

# **Utilities Technical Memorandum**

## **New Pueblo Freeway**

CDOT Project No. IM 0251-156

Project Control No. 12831

**Colorado Department of Transportation**

February 2005

In some cases, information in this Environmental Technical Report may have been refined or updated as preparation of the DEIS advanced. In such cases, the information and conclusions presented in the DEIS supersede all previous background material included in this Technical Report.



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## Project Description

The Federal Highway Administration (FHWA), in cooperation with the Colorado Department of Transportation (CDOT), is preparing an Environmental Impact Statement (EIS) for the New Pueblo Freeway project, a proposal to improve a 7-mile segment of Interstate 25 (I-25) through Pueblo, Colorado. Improvements are necessary to address an outdated roadway and bridges with inadequate geometrics, safety issues, and existing and future traffic demand.

Alternatives under consideration include taking no action (No Action), reconstruction of the interstate on essentially the existing alignment (Existing I-25 Alternative), and reconstruction of the interstate on existing and new alignments (Modified I-25 Alternative). The alternatives are further described as follows:

- **No Action Alternative** - This alternative provides only for minor improvements, repairs, and other maintenance actions. The existing four-lane highway will otherwise remain unchanged.
- **Existing I-25 Alternative** - This alternative consists of reconstructing I-25 to six lanes on essentially the same location, reconfiguring and eliminating access points to the interstate to improve safety, and providing other improvements to the local street system to enhance system connectivity and traffic movement near the interstate.
- **Modified I-25 Alternative** - This alternative consists of rebuilding I-25 to six lanes and providing the other improvements included in the Existing Alternative, except the alignment would be shifted to accommodate different interchange configurations.

Transportation Management strategies and design variations of grade and alignment are incorporated into the build alternatives.

## Methods and Assumptions

The City of Pueblo shares the responsibility of providing municipal services to residential, commercial, and industrial areas along the I-25 corridor with other private, local, regional, and state agencies. For the purposes of this EIS, utilities include water, storm drainage, sanitary sewer, solid waste, phone, cable, fiber optic lines, irrigation ditches, oil, gas and electric infrastructure.

The types and general location of utilities in the corridor were identified by utility providers. Field survey measurements and potholing were not conducted as part of the EIS. The impacts of the proposed alternatives on existing utilities were assessed by working closely with CDOT and the utility providers in the corridor to identify potential utility conflicts. Available maps of existing utilities were collected from both public (water, sewer, storm sewer) and private (natural gas, electric, fiber optic, telephone, cable) entities and used to identify potential conflicts.

The alternatives evaluation and impact analyses were based on the GIS utility database developed early in the project. A map indicating the utility locations was overlaid with the

final alternative alignments and limits of construction. In cases where an alignment crossed a utility, a potential impact was noted.

Research was performed to determine the types and agencies providing public services in the corridor. As mentioned, close coordination with both CDOT and utility providers in the corridor was essential to identifying potential utility conflicts. Several meetings and telephone interviews with existing utility providers were conducted to ascertain the potential conflicts and to obtain the most current location and alignment of the utilities. While due diligence was performed to determine all of the known utility conflicts, the identification of those utilities that pre-date electronic record keeping and construction of the interstate were difficult to identify and locate. When the project goes into final design, funding will be available to conduct field surveys and potholing to determine the exact location of utilities.

The following public service and utility providers were researched and/or contacted:

- Aquila Electric (formerly WestPlains Energy)
- Bessemer Irrigating Company
- City of Pueblo Board of Water Works
- City of Pueblo Police Department
- City of Pueblo Public Works (Sanitary Sewer)
- Comcast
- MCI
- Pueblo County
- Pueblo County Department of Emergency Management
- Pueblo County Police Department
- Qwest Communications (fiber optic)
- Qwest Local Network (telephone)
- Rocky Mountain Steel Mills
- St. Charles Mesa Water
- State of Colorado Lottery (fiber optic)
- Touch America (fiber optic)
- Utility Notification Center of Colorado
- Xcel Energy (formerly Public Service Company of Colorado)

## Existing Conditions

### Water Service

Water services along the I-25 corridor are provided primarily by the Pueblo Board of Water Works; however, south of Illinois Avenue, Rocky Mountain Steel Mills owns two water lines that run parallel to I-25 on the east side of the highway. An inventory of water lines in the corridor is provided in Exhibit 1.

## EXHIBIT 1

## Pueblo Board of Water Works - Water Lines

| Type of Crossing <sup>a</sup> | Description <sup>b</sup> | Location  |
|-------------------------------|--------------------------|---|
| T                             | 16" AC                   | 29 <sup>th</sup> Street   |
| L                             | 16" AC                   | East side of I-25 within ROW from 29 <sup>th</sup> Street to 27 <sup>th</sup> Street; goes under a sewer line at a depth of 13'   |
| T                             | 21" Steel                | 27 <sup>th</sup> Street (transmission main)   |
| L                             | 12" AC                   | East side of I-25 within ROW from 27 <sup>th</sup> Street to 22 <sup>nd</sup> Street, with smaller lines linked to the east at 26 <sup>th</sup> , 25 <sup>th</sup> , 24 <sup>th</sup> , 23 <sup>rd</sup> , and 22 <sup>nd</sup> Streets |
| T                             | 2" Galvanized            | 21 <sup>st</sup> Street   |
| T                             | 8" AC                    | 20 <sup>th</sup> Street   |
| T                             | 8" PVC                   | 9 <sup>th</sup> Street with a 4" CDOT meter and a 4" City meter just west of the highway ROW  |
| T                             | 24" CML                  | 8 <sup>th</sup> Street (transmission main)  |
| T                             | 20" CML                  | 4 <sup>th</sup> Street  |
| L                             | 12" AC                   | East side of I-25 between 1 <sup>st</sup> Street and the railroad/Kelly Avenue  |
| T                             | 8" CML                   | On north side of railroad   |
| T                             | 8" CI                    | Ilex Street   |
| L                             | 20" AC                   | Santa Fe Avenue with a tie-in to Locust Street on the east  |
| T                             | 24" DI                   | South of Arkansas River   |
| T                             | 12" AC                   | Mesa Avenue   |
| T                             | 12" Steel CML            | Central Avenue  |
| T                             | 10" CI                   | Private main in tunnel to steel mill north of Canal Street  |
| T                             | 8" CI                    | Emerson Avenue  |
| T                             | 8" CI                    | Indiana Avenue  |
| T                             | 4" CI                    | South of Aqua Avenue  |
| L                             | 8" CI                    | Parallel to I-25 on the west from Emerson Avenue to Iowa Avenue   |
| T                             | 4" CI                    | Private main at Joliet Avenue   |
| L                             | 48" wood                 | Parallel to I-25 on the east from near Pueblo Boulevard to Illinois Avenue  |
| L                             | 60"                      | Parallel to I-25 on the east from near Pueblo Boulevard to Illinois Avenue  |
| L                             | 8" AC                    | Across Pueblo Boulevard in the centerline of Greenhorn Dr.  |

<sup>a</sup> T= Transverse, L = Longitudinal

<sup>b</sup> AC = asbestos cement, PVC = polyvinyl chloride, CML = cement mortar lined, CI = cast iron, DI = ductile iron

Longitudinal crossings typically represent more significant relocation effort than those that are transverse to the corridor. Larger utilities also typically require additional relocation effort and planning so that services continue with minimal interruption.

CDOT has recently granted a crossing under I-25 near Pueblo Boulevard for a waterline that will supply the South Pointe special improvement district.

St. Charles Mesa Water was contacted to determine if any of their water lines were in or near the corridor. St. Charles Mesa Water stated that its waterline network is located outside of the study area east of the interstate.

## Sanitary Sewer Service

Sanitary sewer services along the I-25 corridor are provided by the City of Pueblo Public Works Department. An inventory of sewer lines in the corridor is presented in Exhibit 2. In addition to the sections of sewer that are parallel to or cross the corridor, some sewer lines located in alleys near Indiana Avenue are parallel and close to I-25.

### EXHIBIT 2

#### City of Pueblo Public Works - Sanitary Sewer Lines

| Type of Crossing <sup>a</sup> | Location/Description   |
|-------------------------------|--|
| T                             | 29 <sup>th</sup> Street & I-25 Interchange from southwest to northeast |
| T                             | North of 26 <sup>th</sup> Street                                       |
| L                             | Santa Fe Avenue extends north into existing US 50B loop                |
| T                             | 5 <sup>th</sup> Street (north side)                                    |
| T                             | 4 <sup>th</sup> Street (north side)                                    |
| T                             | 3 <sup>rd</sup> Street (north side)                                    |
| T                             | 1 <sup>st</sup> Street (south side)                                    |
| L                             | Centerline of Ilex interchange   |
| T                             | Locust Street  |
| T                             | South of Arkansas River  |
| L                             | Arkansas River to Orman Avenue   |
| L                             | West side of highway at Orman Avenue to east side at Central Avenue    |
| T                             | At Arroyo Avenue and north of Arroyo                                   |
| T                             | North of Northern Avenue   |
| T                             | South of Central Avenue  |
| T                             | South of Logan Avenue  |
| L                             | West side of highway at Minnequa Avenue to north of Joliet Avenue      |
| T & L                         | East side of highway at Pueblo Boulevard (Greenhorn Drive)             |

<sup>a</sup> T= Transverse, L = Longitudinal

## Storm Drainage

Storm drainage along the I-25 corridor is provided by the City of Pueblo Public Works Department. An inventory of storm drainage in the corridor is presented in Table 3.

Currently, CDOT does not have a significant storm drain system along I-25. Several minor drainage lines are located around the Central Avenue interchange (with a pump station).

The most notable among the storm drainage lines listed in Exhibit 3 is a 72-inch storm sewer that outfalls at the south bank of the Arkansas River just west of the existing I-25 bridge, and a 100-inch, brick-lined storm sewer, dating back to the early 1900s, travels south under Santa Fe Avenue, and then east on Locust Street south of Runyon Fields.

### EXHIBIT 3

#### City of Pueblo Public Works - Storm Drainage

| Type of Crossing <sup>a</sup> | Description <sup>b</sup> | Location  |
|-------------------------------|--------------------------|---|
| T                             | SS                       | Numerous storm drains along 29 <sup>th</sup> Street with storm sewer in the centerline of 29 <sup>th</sup> Street |
| L                             | SS                       | I-25 centerline from 29 <sup>th</sup> Street to US 50B  |
| L&A                           | SS & SD                  | Western edge of highway from 29 <sup>th</sup> Street to US 50 B   |
| T                             | SS                       | North of 26 <sup>th</sup> Street  |
| T                             | SS                       | 25 <sup>th</sup> Street   |
| T                             | SS                       | 24 <sup>th</sup> Street   |
| T                             | SS                       | 23 <sup>rd</sup> Street   |
| T                             | SS                       | North and south of US 50B   |
| T                             | SS                       | 20 <sup>th</sup> Street   |
| T                             | SS & SD                  | 19 <sup>th</sup> Street   |
| A                             | DP                       | Within Mineral Palace Park and near west side of highway  |
| T                             | SS                       | 13 <sup>th</sup> Street   |
| L&T                           | SS                       | 9 <sup>th</sup> Street  |
| L&T                           | SS                       | 8 <sup>th</sup> Street  |
| L&T                           | SS                       | 6 <sup>th</sup> Street  |
| T                             | SS                       | 4 <sup>th</sup> Street west side of I-25  |
| T                             | SS                       | River Street west side of I-25  |
| A                             | SD & DP                  | Between railroad, River Street, I-25, and Santa Fe Avenue   |
| T                             | SS                       | 3 parallel culverts between drainage ditches to HARP upstream and Runyon Lake downstream                          |
| T                             | SS                       | Ilex interchange  |
| T                             | SS – 100"                | Between Arkansas River and Runyon Fields, brick-lined   |
| T                             | SS – 72"                 | South of Arkansas River   |
| L&T                           | SS                       | Santa Fe Avenue and Locust Street   |

## EXHIBIT 3

## City of Pueblo Public Works - Storm Drainage

| Type of Crossing <sup>a</sup> | Description <sup>b</sup> | Location   |
|-------------------------------|--------------------------|--|
| T                             | SS                       | North of Abriendo interchange                                |
| T                             | SS                       | Mesa Avenue  |
| L                             | SS                       | On west side of I-25 from Northern Avenue to Division Avenue |
| T                             | SD                       | Bessemer Ditch at Canal Street                               |
| T                             | SD                       | North and south of Pueblo Boulevard                          |
| L                             | SS                       | Greenhorn Drive  |

<sup>a</sup> T= Transverse, L = Longitudinal, A = Adjacent

<sup>b</sup> SS = Storm Sewer, SD = Storm Ditch, DP = Detention Pond

## Telephone and Fiber Service

Telephone service along the I-25 corridor is provided by Qwest Local Network, and Qwest Communications maintains a fiber optic network, as described in Exhibit 4. Qwest has six crossings of I-25 at major intersections. Their copper telephone lines cross I-25 at 25<sup>th</sup> Street, Bicknell Avenue, and Pueblo Boulevard. They also have major duct runs that include both copper and fiber optic lines that cross I-25 at 21<sup>st</sup> Street/US 50B, 4<sup>th</sup> Street, and Santa Fe Drive (which is a major feed to St. Charles Mesa).

MCI also provides telephone service via fiber optic lines that parallel to and within the railroad right of way. Two areas of concern are the locations where I-25 crosses over the railroad near Goat Hill and just south of the Arkansas River near Santa Fe Drive.

CDOT recently completed a project to install fiber optic lines on the east side of the I-25 ROW from 1<sup>st</sup> Street to US 50.

Comcast provides cable television services, and it has one line that crosses I-25 at 4<sup>th</sup> Street.

## EXHIBIT 4

## Telephone, Fiber Optic, Cable Television Lines

| Owner   | Description         | Location (all are transverse crossings of I-25)      |
|---------|---------------------|--|
| CDOT    | Fiber optic         | US 50 to 1 <sup>st</sup> Street, in ROW east of I-25 |
| Qwest   | Copper              | 25 <sup>th</sup> Street                              |
| Qwest   | Copper, fiber optic | 21 <sup>st</sup> Street/US 50B                       |
| Comcast | Cable TV            | 4 <sup>th</sup> Street                               |
| Qwest   | Copper, fiber optic | 4 <sup>th</sup> Street                               |
| MCI     | Fiber optic         | Railroad crossing south of Goat Hill                 |
| Qwest   | Copper, fiber optic | Santa Fe Drive                                       |
| MCI     | Fiber optic         | Santa Fe Drive                                       |

## EXHIBIT 4

Telephone, Fiber Optic, Cable Television Lines

| Owner | Description | Location (all are transverse crossings of I-25) |
|-------|-------------|---|
| Qwest | Copper      | Bicknell Avenue                                 |
| Qwest | Copper      | Pueblo Boulevard                                |

## Gas and Electrical Services

Gas and electric services along the I-25 corridor are provided by Xcel Energy and Aquila Electric, respectively. Xcel Energy's Comanche power plant is a coal-fired, steam-electric generating station located near the Rocky Mountain Steel Mills. The plant can produce 660 megawatts of power from two units.

Xcel Energy's south town border station, located in the southeast corner of Santa Fe Avenue and Santa Fe Drive, is a major facility that serves more than 30,000 customers. An inventory of gas lines along the I-25 corridor is presented in Exhibit 5.

## EXHIBIT 5

Xcel Energy - Gas Lines

| Type of Crossing <sup>a</sup> | Description <sup>b</sup> | Location   |
|-------------------------------|--------------------------|--|
| L                             | 8" FBHP                  | On east edge of railroad right of way from 29 <sup>th</sup> Street to 27 <sup>th</sup> Street where it shifts to the west edge of RR ROW |
| T                             | 6" MW IP                 | 27 <sup>th</sup> Street  |
| T                             | 8" IP                    | Santa Fe Ave near 24 <sup>th</sup> Street  |
| T                             | 8" MW IP                 | 8 <sup>th</sup> Street   |
| T                             | 4" MW                    | 4 <sup>th</sup> Street   |
| T                             | 2" MW                    | Ilex Street  |
| T                             | 2" MW                    | Locust Street  |
| L                             | 6" MW IP, 2" PED         | Santa Fe Avenue  |
| T                             | 14" WP HP                | Levee of north Arkansas river bank   |
| T                             | 8" MW IP                 | Santa Fe Drive   |
| n/a                           | Station                  | SE corner of Santa Fe Drive/Santa Fe Avenue  |
| T                             | 16" MW IP                | Mesa Avenue, north side of bridge  |
| T                             | 4" MW                    | Northern Avenue  |
| T                             | 4" MW                    | Minnequa Avenue with connections north to Schley Street and Abriendo Avenue  |
| T                             | 2" MW                    | Indiana Avenue   |
| T                             | 4" MW                    | Aqua Avenue  |

**EXHIBIT 5**  
Xcel Energy - Gas Lines

| <b>Type of Crossing<sup>a</sup></b> | <b>Description<sup>b</sup></b> | <b>Location</b>  |
|-------------------------------------|--------------------------------|--|
| L                                   | 6" MW                          | East side of RR ROW from Aqua Avenue to Maryland Avenue        |
| L & T                               | 6" MW IP                       | SE quadrant of Pueblo Boulevard and I-25 along Greenhorn Drive |

<sup>a</sup> T= Transverse, L = Longitudinal

<sup>b</sup> MW= Mill Wrought, IP = Intermediate Pressure, FB= Fusion Bond (epoxy), HP = High Pressure, PED = Polyethylene Direct Buried

Aquila is one of Xcel Energy’s largest wholesale customers; it purchases two-thirds of its power from Xcel Energy. Aquila owns electrical lines that cross over I-25 in 11 locations, as listed in Exhibit 6.

**EXHIBIT 6**  
Aquila Electrical Lines

| <b>Description</b>  | <b>Location (all lines are transverse overhead crossings)</b> |
|---------------------|---|
| 13.2 kV             | 28 <sup>th</sup> Street                                       |
| 13.2 kV             | 26 <sup>th</sup> Street                                       |
| 13.2 kV             | 24 <sup>th</sup> Street                                       |
| 13.2 kV             | 11 <sup>th</sup> Street                                       |
| 13.2 kV             | 8 <sup>th</sup> Street  |
| 13.2 kV             | Grand Avenue  |
| 13.2 kV             | Santa Fe Avenue   |
| 13.2 kV             | Northern Avenue   |
| 13.2 kV             | Emerson Avenue  |
| 13.2 kV             | Highland Avenue   |
| 69 kV               | Maryland Avenue   |
| Freemary Substation | Between Illinois and Maryland Avenues                         |

**Bessemer Irrigation Ditch**

The Bessemer Ditch delivers irrigation water to farms on St. Charles Mesa and other areas of the lower Arkansas River Valley. The ditch crosses I-25 just north of Jones Avenue between the Central Avenue and Minnequa/Indiana Avenue interchanges. Any construction or relocation of the Bessemer Ditch should be phased to avoid peak seasons, which are the summer months, January, and February. Changes to the Bessemer Ditch require approval of the Bessemer Ditch Board of Directors.

## Confirmed Not in the Corridor

Touch America was identified by the Utility Notification Center of Colorado as potentially having fiber optic lines in the corridor. However, the utility provider confirmed that all of its lines are located outside the study area and east of I-25 within Burlington Northern Santa Fe railroad ROW.

The State of Colorado maintains a fiber optic line that connects the Denver metropolitan area to the State Lottery Headquarters in downtown Pueblo. This fiber line does not travel adjacent to or cross the I-25 corridor in the study area.

## Impacts

The New Pueblo Freeway project may impact utilities during highway construction and infrastructure improvements; impacts are unlikely following construction. An environmental impact may occur if existing utilities would not have the capacity to meet increases in demand brought on by the proposed project, and meeting this increased demand would necessitate development of new utility delivery capabilities.

## No Action Alternative

Under the No Action Alternative, there would be no impacts to utilities.

## Existing I-25 Alternative

The Existing I-25 Alternative would impact a number of utilities in the I-25 corridor. The utility infrastructure network includes numerous lines that intersect and parallel the highway. Utility lines are concentrated at Pueblo Boulevard, Northern and Mesa Avenues, the north and south banks of the Arkansas River, and 4th, 8th, and 29th Streets – all of which will be impacted by reconstructing I-25 under this alternative.

The Existing I-25 Alternative requires relocation of Xcel Energy's south town natural gas transfer station at the southeast corner of the Santa Fe Drive/Santa Fe Avenue intersection. This alternative approaches the 72-inch storm sewer line that outfalls on the south bank of the Arkansas west of the I-25 bridge and crosses over the 100-inch storm sewer line located under Santa Fe Avenue and Locust Street. The Existing I-25 Alternative expands the existing I-25 crossing over the Bessemer Ditch near the steel mills to accommodate the wider highway and the relocated railroad. Between J.J. Raigoza Park and Illinois Avenue, this alternative encroaches on the 48-inch line conveying coolant water to the steel mills (however, this water is an alternate water source).

The Existing I-25 Alternative provides the opportunity to improve storm drainage from the I-25 corridor by constructing an enclosed trunk line that allows treatment of stormwater before it is discharged. This beneficial impact is discussed in more detail in the Water Quality technical memorandum.

## Modified I-25 Alternative

The Modified I-25 Alternative would impact a number of utilities in the I-25 corridor. The utility infrastructure network includes numerous lines that intersect and parallel the highway. Utility lines are concentrated at Pueblo Boulevard, Northern and Mesa Avenues, north and south banks of the Arkansas River, and 4th, 8th, and 29th Streets – all of which will be impacted by reconstructing I-25 under this alternative. The Modified I-25 Alternative requires relocation of Xcel Energy’s south town natural gas transfer station at the southeast corner of the Santa Fe Drive/Santa Fe Avenue intersection. This alternative approaches the 72-inch storm sewer line that outfalls on the south bank of the Arkansas west of the I-25 bridge and crosses over the 100-inch storm sewer line located under Santa Fe Avenue and Locust Street. The Modified I-25 Alternative requires a new crossing for I-25 over the Bessemer Ditch. The existing roadway crossing will remain in place as an extension of Santa Fe Avenue. Between J.J. Raigoza Park and Illinois Avenue, this alternative encroaches on the 48-inch line conveying coolant water to the steel mills (however, this water is an alternate water source).

The Modified I-25 Alternative provides the opportunity to improve storm drainage from the I-25 corridor by constructing an enclosed trunk line that allows treatment of stormwater before it is discharged. This beneficial impact is discussed in more detail in the Water Quality technical memorandum.