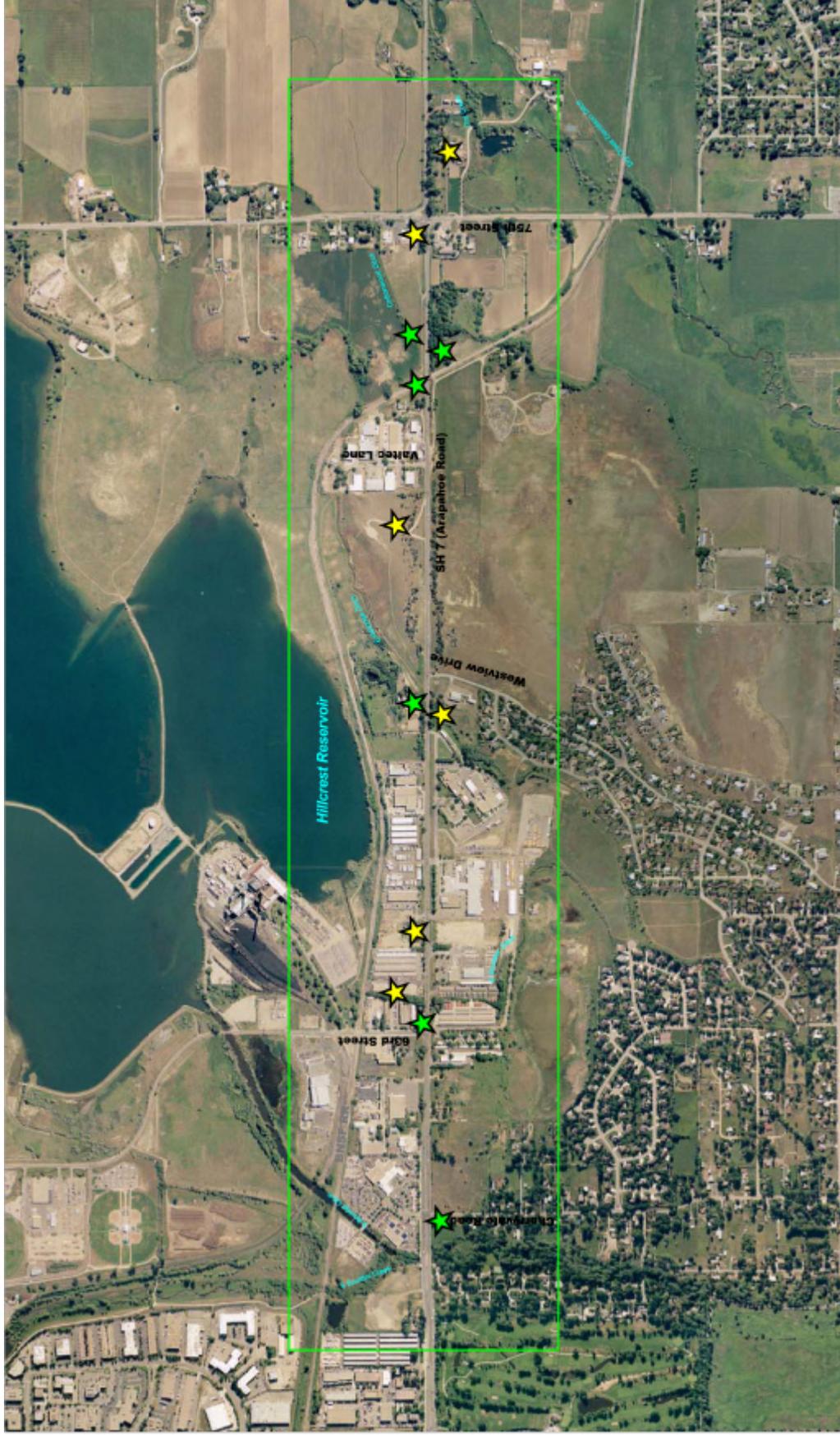


- LOS A Intersections**  
No vehicle waits longer than one signal indication.
- B** On a rare occasion, vehicles wait through more than one signal indication.
- C** Intermittently, vehicles wait through more than one signal indication, occasionally backups may develop, traffic flow still stable and acceptable.
- D** Delays at intersections may become extensive, but enough cycles with lower demand occur to permit periodic clearance, preventing excessive backups.
- E** Very long queues may create lengthy delays.
- F** Backups from locations downstream restrict or prevent movement of vehicles out of approach creating a "gridlock" condition.

# Historic Resources

SH 7

Charryvale Rd. to 75th St.



LEGEND



Field Eligible National Historic Resources



Field Eligible Local Historic Resources

Source: State Historic Preservation Office, Field Review, 2011



# SH 7 Environmental Assessment

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# Park or Recreation Sites Including Bike and Pedestrian

SH 7

Charryvale Rd to 75th St



# SH 7 Environmental Assessment

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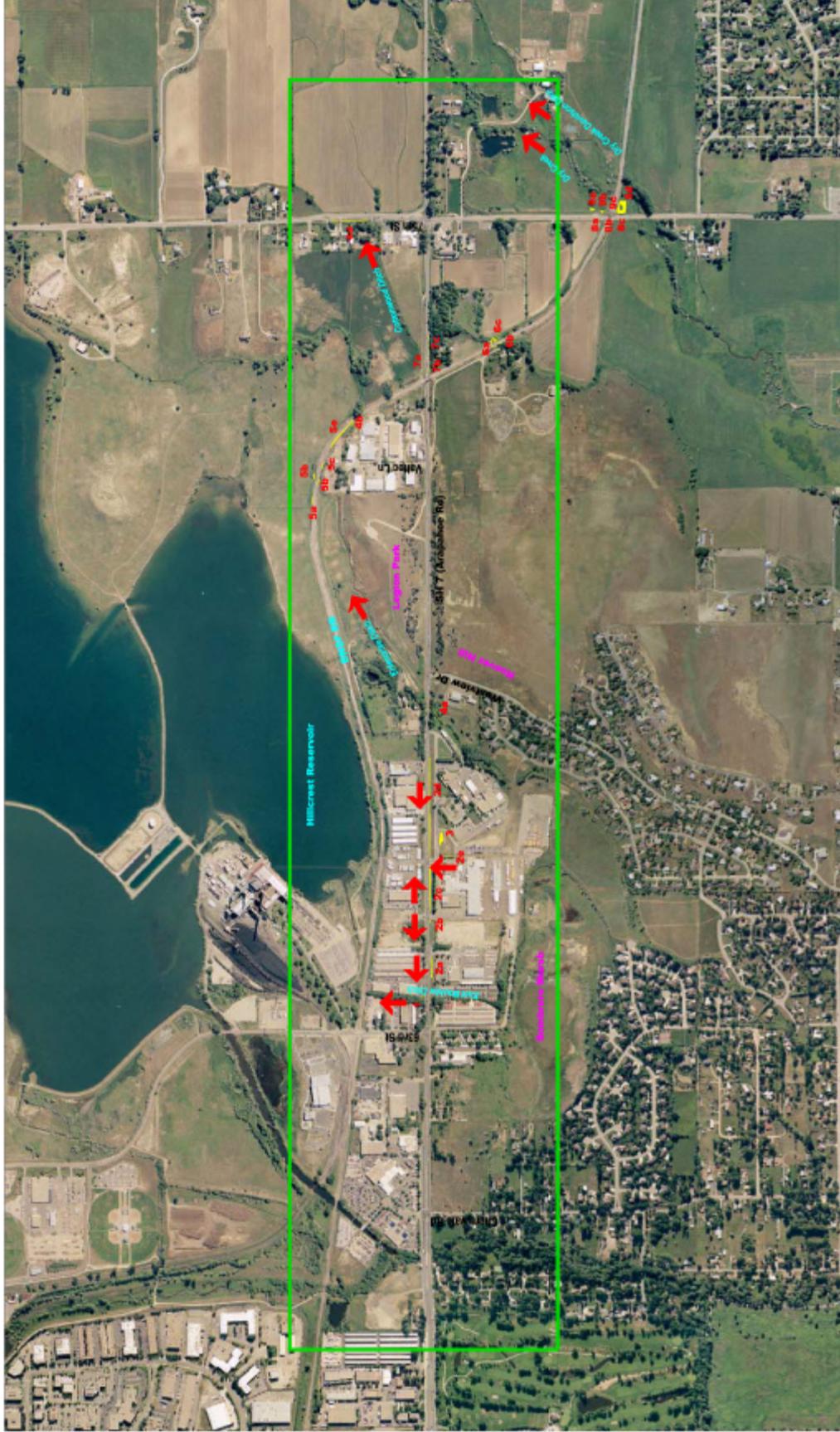
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# Wetlands

SH 7

Charryvale Rd. to 75th St.



**LEGEND:**

- Wetlands within highway and railroad rights-of-way, or on public lands
- Direction of Flow
- 1 Salt Bulrush Marsh
- 2 Rowlesia Clusters
- 3 SH 7 west of Hoover Hill
- 4 Enterprise Dr, west
- 5 Adjacent to railroad
- 6 Cottonwood Dr, west
- 7 SH 7 east of Hoover Hill
- 8 Rowlesia Clusters, 75th St.
- 9 Dry Creek Floodplain

Scale: 0 to 800 Feet, 0 to 300 Meters

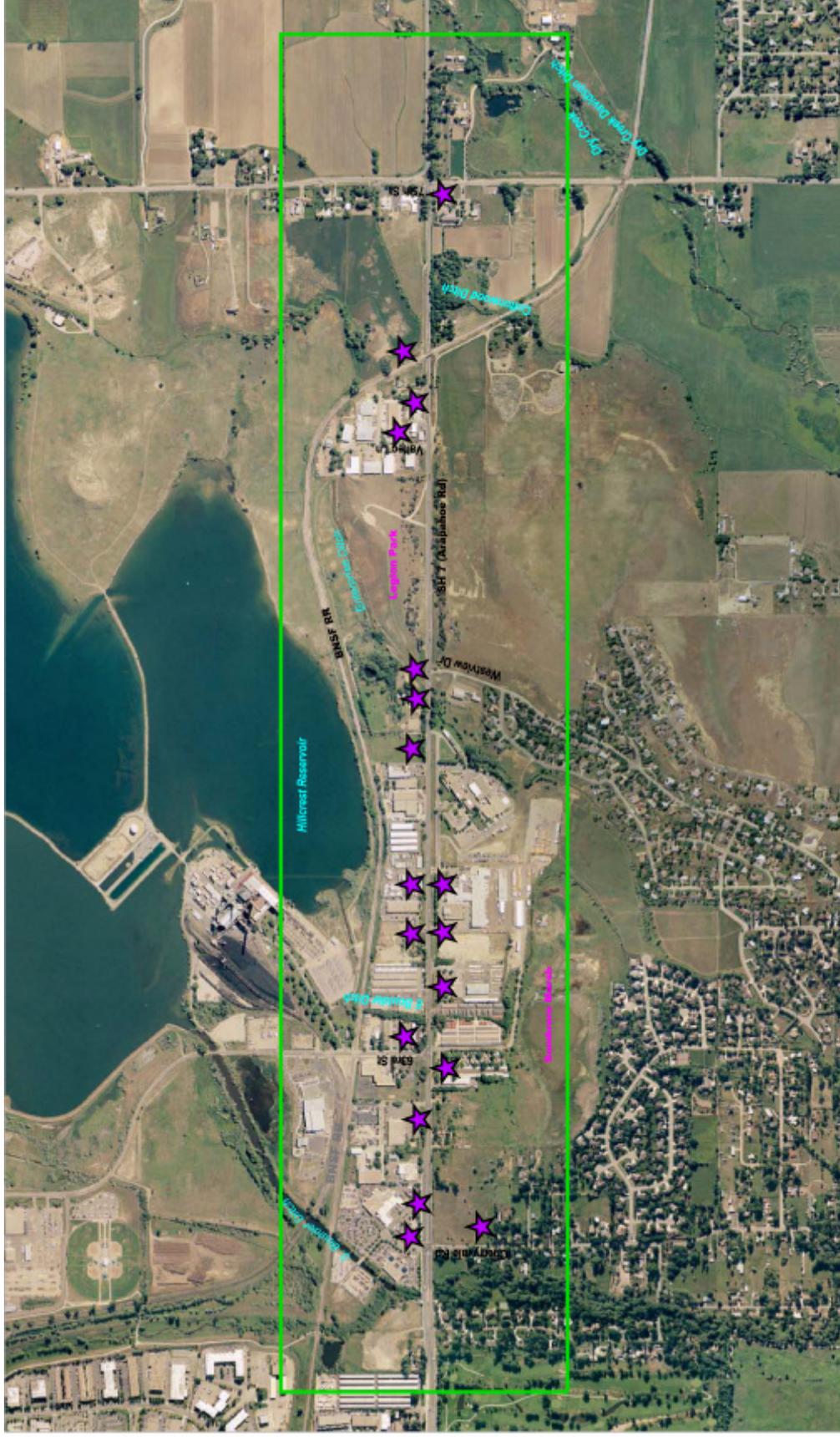
North Arrow

# SH 7 Environmental Assessment

# Potential Hazardous Materials Contamination

SH 7

Charryvale Rd. to 75th St.



**LEGEND:**

- ★ Sites of Potential Concern

Source: Colorado Dept. of Transportation, Region 4, Hazardous Materials Database

800 Feet 0 800 Feet  
300 0 300 Meters

## SH 7 Environmental Assessment

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# Noise Monitoring Locations

SH 7

Charryvale Rd. to 75th St.



**LEGEND:**

- Noise-sensitive land use (based on zoning)
- Project boundary
- Noise monitoring sites

Source: Google Earth, November, 2011  
Scale: North, 20m

Scale: 0 300 600 Feet / 0 300 600 Meters

N

# SH 7 Environmental Assessment

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# Soils That Can Be Considered Prime or Unique Farmland\*

SH 7

Cherryvale Rd. to 75th St.



Note: The area shown as prime or unique farmland are soil types that can be classified this way. Areas that are developed can not be prime or unique farmland.

## SH 7 Environmental Assessment

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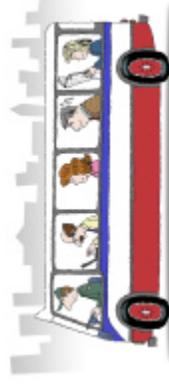
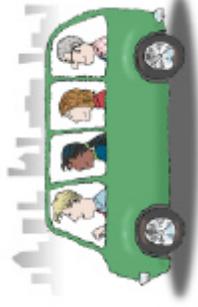
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# Congestion Management Options



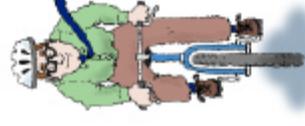
- *Encourage Carpools*
- *Promote DRCOG Vanpool Program*
- *Increase Frequency of Bus Service*



- *Encourage Additional Bus Ridership*



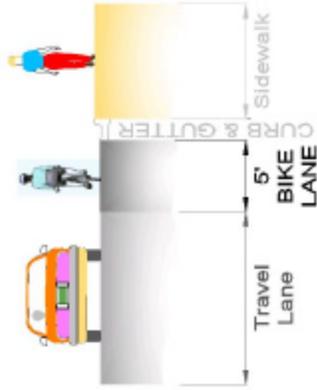
- *Encourage Telecommuting and Flex Hours*



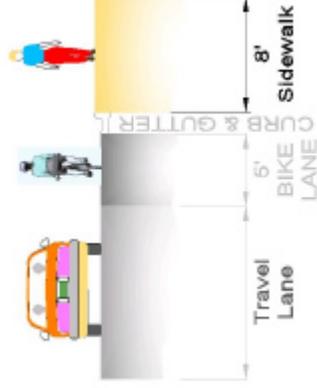
- *Provide Improved Pedestrian and Bicycle Facilities*

# Pedestrian/Bike Alternatives

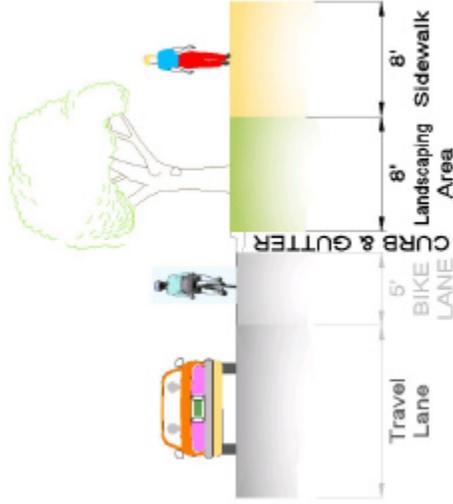
Possible Improvements for Pedestrians and Bicyclists can be incorporated into any roadway option.



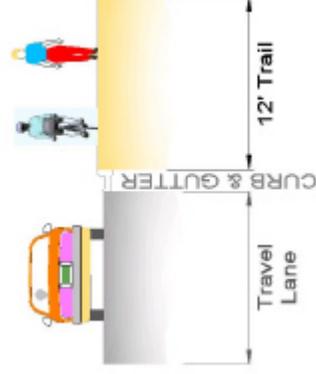
**On Street Bike Lanes –**  
Additional width is added in both directions for bicycle use. Provides separation between bikes and pedestrians.



**8-Foot Attached Sidewalk –** Sidewalks accommodate pedestrians along the roadway.



**8-Foot Detached Sidewalk –** A detached sidewalk provides a landscaping opportunity and buffer between pedestrians and traffic.

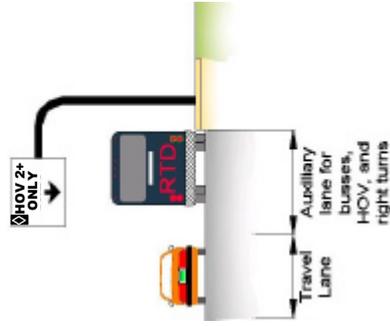


**12-Foot Attached Trail -**  
Additional width can accommodate multiple uses such as bicycles and pedestrians on one path.

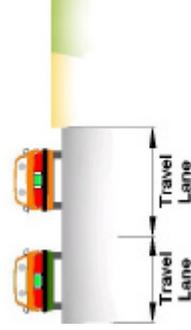
# Roadway Enhancement Alternatives Possible Additional Lane Configurations

**Improvements in safety and increases in capacity** can be accomplished by providing additional travel lanes to the corridor, improving intersection operations by adding auxiliary and turn lanes at intersections, or by incorporating “special use” lanes at intersections.

## Additional Lanes Along All or Portions of the Corridor

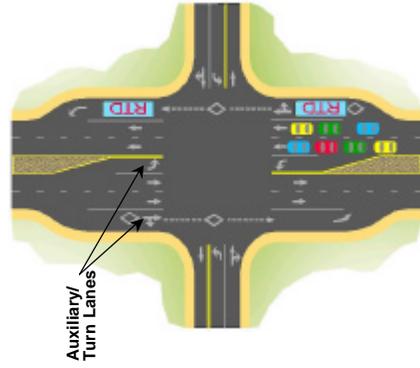


**Transit Lanes** – Lanes added exclusively for use by busses and carpools. Turning vehicles may utilize the lanes at the intersections.

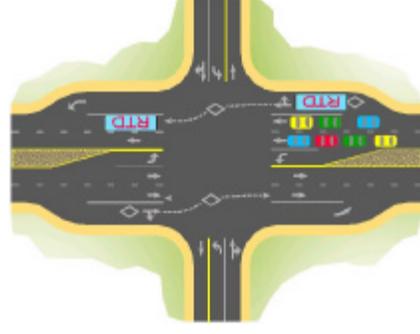


**General Use Lanes** – Additional capacity can be added to an existing roadway by providing additional travel lanes. These travel lanes can be configured to serve all type of vehicles with no restrictions.

## Additional Lanes at Intersections



**Auxiliary/Turn Lanes** provided at intersections to provide an additional lane, outside of through movement travel lanes, for vehicles to decelerate and turn from



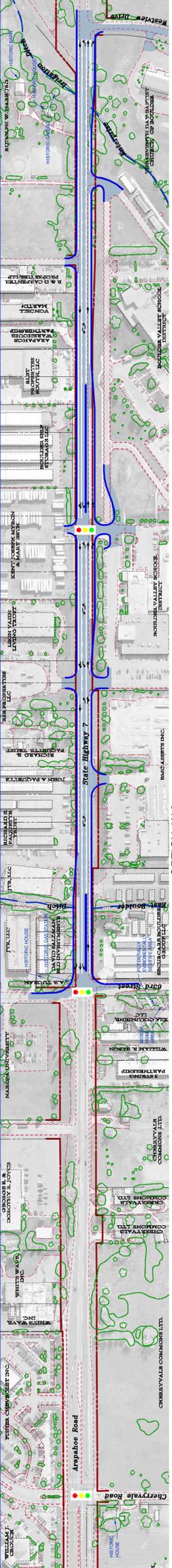
**“Shared” Auxiliary/Queue Jump Lanes** – Bus utilizes auxiliary/turn lanes as a through lane to allow it to “jump” the queue.

**Signal Priority Queue Jump Lanes** – Bus receives a green signal indicator several seconds before vehicles in the general purpose lanes

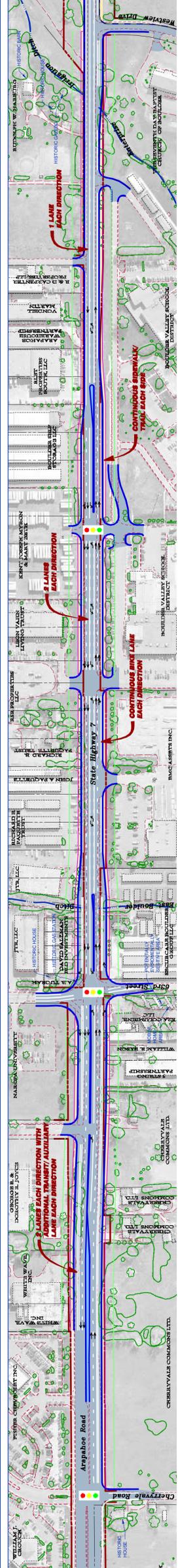
# STATE HIGHWAY 7 POSSIBLE IMPROVEMENT OPTIONS CHERRYVALE ROAD TO WESTVIEW DRIVE



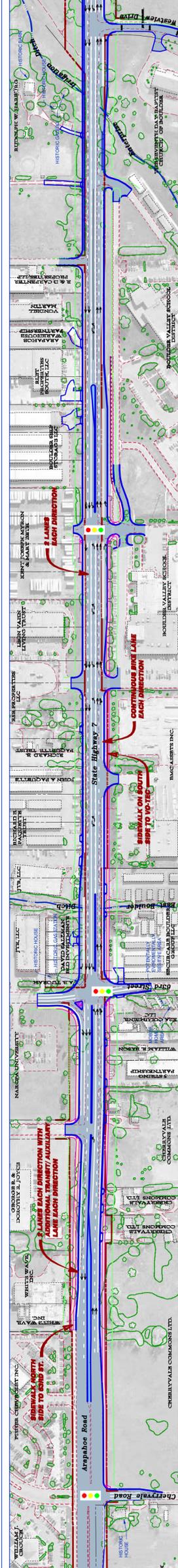
OPTION W-1  
NO BUILD



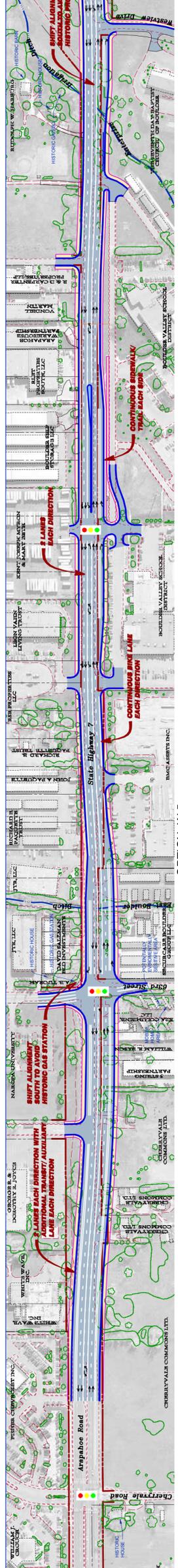
OPTION W-2  
2-LANE SECTION WITH LEFT TURN AND RIGHT TURN LANES, AS REQUIRED



OPTION W-3  
6-LANE URBAN SECTION (INCL. TRANSIT AUXILIARY LANE IN EACH DIRECTION) - CHERRYVALE TO 68RD  
4-LANE URBAN SECTION - 68RD TO VOTEC ACCESS  
2-LANE URBAN SECTION - VOTEC TO WESTVIEW

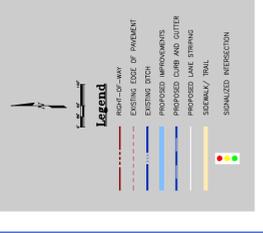
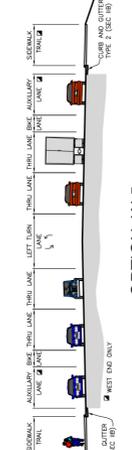
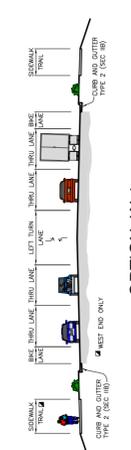
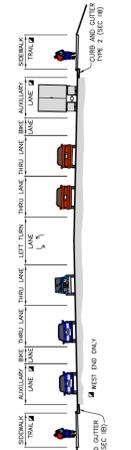
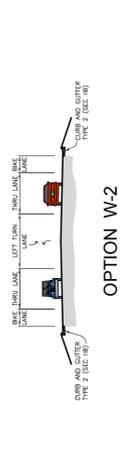


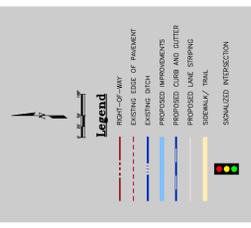
OPTION W-4  
4-LANE URBAN SECTION WITH CONTINUOUS AUXILIARY TRANSIT LANE WEST OF VOTEC SCHOOL



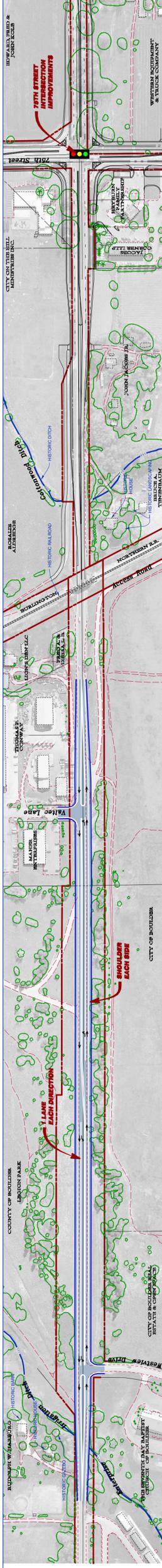
OPTION W-5  
6-LANE URBAN SECTION (INCL. TRANSIT AUXILIARY LANE IN EACH DIRECTION) - CHERRYVALE TO 68RD  
4-LANE URBAN SECTION - 68RD TO WESTVIEW  
ALIGNMENT CONFIGURED TO AVOID NATIONAL HISTORIC REGISTER ELIGIBLE PROPERTIES

## TYPICAL SECTIONS

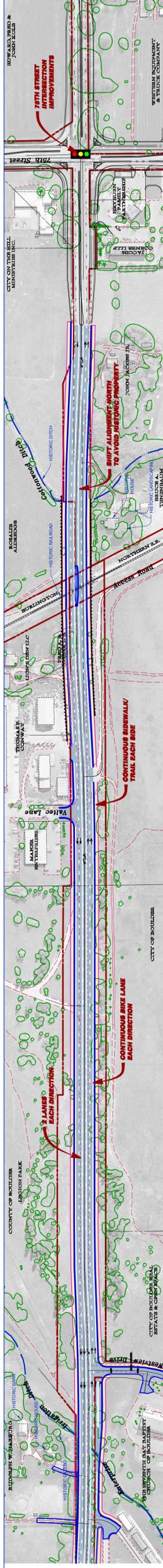
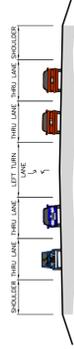
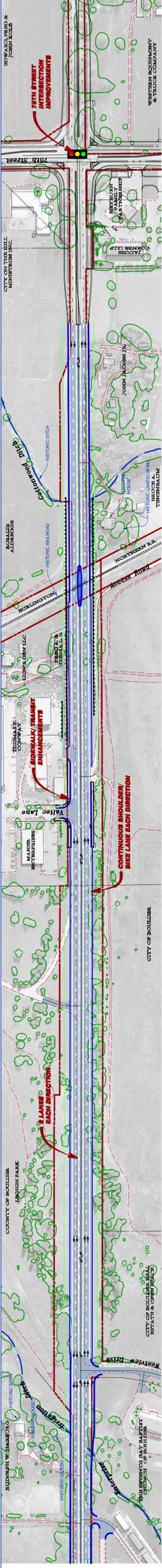
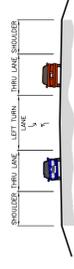
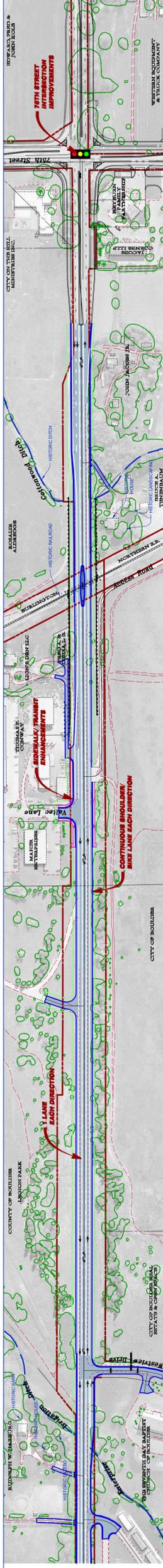
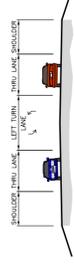




# STATE HIGHWAY 7 POSSIBLE IMPROVEMENT OPTIONS WESTVIEW DRIVE TO 75TH STREET



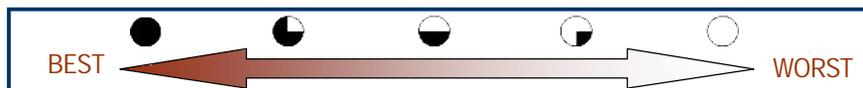
## TYPICAL SECTIONS





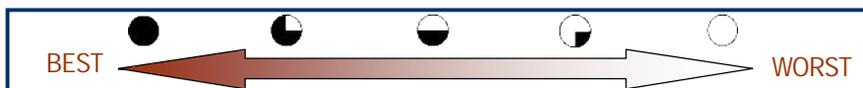
# Preliminary Evaluation Criteria Matrix

Issues	Congestion Management	Improvement Alternatives- Cherryvale to Westview Drive					Improvement Alternatives- Westview Drive to 75th				
		No Action (West of Westview Drive)	W-2 Two-Lane Urban with Turn Lanes	W-3 Four-Lane Urban with Transit Lanes West of 63rd, 4-Lane to Votec, 2-Lane to Westview	W-4 Four-Lane Urban with Transit Lanes West of Votec School	W-5 Four-Lane Urban with Transit, Shifted to Avoid Historic Properties	No Action (East of Westview Drive)	E-2 Intersection Safety Improvements	E-3 Two-Lane Rural Section with Shoulders and Turn Lanes	E-4 Four-Lane Rural Section with Shoulders and Turn Lanes	E-5 Four-Lane Urban with Sidewalks Shifted to Avoid Historic Properties
<b>Environmental Issues</b>											
Wetlands	●	●	◐	○	○	○	●	●	◐	◐	○
Open Space	●	●	◐	◐	◐	○	●	◐	◐	◐	○
Noise	●	●	◐	◐	◐	○	●	◐	◐	◐	○
Air Quality	◐	○	◐	◐	●	●	○	◐	◐	●	●
Historic Resources	●	●	◐	○	○	●	●	●	◐	○	●
Section 4(f)	●	●	◐	○	○	●	●	◐	◐	◐	◐
Hazardous Materials	●	●	◐	◐	◐	○	●	◐	◐	◐	○
Endangered Species	●	●	◐	○	○	○	●	●	◐	◐	○
Nesting Raptors	●	●	◐	◐	◐	○	●	◐	◐	◐	○
Prairie Dogs	●	●	◐	◐	◐	○	●	◐	◐	◐	○
Vegetation (Trees)	●	●	◐	◐	◐	○	●	◐	◐	◐	○
Farmland	●	●	◐	◐	◐	○	●	◐	◐	◐	○
<b>Construction / Maintenance Issues</b>											
Cost	●	●	◐	◐	◐	○	●	◐	◐	◐	○
Utilities	●	●	◐	◐	◐	◐	●	◐	◐	◐	◐
Maintenance Issues	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Railroad	●	N/A	N/A	N/A	N/A	N/A	●	●	○	○	○
Storm Drainage	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐	◐
Irrigation Facilities	●	●	◐	◐	◐	◐	●	●	◐	◐	◐
Constructability	●	●	◐	◐	◐	◐	●	●	◐	◐	◐



# Preliminary Evaluation Criteria Matrix

Issues	Improvement Alternatives- Cherryvale to Westview Drive						Improvement Alternatives- Westview Drive to 75th				
	Congestion Management	No Action (West of Westview Drive)	W-2 Two-Lane Urban with Turn Lanes	W-3 Four-Lane Urban with Transit Lanes West of 63rd, 4-Lane to Votec, 2-Lane to Westview	W-4 Four-Lane Urban with Transit Lanes West of Votec School	W-5 Four-Lane Urban with Transit, Shifted to Avoid Historic Properties	No Action (East of Westview Drive)	E-2 Intersection Safety Improvements	E-3 Two-Lane Rural Section with Shoulders and Turn Lanes	E-4 Four-Lane Rural Section with Shoulders and Turn Lanes	E-5 Four-Lane Urban with Sidewalks Shifted to Avoid Historic Properties
<b>Transportation Issues</b>											
Traffic Operations - Intersections	○	○	◐	◑	◒	◓	◔	◕	◖	◗	◘
Traffic Operations - Segments	○	○	◐	◑	◒	◓	○	◕	◖	◗	◘
Bus / HOV Travel Time	◐	○	◐	◑	◒	◓	◔	◕	◖	◗	◘
Automobile Travel Time	◐	○	◐	◑	◒	◓	◔	◕	◖	◗	◘
Accident Potential	◐	○	◑	◒	◓	◔	○	◕	◖	◗	◘
Pedestrian / Bicycle Enhancements	◐	○	◑	◒	◓	◔	○	◕	◖	◗	◘
Consolidation of Access	◐	○	◑	◒	◓	◔	○	◕	◖	◗	◘
Compliance with DRCOG	◐	○	◑	◒	◓	◔	○	◕	◖	◗	◘
Compliance with Boulder County RTTF Study	◐	○	◑	◒	○	○	○	◕	◖	○	○
Compliance with City of Boulder Arapahoe Road Plan	◐	○	◑	◒	◓	◔	N/A	N/A	N/A	N/A	N/A
Impact to Local Network	◐	○	◐	◑	◒	◓	○	◕	◖	◗	◘
<b>Community Issues</b>											
Property Impacts - Business	◑	◒	◓	◔	◕	◖	◗	◘	◙	◚	◛
Property Impacts - Residential	◑	◒	◓	◔	◕	◖	◗	◘	◙	◚	◛
Property Impacts - Public Land / Parks	◑	N/A	N/A	N/A	N/A	N/A	◑	◒	◓	◔	◕
Impact to Low Income or Minority Populations	◑	◒	◓	◔	◕	◖	◗	◘	◙	◚	◛
Access	◐	◑	◒	◓	◔	◕	◖	◗	◘	◙	◚
View Corridor	◑	◒	◓	◔	◕	◖	◗	◘	◙	◚	◛
Public Support											



# MEMORANDUM

- To: Carol Parr, Helen Peiker CDOT Region. 4
- From: Lisa Powell, PE; Muller Eng.
- Date: December 6, 2004
- Proj. No. 01-021.06
- Re: **SH 7 – Cherryvale to 75<sup>th</sup> Street  
Public Open House #2 – November 9, 2004**

The logo for Muller Engineering Company, Inc. features the word "MULLER" in a white, serif, all-caps font, centered within a dark blue rectangular background.

**Muller Engineering Company, Inc.  
Consulting Engineers**

**Irongate 4, Suite 100**  
777 S. Wadsworth Boulevard  
Lakewood, Colorado 80226  
303/988-4969 FAX  
303/988-4939

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## Introduction

A Public Open House was held on November 9, 2004 at Platt Middle School in Boulder County for the SH 7 – Cherryvale to 75<sup>th</sup> St. project. The project was advertised in the Local Section of the *Boulder Daily Camera* on October 28, 2004. Twelve signs advertising the open house were placed along the project at major intersections several days prior to the meeting. Newsletters were mailed to 268 public agency representatives, residents, and business owners along the project (list attached). The meeting format was an open house with project representatives available to address any comments or questions from attending citizens. The focus of the meeting was to present updated project information, receive ideas and suggestions and answer questions about issues and concerns.

Approximately eighty-two people attended the meeting as indicated by the attendance roster that is attached to the back of this document (8 people heard about the meeting through the newspaper, 34 through the signs, and 30 through the mailer). Additionally, the following is a list of project representatives that were present:

Helen Peiker, CDOT  
Carol Parr, CDOT  
Dave Davis, CDOT  
Mark Gosselin, CDOT  
Dan Marcucci, CDOT  
Sharleen Bakeman, CDOT  
Bob Grube, CDOT  
Gray Clark, Muller Engineering  
Rob Carlson, Muller Engineering  
Lisa Powell, Muller Engineering  
Mari, Muller Engineering  
Gina McAfee, Carter & Burgess  
Troy Halouska, Carter & Burgess  
Jonathan Bartsch, CDR Associates

## **Discussion**

The intent of the meeting was to present the project background, potential environmental and social impacts of the alternatives, and the project alternatives to be analyzed in more detail in the Environmental Assessment. The following is a list of the boards, displays, and handouts available at the meeting according to subject matter. Reduced copies of the graphics are attached to this document.

### **STATION ONE: PROJECT INTRODUCTION**

- ◆ Welcome / Purpose of the Open House
- ◆ Project Location and Study Area
- ◆ Project Purpose and Need
- ◆ Summary of Previous Project Work

### **STATION TWO: ENVIRONMENTAL ASSESSMENT PROCESS**

- ◆ What Is NEPA
- ◆ Environmental Assessment Process
- ◆ Contents of an Environmental Assessment
- ◆ Where We Are in the Process and Why
- ◆ What We Need From You

### **STATION THREE: EVALUATION MATRIX AND SELECTED ALTERNATIVES**

- ◆ Roadway Evaluation Criteria Matrix
- ◆ SH 7 Selected Alternatives
- ◆ Photo Simulation of Cut Over hill (4 boards)
- ◆ Railroad Evaluation Criteria Matrix
- ◆ Railroad Alternatives Evaluated in Matrix

### **STATION FOUR: ENVIRONMENTAL IMPACTS**

- ◆ Parks and Recreation Impacts
- ◆ Wetland Impacts
- ◆ Historic Resources
- ◆ Potential Impacts to Historic (2 boards)
- ◆ Noise
- ◆ Potential Impacts to Mobile Home Park

### **STATION FIVE: PUBLIC AND AGENCY INVOLVEMENT**

- ◆ Previous Comments and Opportunities for Involvement
- ◆ What's Next?

Attendees were provided a comment sheet to be completed and turned in at the meeting or to mail in prior to November 30, 2004. The comment sheet contained three questions to gather feedback on specific issues in addition to space for general comments. A total of 75 comment sheets were received. The individual comment sheets are attached to this document.

## **Public Comments**

The comment sheets received are summarized below:

**Question 1:** Three alternatives are presented at this meeting. Alternative 1 is the no-build with no improvements. Alternative 2 is a 4-lane section to Votec and a 2-Lane section between Votec and the 75th improvements. Alternative 3 is a 4-lane section for the study area. Which do you prefer?

- Alternative 3 (Four-Lane) (53 responses)
- Alternative 2 (Two-Lane) (12 responses)
- Alternative 1 (No-Build) (5 responses)

**Question 2:** In the area of Legion Park and the City of Boulder Open Space (top of the hill), both cut slopes and retaining walls are being considered. Cut slopes would require a larger construction impact area affecting more vegetation and trees, while retaining walls would be up to 20-23' tall. Which do you prefer?

- Cut Slopes (43 responses)
- Retaining Walls (18 responses)

**Question 3:** What pedestrian improvements should be incorporated between Westview and 75th?

- 12' Multi-Use Path (44 responses)
- None (10 responses)
- 8' Sidewalk (8 responses)

## **General Comments**

- SH 7 should be improved further east than 75<sup>th</sup> (to 95<sup>th</sup> or SH 287) (19 comments)
- Concerns at Westview (15 comments)
  - *Left turn in/out of Westview difficult. (5 comments)*
  - *Widen Westview to incorporate a right turn only lane. (4 comments)*
  - *Consider signal at Westview. (3 comments)*
  - *Connect Westview to the signal at Votec. (3 comments)*
- Pedestrian/Bicycle Improvements (7 comments)
  - *Happy Bicycle lanes/facilities have been incorporated into the project. (4 comments)*
  - *Multi-use path should be fine crusher gravel. (1 comment)*
  - *Sidewalks should be continuous on both sides throughout the alignment. (1 comment)*
  - *Add "Yield to Bikes" signs to right-merge lanes so that motorists will yield to straight-thru cyclists and continue bike striping through intersections. (1 comment)*
- Project is overdue. (7 comments)
- Comments regarding other modes of travel (5 comments)
  - *In favor of rail and multi-modal use. (1 comment)*
  - *Provide bus priority lanes. (1 comment)*
  - *Bus lane at 63<sup>rd</sup> eastbound should be incorporated. (2 comments)*
  - *Bus lane at 63<sup>rd</sup> eastbound not needed. (1 comments)*

- Property impact concerns (4 comments)
  - *Myron property has row of trees they were forced to plant and want to be saved. (1 comment)*
  - *The improvements are encroaching on the detention pond on the Conway property. There is a septic tank next to the detention pond. (1 comment)*
  - *Concern that rail will move closer to Tenenbaum property. (1 comment)*
  - *Right in/right out a concern for business access. (1 comment)*
- Concern regarding walls. (4 comments)
  - *Graffiti will be a problem if walls are built. (2 comments)*
  - *Concerned about aesthetics of walls. Possibly incorporate birds in the area on them. (1 comment)*
  - *Concern with sight restrictions and icing problems from shadow. (1 comment)*
- High traffic speed is a concern. (4 comments)
- Don't significantly lower roadway at highpoint (Legion Park) (4 comments)
- Concern regarding trees. (3 comments)
  - *Save as many trees as possible and replace trees that are removed. (1 comment)*
  - *Take down trees at 75<sup>th</sup>. (1 comment)*
  - *Sad cottonwoods are being taken down in vicinity of 75<sup>th</sup> St. (1 comment)*
- Noise is a concern. (3 comments)
- Turn in/out of Park Lake is a concern signal and/or turn lanes should be considered. (3 comments)
- Concern about light pollution. (2 comments)
- Concern about access/congestion during construction. (2 comments)
- Narrowing to 2-lanes will cause a bottleneck. (2 comments)
- Cut slopes appear more natural/rural. Trees can be re-grown. (2 comment)
- Horse crossing of SH7 (possibly below SH 7at Enterprise Ditch) is needed. (2 comments)
- Maintain rural character of road. (No sidewalks/city trees) (2 comments)
- SH7 should not be 4-lanes at 95<sup>th</sup>. (1 comment)
- Left turn signal for east-bound traffic at 63<sup>rd</sup> should only operate at the beginning of the cycle and not stop west-bound traffic. (1 comment)
- Consider impact on SH7 of new housing east of SH 287 (1 comment)
- Lane merge at Cherryvale and 55<sup>th</sup> are confusing. More signage would be helpful. (1 comment)
- Both build plans are too wide. Arapahoe Road in the City should be narrowed. (1 comment)
- SH7 does not warrant cost and impacts of widening. (1 comment)
- CDOT should have more public outreach instructing people how to use merge lanes and drive in snow. (1 comment)
- Votec school should have only one entrance due to near accidents. (1 comment)
- City/county parks should pay for multi-use path. (1 comment)
- Willow and Arapahoe needs turn lanes. (1 comment)



# Welcome to the State Highway 7 Environmental Assessment Study Open House

## Purpose of the Open House

- Ø Introduce the Project Team and Purpose for the Study
- Ø Describe the National Environmental Policy Act (NEPA) Process
- Ø Share Potential Environmental Impacts and Identify Critical Issues and Constraints
- Ø Present Alternatives to be Analyzed in the Environmental Assessment Including the Preferred
- Ø Solicit Public Feedback on Selected Alternatives
- Ø Outline “What’s Next” in the Process

# Project Location and Study Area

SH 7

Cherryvale Rd. to 75th St.



# Project Purpose and Need

## The purpose of the project is to:

- Serve the population and employment growth in the surrounding communities
- Improve traffic operational efficiency
- Improve safety conditions



- Upgrade outdated transportation facilities
- Improve mobility for multiple modes of transportation (pedestrian, bicycle, transit)

## The following deficiencies and problems identify the need to develop solutions to the SH 7 transportation system:

- CDOT and local jurisdictions have identified SH 7 is an important commuter and intra-regional arterial roadway.
- Traffic volumes are expected to increase 48% between 2001 and 2025 due to regional growth.
- There is insufficient capacity to meet current and future projected traffic volumes along the corridor.



- SH 7 is currently experiencing poor operating traffic conditions in the peak hours resulting in delays and long queues at signalized intersections. Future traffic growth is expected to increase these delays and queues.
- Accident history indicates congestion and access issues based upon the high percentage of intersection related crashes.
- There is a lack of adequate pedestrian, bicycle and bus stop facilities along the corridor.
- Driveway locations are poorly controlled and located.
- The out-dated highway does not meet the current standards and needs for this classification of roadway.
- Bus service along the corridor is adversely impacted by poorly operating traffic conditions, leading to delay.
- Future population and employment growth serving the communities of Lafayette, Louisville, Erie and Boulder result in increased commuter roadway needs.

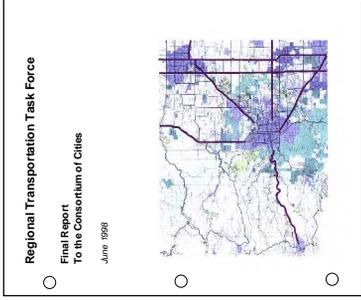


# Summary of Previous Work

## SH 7 Cherryvale Rd. to 75th St.

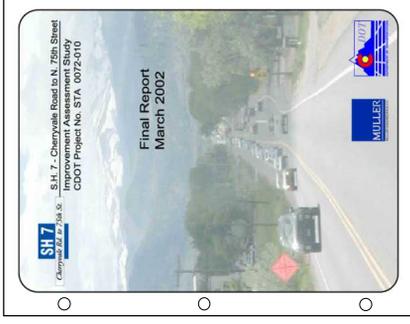
### Regional Transportation Task Force Final Report (1998)

The Boulder County Regional Transportation Task Force completed a study in 1998, which evaluated the increasing traffic congestion along six major regional corridors, including SH 7. The Final Report recommended intersection and transit improvements to SH 7.



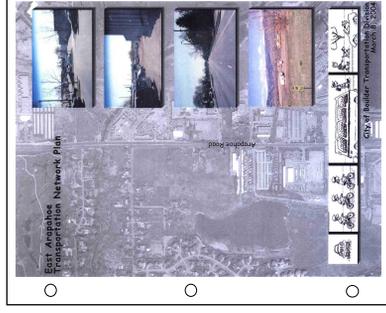
### SH 7 Improvement Assessment Study (2002)

CDOT initiated a feasibility study in 2001 to evaluate improvement alternatives to SH 7 between Cherryvale Road and 75th Street. The study, completed in March 2002, identified an improvement project to be designed and constructed at the 75th intersection and also identified conceptual improvements to the remainder of the corridor.



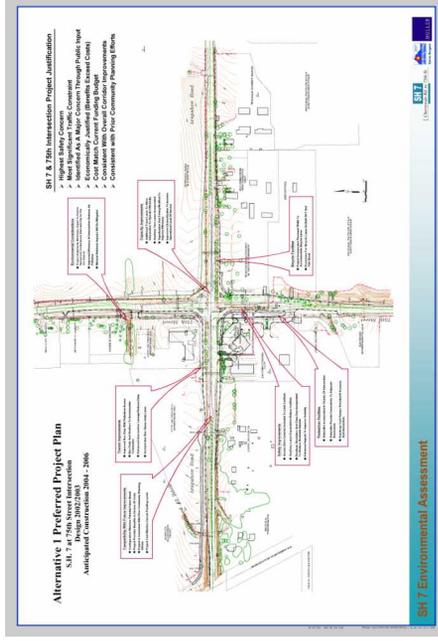
### East Arapahoe Transportation Network Plan (2004)

The City of Boulder developed a network plan for Arapahoe Road (SH 7) in 2004 that defines transportation improvements for all modes of travel. The plan identified proposed multi-use paths and sidewalks, on-street bike lanes and transit improvements for SH 7 east of Cherryvale Road.



### SH 7 & 75th Intersection Improvements (2003-2004)

Following the recommendations of the SH 7 Improvement Assessment Study, CDOT has undertaken the design of improvements to the SH 7 and 75th Street Intersection. CDOT is completing the design and anticipates construction to begin in the Spring of 2005 on these comprehensive, multi-modal improvements to the intersection of SH 7 and 75th Street.



# What is NEPA?

SH 7

Cherryvale Rd. to 75th St.

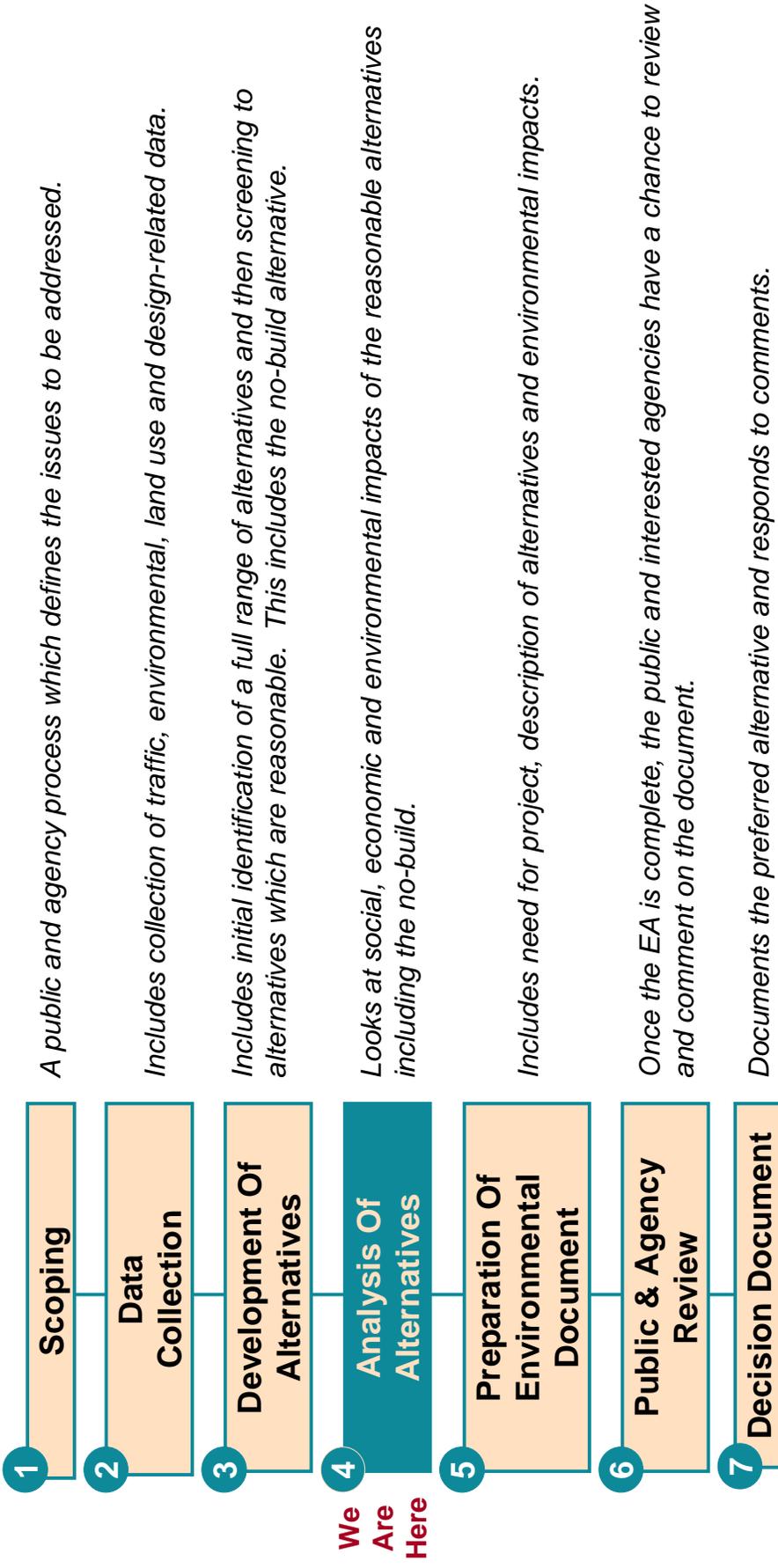
- **National Environmental Policy Act of 1969**
- **Directs Federal agencies to conduct environmental reviews for proposed actions**
- **Must consider potential impacts that the action will have on the social, economic and physical environment**
- **Fundamental objectives include interagency cooperation and public participation**
- **Potential project impacts and mitigation measures must be documented**
- **There are three levels of NEPA documentation**
- **The SH 7 project is an Environmental Assessment (EA)**

# Environmental Assessment Process

SH 7

Cherryvale Rd. to 75th St.

**An Environmental Assessment (EA) process consists of the following steps:**



# Contents of an Environmental Assessment

SH 7

Cherryvale Rd. to 75th St.

- **Define Purpose & Need**
- **Build Alternatives & No-Build Alternative**
- **Land Use**
- **Social**
- **Environmental Justice**
- **Air Quality**
- **Economic (business considerations)**
- **Pedestrians and Bicycles**
- **Visual Resources**
- **Right-of-Way**
- **Parks and Recreation**
- **Hazardous Materials**
- **Noise**
- **Water Resources/Quality**
- **Wetlands**
- **Wildlife/Fisheries**
- **Floodplains**
- **Construction Impacts**
- **Threatened & Endangered Species**
- **Historical & Archaeological**
- **Farmland**
- **Cumulative Impacts**

# Where We Are in the Process and Why

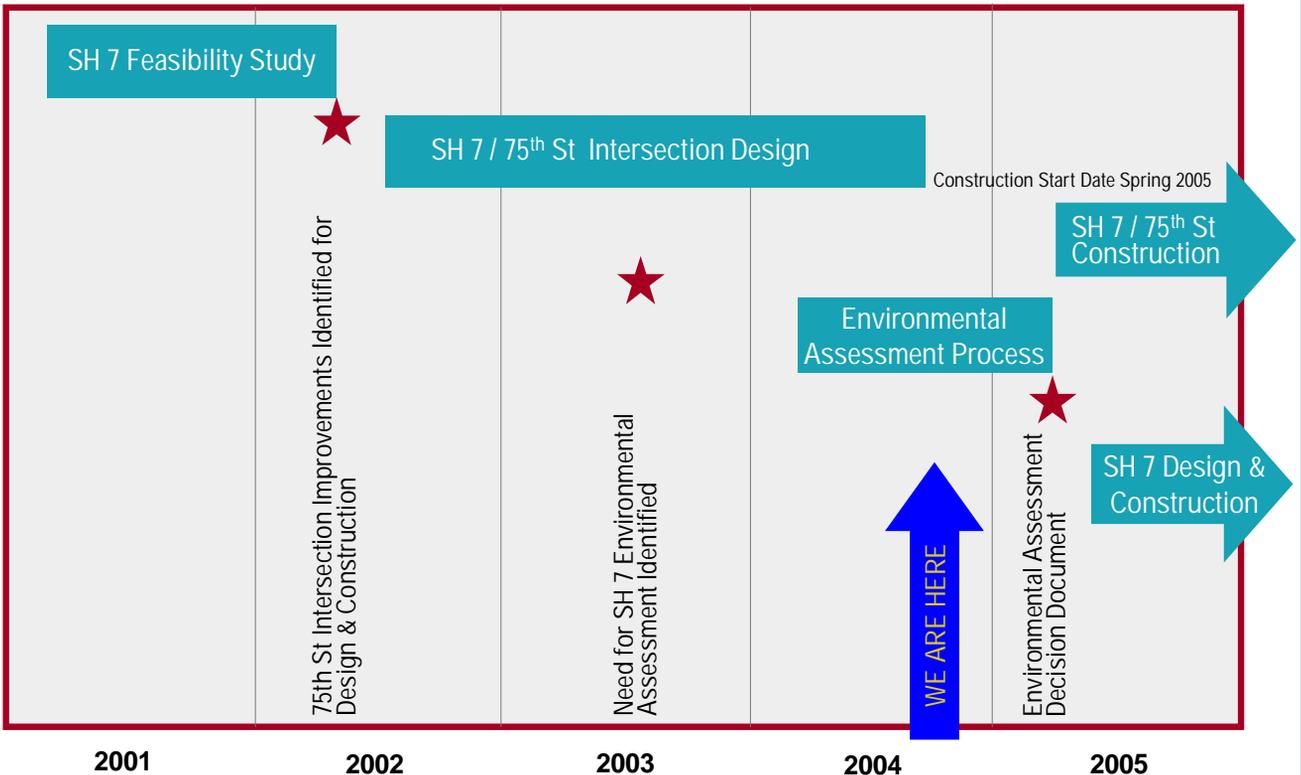
CDOT initiated a **process** in 2001 to **evaluate, identify, design and construct** improvements to SH 7.

ü The **first** step of the CDOT **process** produced a feasibility study that evaluated alternatives and identified initial improvements based upon the highest need. The intersection of SH 7 and 75<sup>th</sup> Street was identified to be designed and constructed.

ü The **second** step of the CDOT **process** resulted in the design of comprehensive, multi-modal improvements to the SH 7 and 75<sup>th</sup> Street intersection. The design is close to completion and construction of these improvements is anticipated to begin in Spring 2005.

ü The on-going CDOT evaluation **process** of SH 7 has identified an additional step requiring that enhancements to the SH 7 corridor between Cherryvale Road and 75<sup>th</sup> Street be developed and evaluated to determine if significant environmental or social impacts are anticipated to result from possible improvements. The current Environmental Assessment (EA), following NEPA requirements, will evaluate these impacts.

q Should a “build” alternative be identified through the EA process, CDOT anticipates designing and constructing improvements to SH 7 between 2005 and 2008.



■ Study / Design / Construction Process  
 ★ Decision Point

## What We Need From You

**Provide Your Comments** – As you proceed through the presentation graphics, be sure to complete the Comment sheets. This will give CDOT direct feedback on what you think about the project and the presented alternatives.



**Ask Questions** – Representatives from CDOT and the design team are here to answer your questions.



**Share Your Comments** – The main reason for this open house is for CDOT and the design team to get your feedback on the alternative design concepts. Please share your thoughts and take a few minutes to fill out a Comment Sheet.



# Roadway Evaluation Criteria Matrix

## State Highway 7 Environmental Assessment DRAFT Short-Listed Alternatives Evaluation Summary 11/5/2004

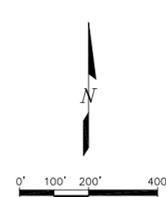
(Includes Preferred BNSF RR Alternative 3)

Issues	Improvement Alternatives		
	Alt. 1	Alt. 2	Alt. 3
	No Action	Four-Lane Urban with Transit Lanes West of 63rd, 4-Lane Urban to Votec, 2-Lane Rural to 75th Improvements	Four-Lane Section with Transit Lanes West of 63rd , Urban West of Westview, Rural East of Westview.
<b>Transportation Issues</b>			
Traffic Operations			
63rd and BVSD Intersection (Signalized Intersection-LOS)	C	B	B
Road Segment Cherryvale to BVSD (LOS)	F	C	C
Road Segment BVSD to 75th (LOS)	E	E	C
Travel Time 75th to Cherryvale	6 min.	5 min.	5 min.
Safety	Substandard Shoulders, Sight Distance, Acceleration and Deceleration lanes	Improved Geometry, Sight Distance and Access Management	Improved Geometry, Sight Distance, Access Management, and Reduced Potential Vehicle Conflicts
Pedestrian and Bicycle Enhancements	None	Add Sidewalks Add Bike Lanes	Add Sidewalks Add Bike Lanes
Transit Enhancements	No	Yes Improved Stops and Accessibility, Bus Priority Features Incorporated	Yes Improved Stops and Accessibility, Bus Priority Features Incorporated
<b>Community Issues</b>			
Owner / Business Relocations	0 Residential 0 Business	2 Residential Mobile Homes 2-3 Business	2 Residential Mobile Homes 2-3 Business
Right-of-Way Impacts	0 Buildings 0 Parcels	4-5 Buildings 27 Parcels	4-5 Buildings 27 Parcels
Impact to Low Income or Minority Populations	None	60' Width ROW Take	60' Width ROW Take
Access from Adjacent Properties	Poor	Fair All Warranted Auxiliary Lanes Incorporated	Good All Warranted Auxiliary Lanes Incorporated, Additional Laneage Provides Additional Opportunities
Compatible with Local Planning (RTTF and East Arapahoe Transportation Network Plan)	No	Yes	Partial
Compatible with Regional Planning (DRCOG)	No	Yes	Partial
Public Support	Generally Unsupported	Generally Favored Over No Action	Generally Preferred
<b>Environmental Issues</b>			
Wetlands	0 Acres	0.06 Ac Jurisd. 0.38 Ac Non-Jurisd.	0.06 Ac Jurisd. 0.38 Ac Non-Jurisd.
Noise	0 Receptors Impacted	3-4 Receptors Impacted	3-4 Receptors Impacted
Air Quality	No Improvement	Some Improvement	Most Improvement
Historic Resources	0 Properties Adversely Impacted	1-2 Properties Adversely Impacted	1-2 Properties Adversely Impacted
Section 4 (f)	0 Properties Adversely Impacted	1-2 Property Adversely Impacted	1-2 Property Adversely Impacted
Endangered Species	None	None	None
Wildlife	None	Minimal	Minimal
Visual Impacts	None	Potential 20' Walls Over Hill or Slope Impacts w/Removal of Trees 60' Pvm. Width Over Hill	Potential 23' Walls Over Hill or Slope Impacts w/Removal of Trees 84' Pvm. Width Over Hill
<b>Implementation Issues</b>			
Cost	\$0 M	\$19 M*	\$21 M*
Maintenance	Poor	Good	Good
Ease of Construction	No Construction	Constructable	Constructable
<b>Overall Rating</b>		<b>Good</b>	<b>Preferred</b>

\*Preliminary Estimates (For Comparative Purposes)

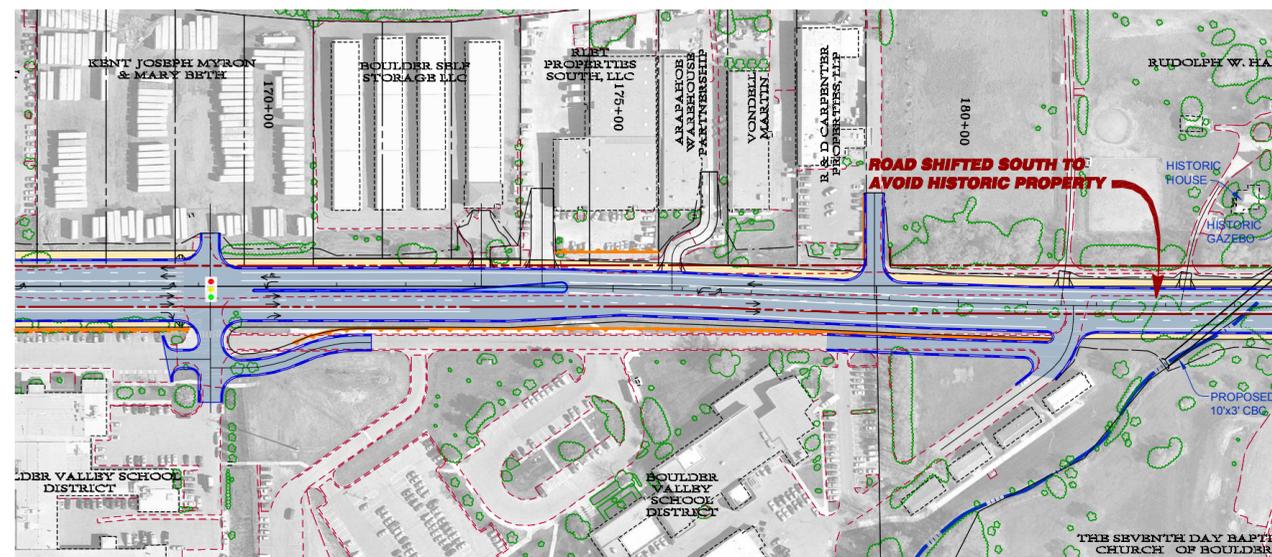
# STATE HIGHWAY 7 POSSIBLE IMPROVEMENT ALTERNATIVES

## CHERRYVALE ROAD TO 75TH STREET

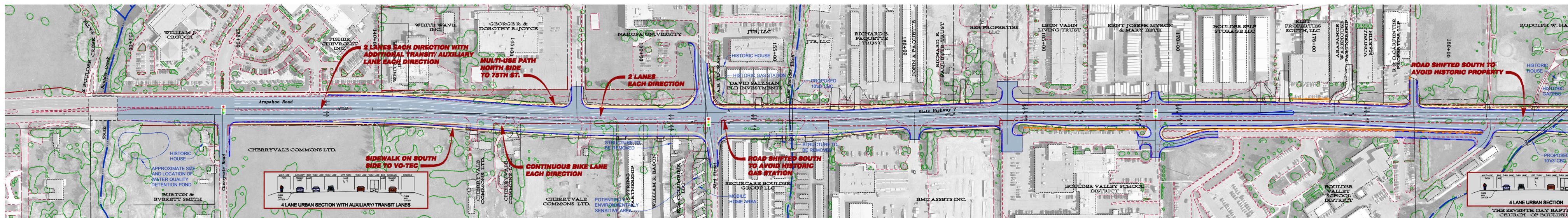


- Legend**
- RIGHT-OF-WAY
  - EXISTING EDGE OF PAVEMENT
  - EXISTING DITCH
  - EXISTING VEGETATION
  - PROPOSED IMPROVEMENTS
  - PROPOSED CURB AND GUTTER
  - PROPOSED LANE STRIPING
  - SIDEWALK/ TRAIL
  - PROPOSED RETAINING WALL
  - SIGNALIZED INTERSECTION

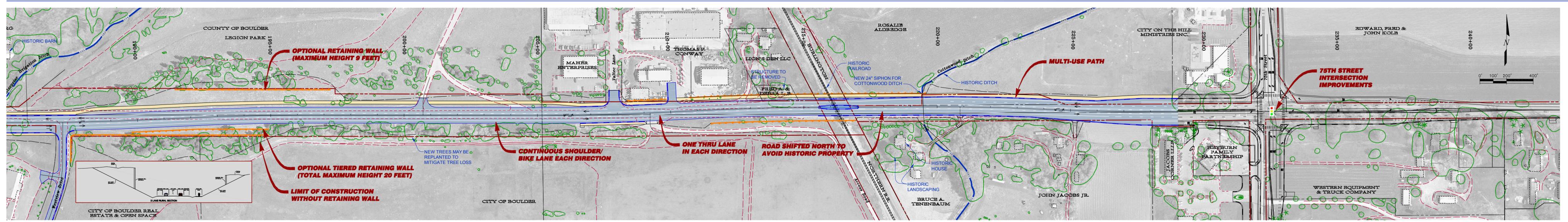
←  
ALTERNATIVE 2  
AND 3 ARE  
IDENTICAL WEST  
OF VOTEC ENTRANCE  
←



**ALTERNATIVE 2**  
TWO LANE SECTION (ONE IN EACH DIRECTION) WITH TURN LANES FROM VOTEC TO 75TH IMPROVEMENTS

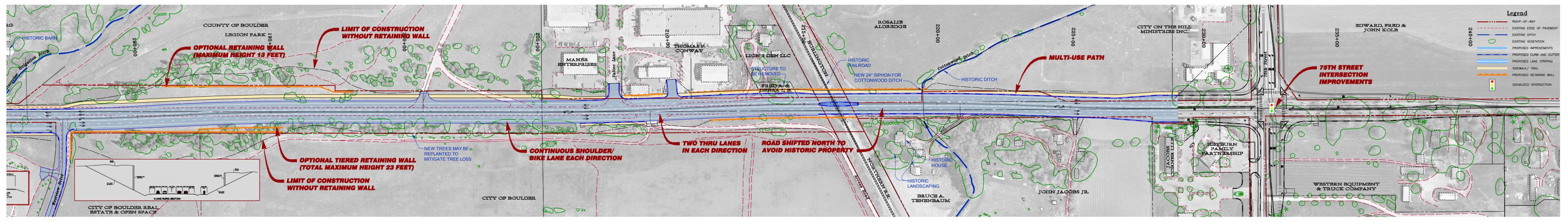


**ALTERNATIVE 3 (PREFERRED)**  
FOUR LANE SECTION (TWO IN EACH DIRECTION) WITH TURN LANES



**ALTERNATIVE 2**

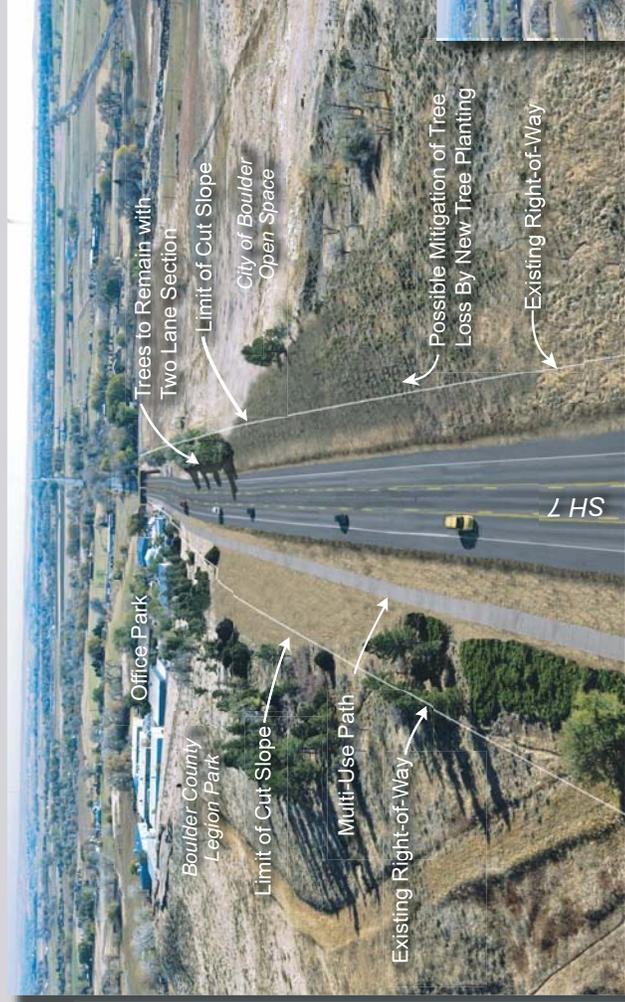
TWO LANE SECTION (ONE IN EACH DIRECTION) WITH TURN LANES FROM VOTEC TO 75TH IMPROVEMENTS



**ALTERNATIVE 3 (PREFERRED)**

FOUR LANE SECTION (TWO IN EACH DIRECTION) WITH TURN LANES

# PHOTO SIMULATION OF ALTERNATIVE 2 TWO-LANE SECTION



**View Over the Hill With Cut Slopes**



**View Over the Hill With Retaining Walls**

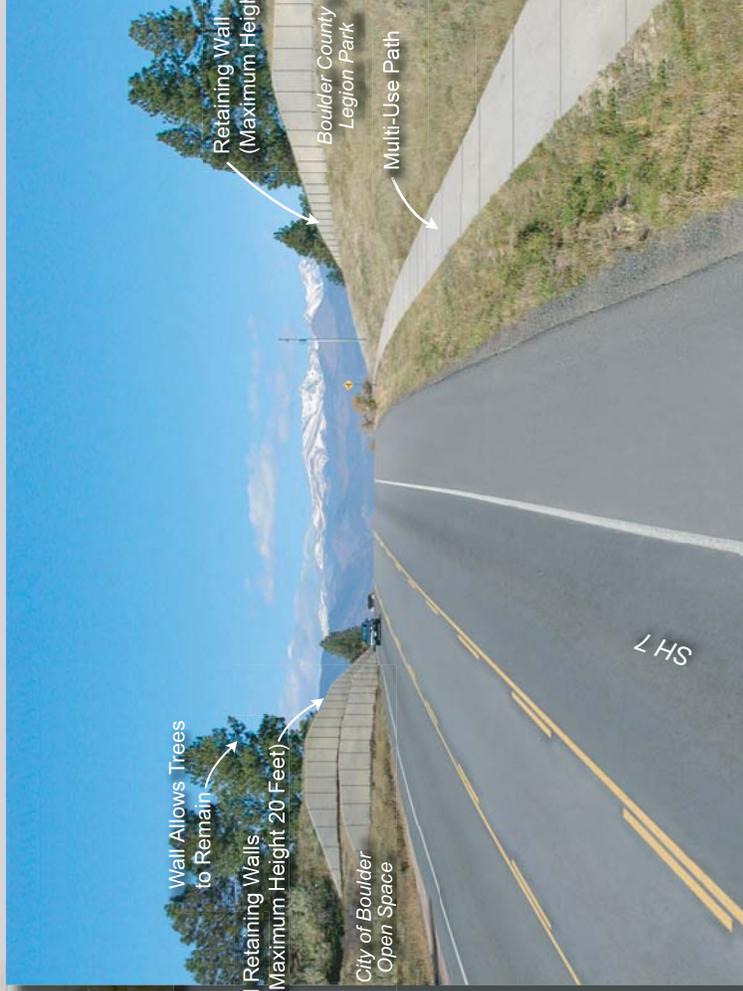


**Existing View of SH 7  
From Westview Looking East**

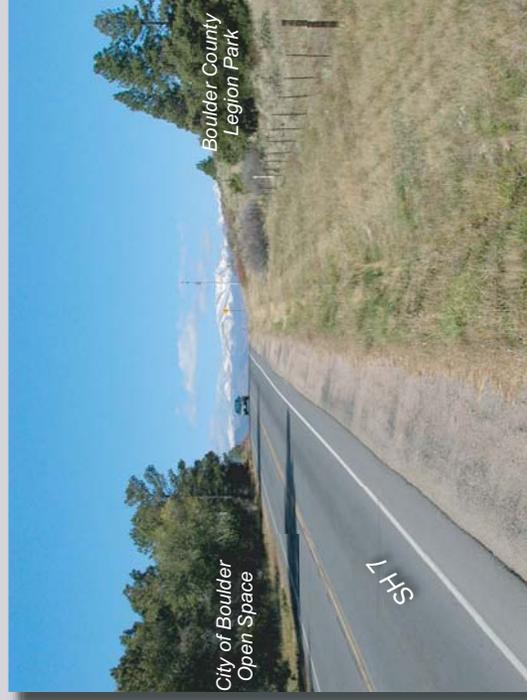
# PHOTO SIMULATION OF ALTERNATIVE 2 TWO-LANE SECTION



**View Over the Hill with Cut Slopes**

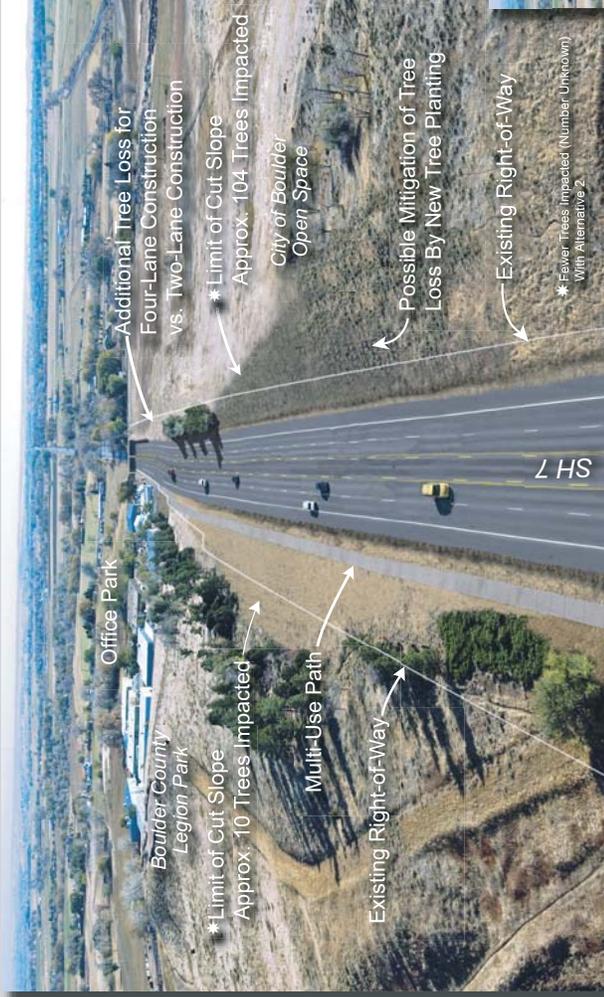


**View Over the Hill with Retaining Walls**



**Existing View of SH 7  
Looking West**

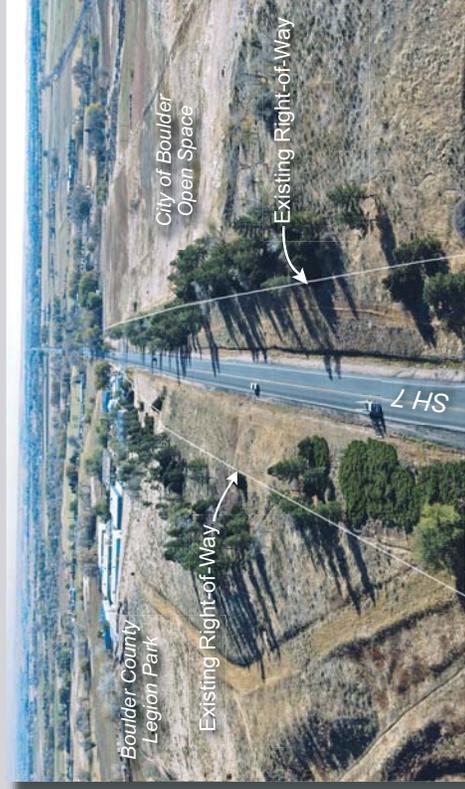
# PHOTO SIMULATION OF ALTERNATIVE 3 (PREFERRED) FOUR-LANE SECTION



View Over the Hill With Cut Slopes

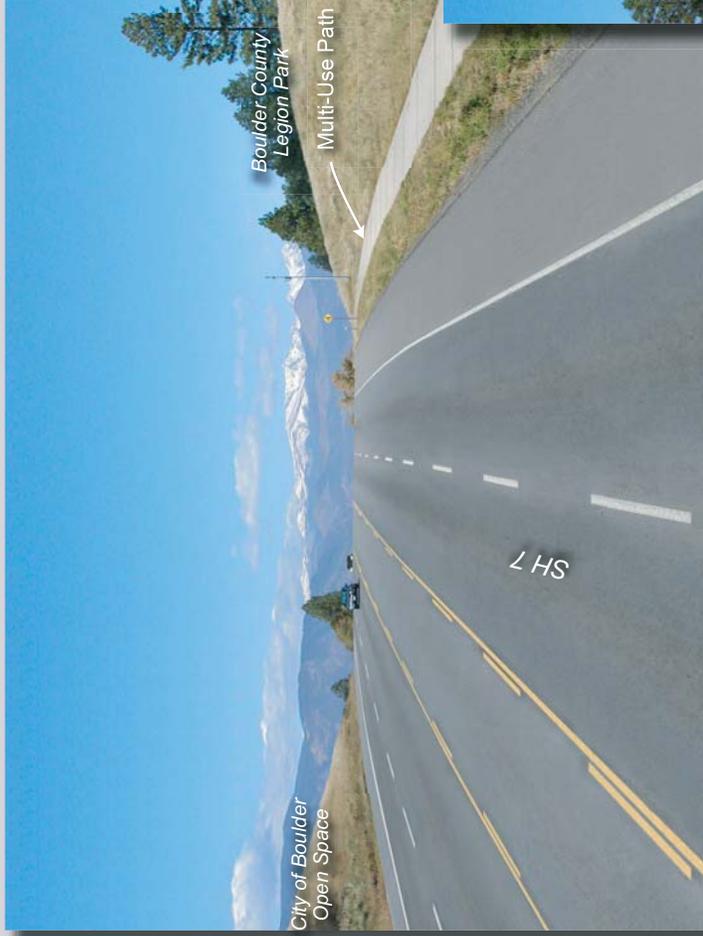


View Over the Hill With Retaining Walls

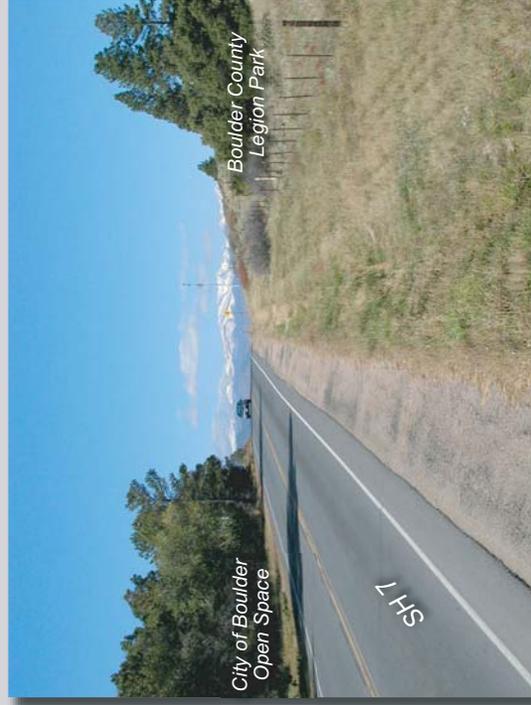


Existing View of SH 7 From Westview Looking East

# PHOTO SIMULATION OF ALTERNATIVE 3 (PREFERRED) FOUR-LANE SECTION



View Over the Hill With Cut Slopes

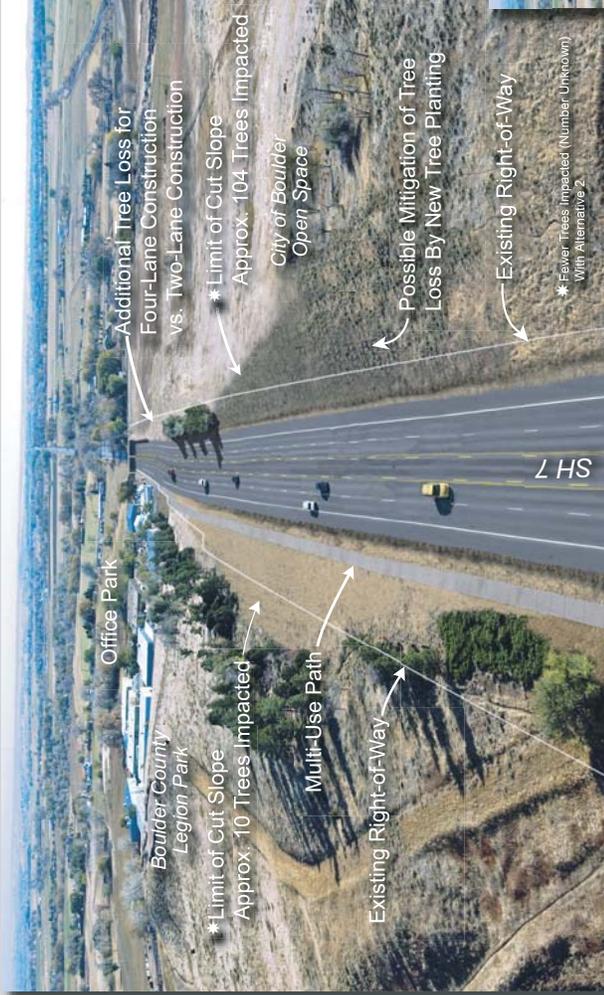


Existing View of SH 7  
Looking West

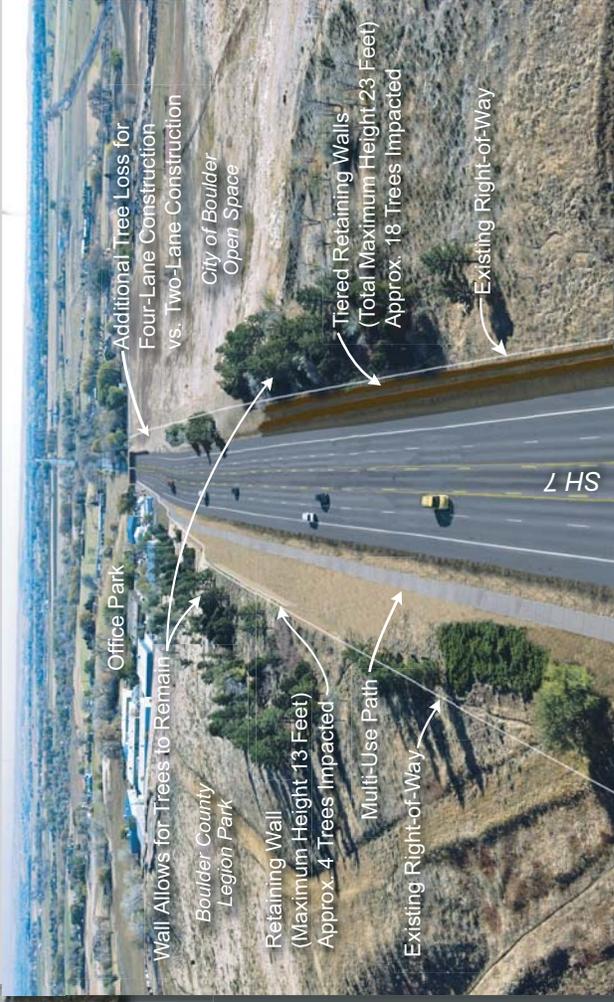


View Over the Hill With Retaining Walls

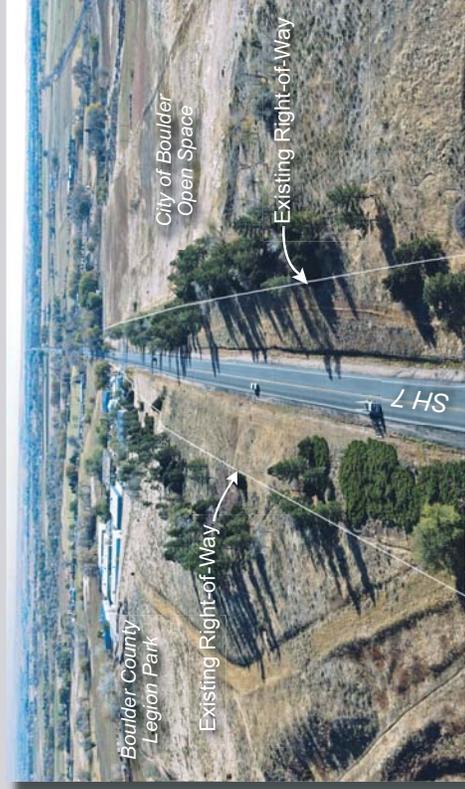
# PHOTO SIMULATION OF ALTERNATIVE 3 (PREFERRED) FOUR-LANE SECTION



View Over the Hill With Cut Slopes



View Over the Hill With Retaining Walls



Existing View of SH 7 From Westview Looking East

# Railroad Evaluation Criteria Matrix

## State Highway 7 Environmental Assessment DRAFT Railroad Alternatives Evaluation Summary 11/5/2004

Issues	Railroad Alternatives		
	Alt. 1	Alt. 2	Alt. 3
	No Action	Re-build on Existing Alignment	Realign Tracks East
<b>Transportation Issues</b>			
Highway Safety	Poor	Good	Good
<b>Community Issues</b>			
Right-of-Way Impacts	0 Parcels	0 Parcels	2-3 Parcels Temp. Emt.
<b>Environmental Issues</b>			
Wetlands	0 Acres	0.03 Ac Jurisd. 0.16 Ac Non-Jurisd.	0.03 Ac Jurisd. 0.16 Ac Non-Jurisd.
Noise	0 Receptors Impacted	0 Receptors Impacted	1 Receptor Impacted
Historic Resources	0 Properties	0-1 Property	1-2 Property
Section 4(f)	0 Properties	0-1 Property	1-2 Property
Endangered Species	None	None	None
Wildlife	None	Minimal	Minimal
<b>Construction Issues</b>			
Cost	\$0 M	\$2.8 M*	\$2.1 M*
Compatible with Viable Roadway Construction	Not Compatible	Compatible	Compatible
Constructability	No Construction	More Difficult to Construct	Less Difficult to Construct
<b>Overall Rating</b>		<b>Fair</b>	<b>Preferred</b>

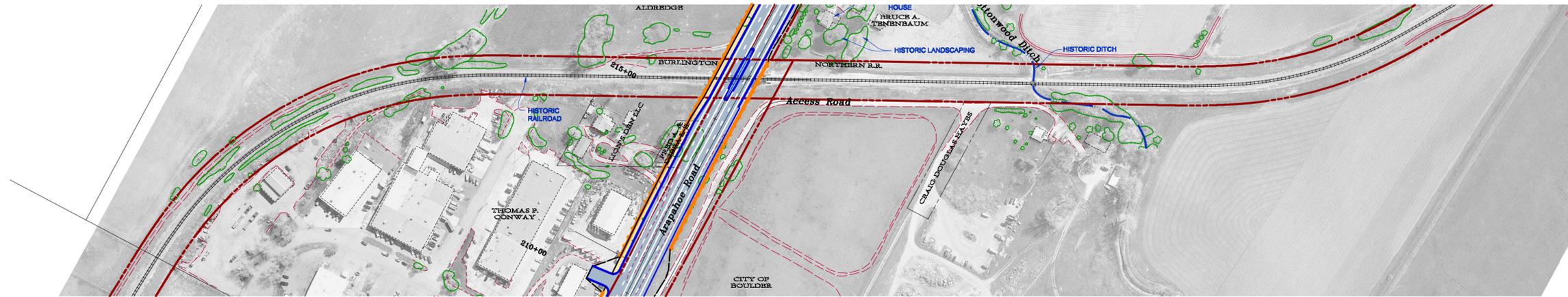
\*Preliminary Estimates (For Comparative Purposes)

# STATE HIGHWAY 7 POSSIBLE IMPROVEMENT OPTIONS

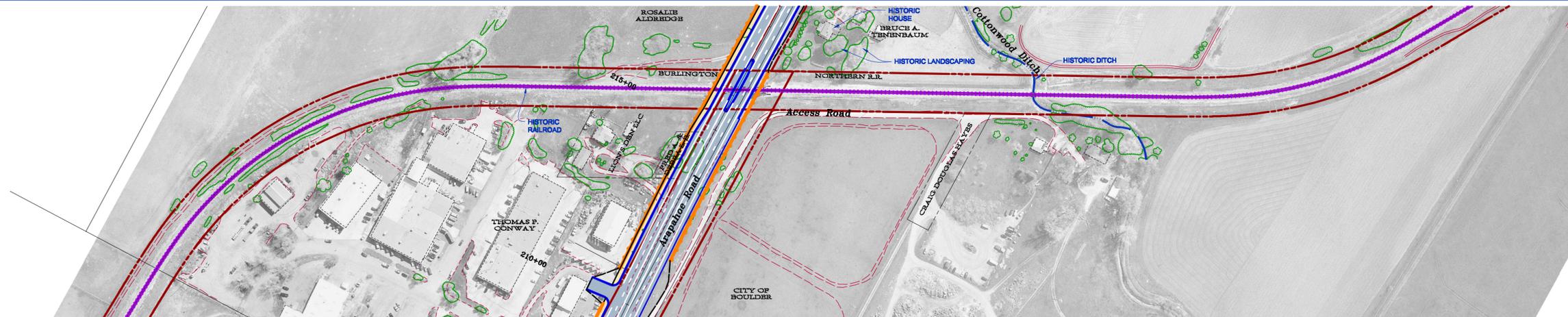
## BURLINGTON NORTHERN RAILROAD

**Legend**

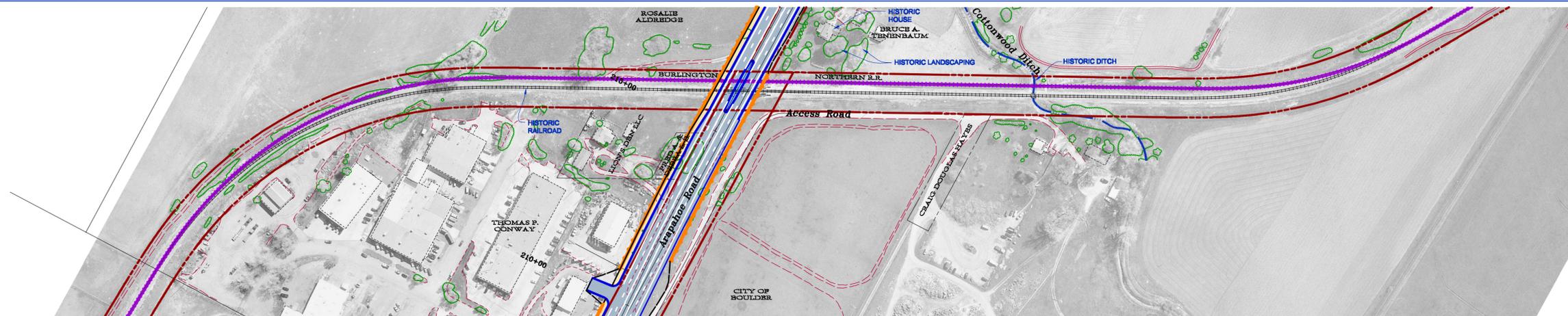
- RIGHT-OF-WAY
- - - EXISTING EDGE OF PAVEMENT
- EXISTING DITCH
- - - PROPOSED IMPROVEMENTS
- PROPOSED CURB AND GUTTER
- - - PROPOSED LANE STRIPING
- SIDEWALK/ TRAIL



**OPTION R-1**  
NO BUILD



**OPTION R-2**  
REBUILD EXISTING TRACK ALIGNMENT



**OPTION R-3**  
REALIGN TRACKS EAST OF EXISTING LOCATION

NAME: P:\01-021-06 SH 7 EA\dwg\selected alternatives\BOARD-RR.dwg DATE: NOV 09, 2004 TIME: 11:31 AM

# Park, Open Space or Recreation Sites Including Bike and Pedestrian Impacts

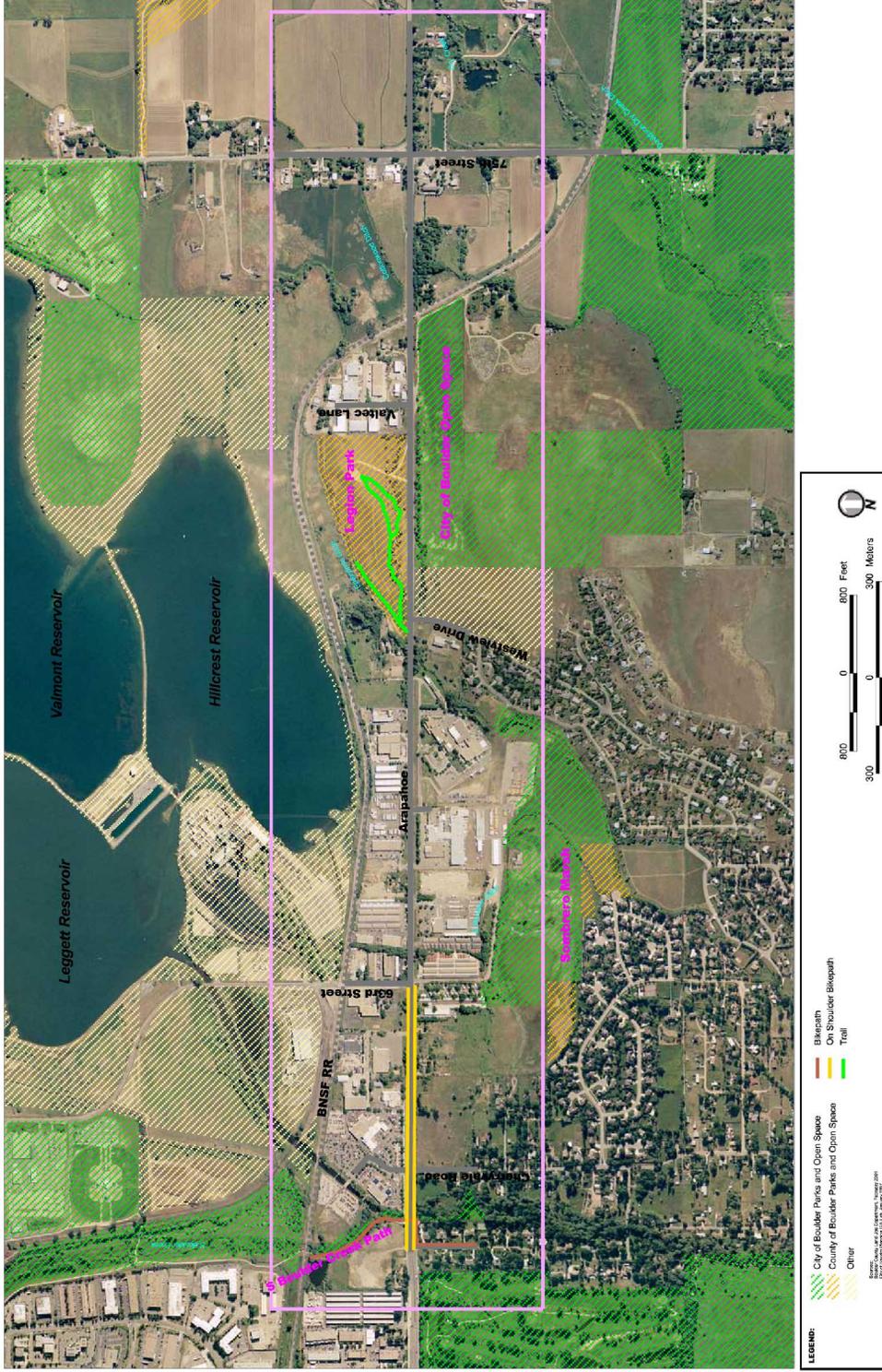
## SH 7

Cherryvale Rd. to 75th St.

There will be Bicycle and Pedestrian Improvements along entire corridor. There will be a 5-foot on-street bike lane. There will also be a multi-use path on the north side of SH 7 all through the project area and a sidewalk on the south side up to Westview.

There will be some vegetation and tree impacts to Legion Park and City of Boulder Open Space. In Legion Park, if walls are used, there will be approximately 4 trees impacted. If cut slopes are used, there will be approximately 10 trees impacted. In the City of Boulder Open Space, approximately 18 trees will be impacted if walls are used and approximately 104 if cut slopes are used. (Tree differences above are between walls and no walls, not between the 2-lane and 4-lane options.)

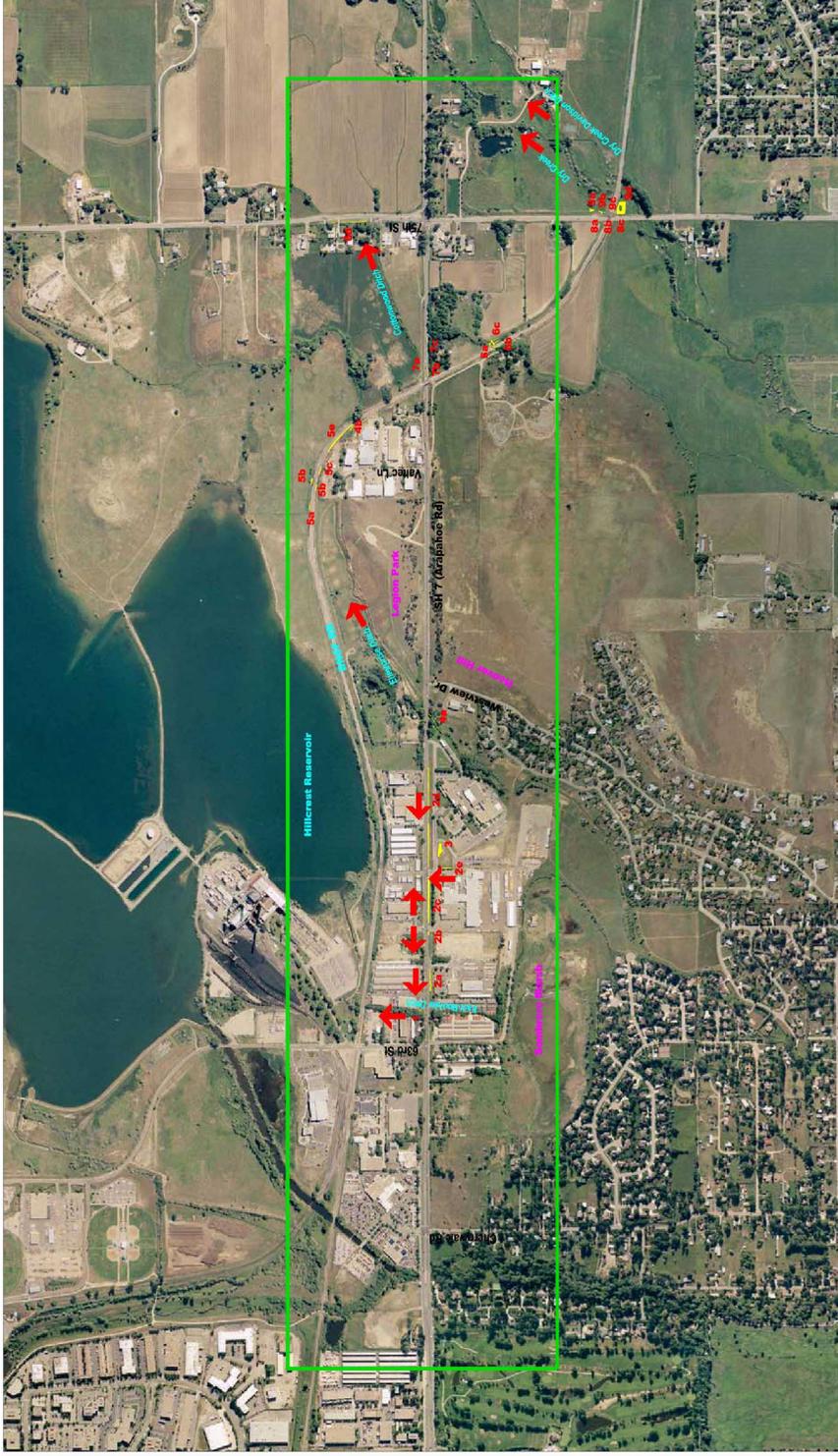
Temporary construction easements of 0.5 acres for the 2-lane option and 0.9 acres for the 4-lane option will be required if cut slopes are used in Legion Park. If a retaining wall is constructed, there will be no impacts to Legion Park. No park facilities or amenities will be impacted with either option.



# Wetlands

## SH 7

Cherryvale Rd. to 75th St.



**LEGEND:**

- Wetlands within highway and proposed public lands
- Direction of Flow
- 1 East Boulder Ditch
- 2 Roadside Ditches
- 3 Dismont Bluffs
- 4 Enterprise Ditch, west
- 5 Adjacent to railroad
- 6 Cowanwood Ditch, east
- 7 SH 7 east of Hoover Hill
- 8 Enterprise Ditch, east
- 9 Dry Creek, east of SH 7

Scale: 0 to 800 Feet / 0 to 300 Meters

North Arrow

### Wetland Impacts

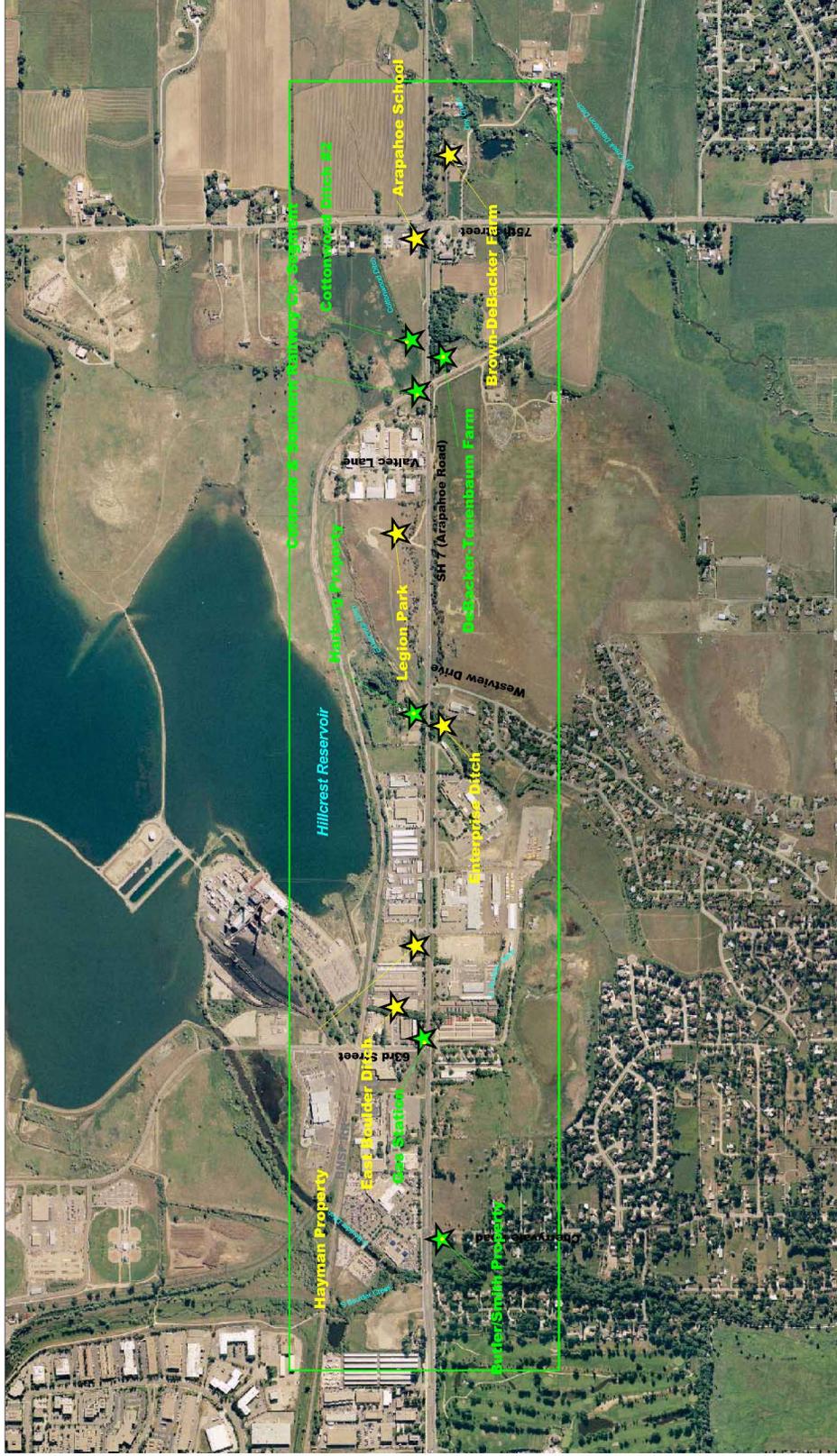
The following wetlands will potentially be impacted by the roadway Preferred Alternative: 1, 2a, 2b, 2c, 2d, 2e, 4a, 4b, 5a, 5d, 5e, 6a, 6b, 6c, 7a, 7b, 7c

The following wetlands will potentially be impacted by the railroad Preferred Alternative: 4b, 5a, 5b, 5c, 5d, 5e, 6a, 6b, 6c

# Historic Resources

SH 7

Cherryvale Rd. to 75th St.



**LEGEND:**

- ★ Field Eligible National Historic Resources
- ★ Field Eligible Local Historic Resources

Source: State Historic Preservation Office, Field Review, 2001

N

0 300 600 Feet

0 300 Meters

# POTENTIAL IMPACTS TO LOCALLY AND STATE ELIGIBLE PROPERTIES

CDOT Project # STA0072-013

State Highway 7 EA (Arapahoe Rd.) - Cherryvale to 75<sup>th</sup>

SH 7

Cherryvale Rd. to 75th St.

SITE NO.	NAME & ADDRESS	POTENTIAL IMPACTS
5BL9022	Hayman Bungalow 1930/ Stone Garage ca. 1940s 6437-39 Arapahoe Rd.	Locally eligible. This house was demolished in August 2004 (and possibly the garage) and will not be impacted by this project.
5BL516	Goodview Hill-Veteran's Memorial Park 1931 Arapahoe Rd.	State & Locally eligible. The recreational use of the property will not change with the widening of Arapahoe Rd. There may be a new slope along the widened roadway that will be replanted with similar vegetation. Some trees will be removed
5BL409	Arapahoe Elementary School 1927 7483 Arapahoe Rd.	State & Locally eligible. The school building and the property will not be impacted by this project.
5BL5712	Brown-DeBacker Farm 1900 7602 Arapahoe Rd.	Locally eligible. This property will not be impacted by this project.
5BL4164.2	Enterprise Ditch 1860 East of 6775 Arapahoe Rd.	Locally eligible. The widening of Arapahoe Rd. will have minimal impact to the ditch. There will be a new concrete box culvert and concrete headwalls and wingwalls on the north and south side of Arapahoe where the ditch will go under the widened road. The existing siphon beneath the BNSF railroad (north of Arapahoe Road) may need to be reconstructed.
5BL4163.2	East Boulder Ditch 1862 Through property at 6338 Arapahoe Rd.	Locally eligible. Minimal impacts to this ditch from the widening of Arapahoe Rd. There will be a new concrete box culvert and concrete headwalls and wingwalls on the north and south side of Arapahoe where the ditch will go under the widened road.

# POTENTIAL IMPACTS TO NATIONAL REGISTER ELIGIBLE PROPERTIES

## CDOT Project # STA0072-013 State Highway 7 EA (Arapahoe Rd.) - Cherryvale to 75<sup>th</sup>

SH 7

Cherryvale Rd. to 75th St.

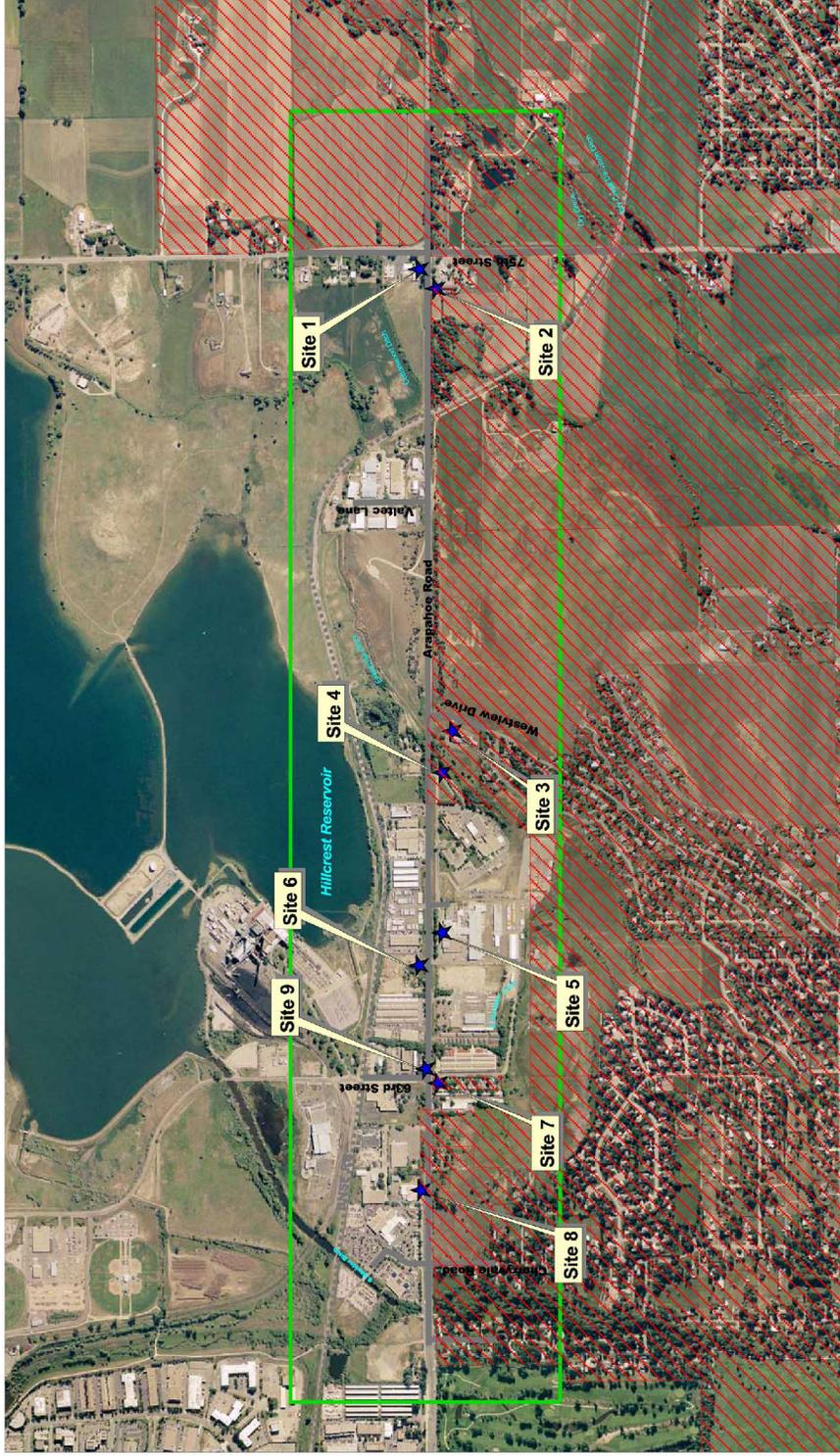
This information has not yet been submitted to SHPO for concurrence with the findings, but will be submitted when the final alternatives are selected and the impacts to all of the properties are known. There has been no official determination of effects made for any of the eligible properties by the SHPO to comply with the regulations in Section 106 of the National Historic Preservation Act.

SITE NO.	NAME & ADDRESS	POTENTIAL IMPACTS
5BL8917	Butler-Smith Property (1880) 1599 Cherryvale Rd.	Arapahoe Rd. will be widened in front of the Butler-Smith House and additional vegetation will be removed. There will be no direct impact to the house or the barn and no impact to the qualities that made this property significant.
5BL9021	Gas Station (1920) and House 6307 (6301) Arapahoe Rd.	When Arapahoe Rd. is reconstructed, the corner of this property, which is currently paved and used as roadway, will continue to be used as a roadway. All other improvements to Arapahoe Rd. will occur to the south. The property was designated as a local landmark in 2004.
5BL9024	Harburg House w/Barn & Gazebo (1930) 6775 Arapahoe Rd.	When Arapahoe Rd. is widened some of the vegetation in the ROW will be removed, but will have no impact on the setting or direct impact on the Harburg property
5BL9029	DeBacker-Tenenbaum House (1913) 7280 Arapahoe Rd.	When Arapahoe Road is widened a retaining wall may be constructed along a portion of the roadway ROW, north of the DeBacker-Tenenbaum property, but will not have a direct impact to the landscaped setting or the buildings. The BNSF railroad may be realigned to be east of the existing location, but there will be no direct impact to the landscaped setting or the buildings.
5BL4488.2	Cottonwood Ditch #2 (1863) N. side Arapahoe to N. 75 <sup>th</sup>	Due to the widening of Arapahoe Rd., the siphon under the road and the concrete walls at the openings into the siphon will need to be reconstructed as well as the pipe under the road. The impact to the open portion of the ditch will be minimal.
5BL4488.3	Cottonwood Ditch #2 (1863) S. Side Arapahoe around 7280 Arapahoe	This segment has not been officially determined eligible, but it is field eligible and it crosses under the railroad south and west of the DeBacker-Tenenbaum property. The BNSF realignment may require a new bridge or pipe to be constructed over the Cottonwood Ditch.
5BL400.5	Colorado and Southern Railway Company Segment. (1870s) N and S of Arapahoe Rd.	When the railroad bridge over Arapahoe Rd. is reconstructed the railroad bed will need to be moved to the east and a new bridge will be built. A portion of the existing railroad alignment will remain in place. (The existing bridge is officially not eligible.)

# Noise Monitoring Locations

**SH 7**

Cherryvale Rd. to 75th St.



(based on zoning)

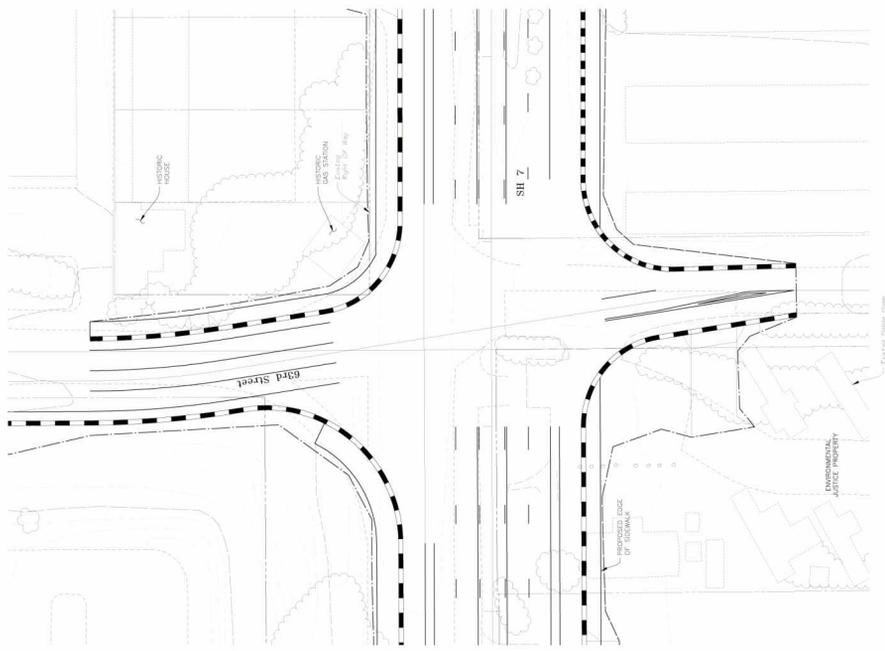
There is the potential for an increase of 1 – 10\* decibels of traffic noise along the corridor. This analysis is in progress.

\*Worst-case scenario – a 10 decibel increase is unlikely

# Potential Impacts to Mobile Home Park

**SH 7**

Cherryvale Rd. to 75th St.



Improvements at SH 7 and 63rd Street would require about 60 feet of property from the Columbine Mobile Home Park. This would impact one structure. Access to the property would be changed as well. This could potentially impact a second property.

# Previous Comments and Opportunities for Involvement

## COMMENTS FROM THE JULY 2001, FEBRUARY 2002, AND JUNE 2004 PUBLIC OPEN HOUSES

The first **Public Open House** for the Environmental Assessment was held June 17, 2004. During the previously completed Improvement Assessment Study, two public open houses were held on July 11, 2001, at the Douglass Elementary School and on February 19, 2002 at the Platt Middle School. The purpose of the meetings was to obtain public feedback regarding needs for Improvements along the SH 7 corridor.

- q Approximately **71** people attended the June 2004 Open House
- q Approximately **56** people attended the February 2002 Open House
- q Approximately **79** people attended the July 1002 Open House
  
- q CDOT received **116** written comments and 2 emails. Of the responses collected:
  - Ø **64** respondents wanted **bicycle lanes** and facilities incorporated
  - Ø **43** respondents suggested **turn lanes** be added at intersections
  - Ø **33** respondents wanted SH 7 to be a **four-lane facility**
  - Ø **25** respondents noted that **signalization should be improved** at various intersections
  - Ø **21** respondents recommended **improvements to transit** facilities and service
  - Ø **19** respondents suggested **improved pedestrian facilities** be included
  - Ø **13** respondents were concerned with **traffic flow and congestion**

## OPPORTUNITIES FOR INVOLVEMENT

- q **Ask Questions and Provide Comments** – Discuss the Project with Project Personnel (with Name Tags)
- q **Fill out a Comment Sheet** – Put in the Comment Box or Mail In or Fax (970 350-2168) by November 30, 2004
- q **Email Comments** – Send Comments by Email to Carol Parr at: [carol.parr@dot.state.co.us](mailto:carol.parr@dot.state.co.us) by November 30, 2004

## What's Next ?

### Ø On-Going Environmental Assessment Process (2004 – Spring 2005)

- Completion of the Environmental Assessment
- Review and Approval by CDOT/FHWA (Spring 2005)
- Public Hearing Process to Obtain Final Comments from Public and Public Agencies
- Selection of Official Preferred Alternative
- Completion of Final Decision Document

### Ø Future Project Work

- Preliminary and Final Design (Anticipated 2005 – 2006)
  - ü Includes Public Open Houses to obtain Public Feedback on Design Issues
- Obtain Right-of-Way (Anticipated 2006 – 2007)
- Initiate Construction (Anticipated 2007 – 2008)