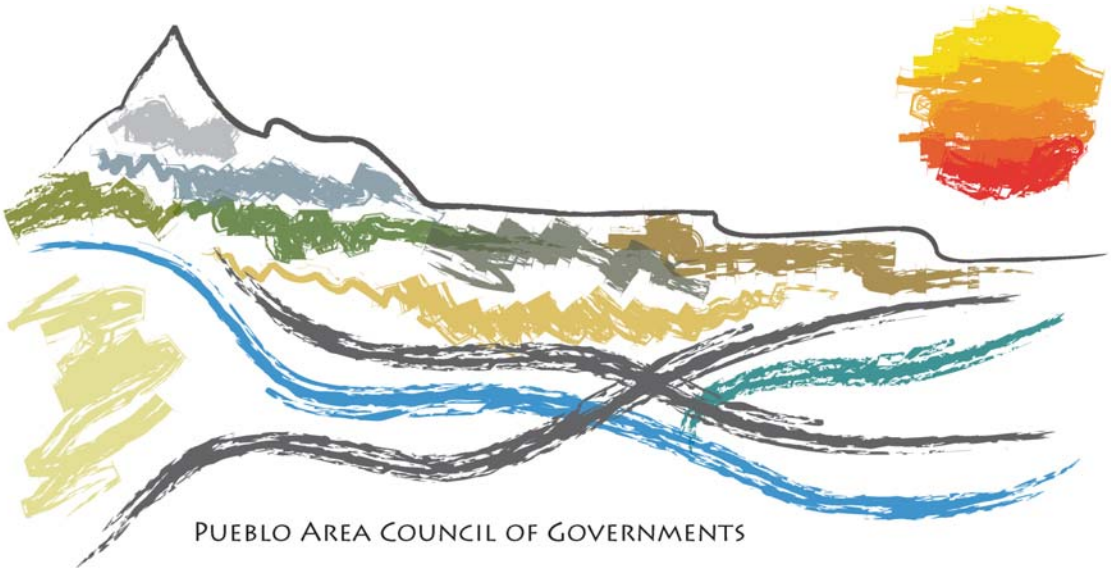

2035 LONG RANGE TRANSPORTATION PLAN

CHAPTER 6: MOBILITY DEMAND & ALTERNATIVES ANALYSIS

January 24, 2008

NOTE: This document has been prepared using Federal funding from the United States Department of Transportation. The United States Department of Transportation assumes no responsibility for its contents or use thereof.

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6.0 Mobility Demand Analysis

Mobility demand analysis is a way to identify future needs for transportation facilities and/or services. By identifying locations where future demand for transportation services is expected to approach or exceed the capacity of the existing transportation networks, transportation plans can prioritize future improvements to that area. Future demand analysis for the 2035 LRTP is especially uncertain at the time of this writing because of several large land development proposals that have emerged during the past year. If these proposed developments actually materialize, they would result in population and employment estimates that are far beyond those forecasted for Pueblo County by the State Demographers Office (required for use in this Plan).

As a result of the uncertainty, this analysis will concentrate on only the State Highway system and utilize data from the Colorado Department of Transportation. This methodology, continued from the 2030 LRTP, shows off-system transportation demand growth consistent with the on-system growth.

6.1 Forecasting Methodologies

Demand for transportation is forecasted in one of two ways. The first is to examine past growth in traffic volumes along individual corridors and apply similar "growth factors" to traffic along the corridor. This "growth factor" methodology has been used by CDOT to calculate future traffic volumes along the state highways.

The second methodology is to estimate the additional travel demand based on amount and location of future growth in residential population and employment for each area within the region. This "travel demand forecasting" methodology can estimate traffic on more complex networks such as local roadway networks.

PACOG is continuing to develop a Travel Demand Forecasting Model that can be used to identify the impacts of land use and roadway improvements on regional traffic flow. This preliminary model has been released to consultants who may modify and tailor it to analyze impacts from large developments, particularly in the northeast quadrant of the MPO/TPR area.

Until the final model is validated and calibrated based on additional critical information, interim estimates of future travel demand are used to identify future traffic on the Pueblo area roadway network.

In the 2030 LRTP, a comparison of the CDOT estimates of future travel demand with those modeled in the I-25 Corridor study revealed similar results. This plan continues to use the CDOT traffic counts and forecasts provided by CDOT for consistency across the 15 Regional Transportation Plans in CDOT's Statewide Transportation Plan. The primary concern of this section is to analyze the Regionally Significant Corridors of the state highway system and the system's ability to accommodate current and forecast future traffic volumes.

As shown in the Socio-economic Profile and Trends chapter, the State Demographers Office population forecast for Pueblo county is expected to reach over 250,000 people by 2035. Figure 6-1 shows the future growth projections between the 2030 LRTP and the 2035 LRTP. Overall the total forecast is approximately 10% higher for the 2035 Plan.

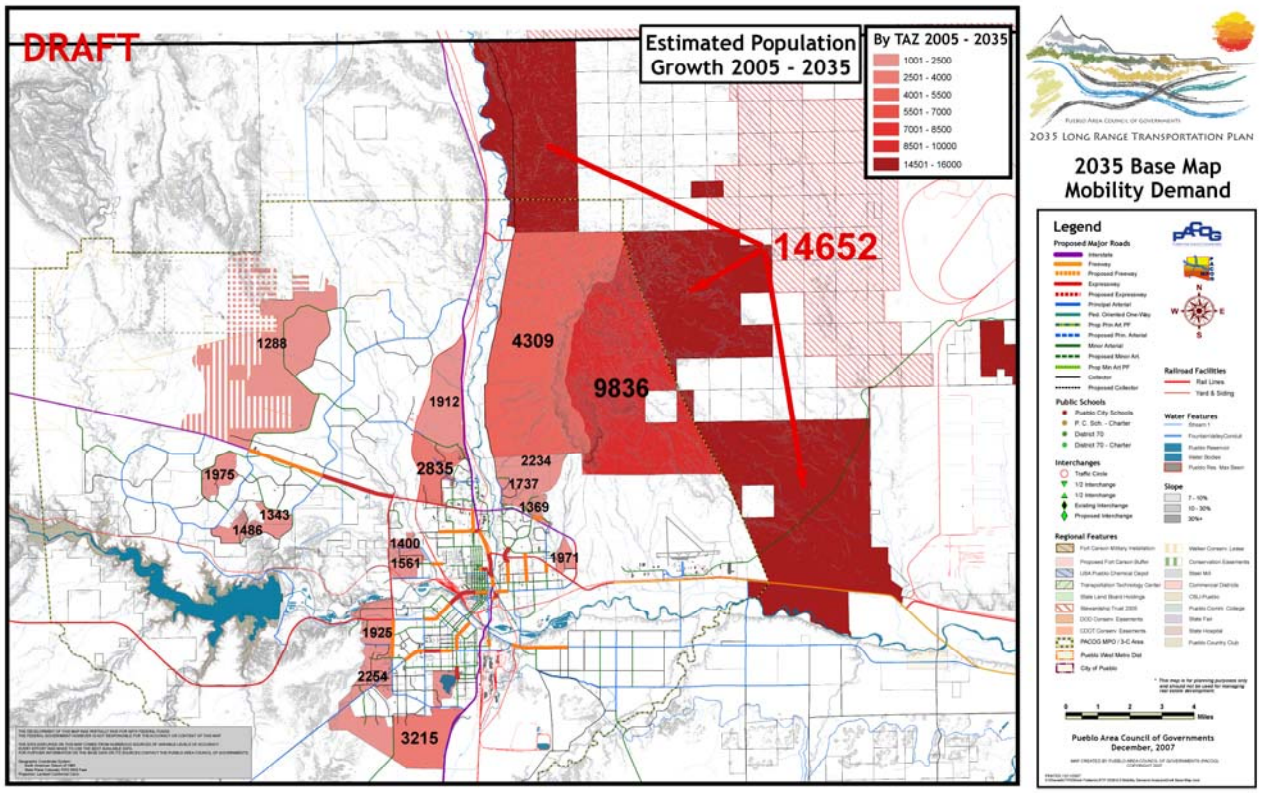
The population forecasts in the Socio-economic Profile and Trends chapter show lower growth rates in the southeast, southwest, and northwest quadrants. These trends imply that increased growth rates can be expected for the northeast quadrant of Pueblo County. As discussed elsewhere in this plan, recent changes to the Pueblo Comprehensive Plan and the potential for several large developments in the quadrant increase the attraction of growth to this area.

The type and location of this growth in population and the associated employment is expected to generate the need for additional transportation facilities and services. The existing forecast of 2035 State Highway traffic volumes could not anticipate the possible impacts to the roadway system that would be created by potential large developments. Historically there has been little development in the northeast quadrant of Pueblo County, thus the State Highway system has limited connectivity to this area. As a result, the large uncertainties reflected in this Plan may be clarified as additional data becomes available in the future.

Table 6-1 – Growth by Quadrant 2030 LRTP to 2035 LRTP

Quadrant	2030 LRTP	2035 LRTP	Change	% Change
Northwest	78,009	78,218	209	0.27%
Northeast	49,360	71,621	22,261	45.10%
Southeast	22,665	19,885	-2,780	-12.26%
Southwest	76,278	80,753	4,475	5.87%
Total	226,311	250,477	24,166	10.68%

Figure 6-1: Areas with Significant Change in Population, 2005-2035



6.2 Problem Identification

Roadway capacity is of critical importance when looking at the growth of a community. As traffic volumes continue to increase, roadway congestion also increases, and vehicle flow deteriorates. When traffic volumes approach and exceed the available capacity, the

road begins to fail. For this reason it is important to look at the size and configuration of the current roadways and determine if these roads need to be expanded to accommodate the existing or future traffic needs.

The capacity of a road is a function of a number of factors including the number of lanes, interchange functionality, adjacent land use, access and intersection spacing, road alignment and grade, operating speeds, turning movements, vehicle fleet mix, adequate shoulders, street network management, and effective maintenance and operations. In practice, the number of lanes is the primary factor in evaluating road capacity since any lane configuration has an upper volume limit regardless of how carefully it has been designed.

For the purpose of examining the major roadway system in the Pueblo area, the CDOT 2035 Planning Dataset information is used for the analysis of current congestion, comparison of future roadway classifications, and future traffic volumes on the system roadways.

6.2.1 Roadway Capacity

Table 6-2 shows the assumed capacity for four types of roadways and an "evaluation threshold" representing the point at which congestion begins to occur and auxiliary lanes or additional widening may be needed to maintain good operations. This information was included in the 2030 LRTP, and this plan therefore utilizes these same values. The reiterate what each of these classifications means to the average driver, these descriptions are included.

- **Freeways:** Freeways are high-capacity roadways that accommodate high speed, long-distance travel through the metro area. Access is strictly controlled, and limited to Major Arterials connected by grade-separated interchanges at a minimum spacing set by the Colorado Department of Transportation and by the Federal Highway Administration.
- **Expressways:** Expressways accommodate high speed, long distance travel to and through the surrounding area. Access to adjacent land uses is limited. Full movement intersections are at-grade and signalized or grade-separated interchanges.
- **Principal Arterials:** Principal Arterials provide a high level of mobility and favor mobility over access to adjacent land uses. They provide access between lower classification streets (minor arterials and collectors) and higher classification streets (expressways and freeways).
- **Minor Arterials:** Minor arterial streets balance mobility of through traffic with access to adjacent land uses. Travel speeds and capacity are lower than for Principal Arterials. Separate

turn lanes, especially continuous left turn lanes, may be used to permit access to land uses on both sides of the street.

- **Collectors:** Collectors collect traffic from nearby local streets. *Neighborhood collectors* remain in the neighborhood and are residential in character. *Mixed-use collectors* form the edge of neighborhoods and have a wider ROW to allow for future turn lanes or additional width in the future. Residential homes are typically not allowed to face mixed-use collectors. *Business collectors* serve commercial development and may be in industrial areas, mixed use neighborhoods, or regional commercial shopping areas. Access is provided to many businesses, and speeds are lower than on arterial roadways.

As a matter of practice, evaluation of existing and future demand for transportation is based on the ratio of existing traffic volumes with the capacity of the roadway segment. As traffic volumes along a roadway segment approach the capacity of the roadway, unacceptable levels of congestion can occur. For the purposes of this plan, the CDOT standard of a volume-to-capacity ratio of .85 or higher is considered "congested". Roadway links with v/c ratios over .65 are considered to have "some congestion" and users may experience some delay.

Table 6-2: Roadway Capacities and Associated "Evaluation Thresholds"

Street Type	Roadway Capacity	Evaluation Threshold*
Freeway – 4 lane	66,000 vpd	56,000 vpd
Expressway – 5 lane	42,000 vpd	36,000 vpd
Principal Arterial Roadway – 5 lane	35,000 vpd	30,000 vpd
Principal Arterial Roadway – 4 lane	30,000 vpd	26,000 vpd
Minor Arterial Roadway – 2 or 3 lane	15,000 vpd	12,000 vpd
Collector Roadway	12,000 vpd	10,000 vpd

Volume-to-Capacity Ratio is 85%
Source: PACOG 2030 LRTP - SEH

6.3 Existing Traffic Volumes

Two important factors to consider along with higher volumes are peak hour demand and access control. The volumes shown in TABLE 6-2 are 24-hour averages; however, traffic is not evenly distributed during the day. The major street network has significant peak demands usually during the morning and evening "rush" hours when many people travel to and from work or school. These limited times create the greatest stress on the transportation system when short-term capacity is exceeded and users experience congestion.

To reduce or spread the AM and PM peak volumes, urban areas may use Travel Demand Management (TDM) measures, public transit enhancements, or improved pedestrian and bicycle programs. Such smoothing or spreading of the peaks extends the adequate service life of a given roadway configuration. Because of the severe financial constraints discussed in Chapter 9, this Plan strongly encourages the continuation and expansion of these approaches as a lower-cost means of meeting a portion of expected transportation demand.

State Highway System

State Highways define the Regionally Significant roadway system in the Pueblo area and handles a significant amount of the total traffic volume each day. There are many factors that cause traffic to utilize the State Highway system instead of local roadways. One of the most significant is the number of physical barriers such as rivers, creeks, and railroads that exist in the Pueblo area. These barriers often prevent local connectivity because of the significant costs associated with providing crossings. As a result, most of the routes that cross these barriers are on the State Highway system, or were part of the system in the past. There are few local roads that cross these major features, resulting in a funneling of traffic to the highway system crossings. Because of this funnel effect, the long-term result is that many of these roadway segments will continue to become more congested within the 28-year time horizon of this plan.

The color-coded table shown below depicts the future roadway classifications and the roadway capacities listed as evaluation threshold volumes in Table 6-2. To the maximum extent possible, this same color scheme has been used consistently in this Plan.

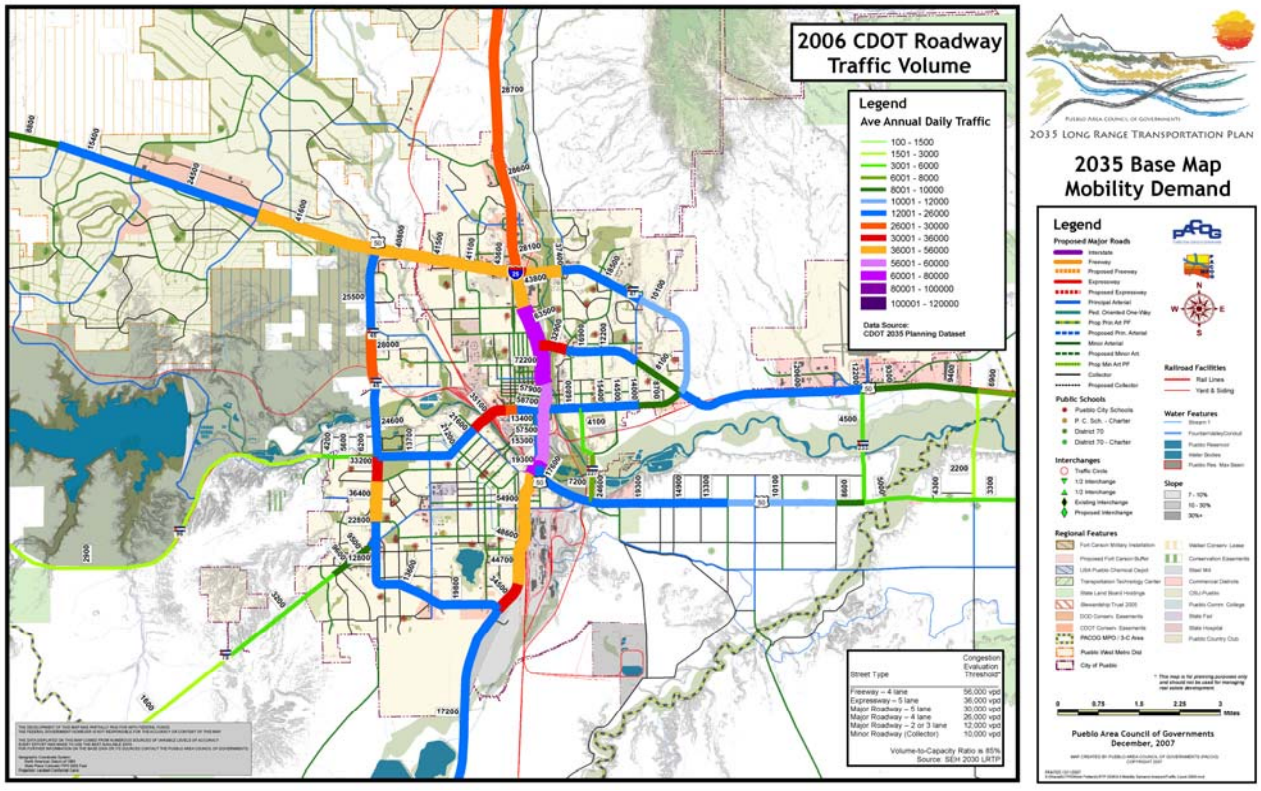
Color	Traffic Volumes	Up to
	Interstate – 4 lane	> 56,000 vpd *
	Freeway – 4 lane	36,000 *
	Expressway – 5 lane	30,000
	Principal Arterial	26,000
	Minor Arterial	10,000

* These classifications utilize grade separated interchanges with other roadways

The purple color range is associated with the Interstate and the daily traffic capacity associated with Interstate functional classifications. The yellow color range represents capacities associated with Freeways. The red color range represents those volumes associated with Expressways. The blue color range represents those volumes associated with Principal Arterials. And finally, the green color range represents those volumes associated with Minor Arterials.

The following graphic Figure 6-2 shows the traffic volumes on the State Highway system in the Pueblo area utilizing the coding scheme described above.

Figure 6-2: 2006 CDOT State Highway Traffic Volumes (AADT)



6.4 Current Volume & Classification Issues

The following is a review of current volumes that are above the Evaluation Threshold values from table 6-2 for the future classification of the roadway. This means the volume on the road today is potentially approaching the capacity, current and planned, of the roadway, resulting in significant or persistent congestion. These sections are those where improvements could provide additional capacity. If enough additional capacity cannot be provided on the existing facility, these corridors may require options to divert traffic and construct alternate routes. At present, there are significant financial and policy barriers to the use of state highway funds for the development of off-system routes to relieve congestion on the State Highway system.

4th Street (SH 96)

4th Street between Abriendo and Elizabeth is now carrying a volume above the evaluation threshold value for a Principal Arterial. Replacement of the 4th Street Bridge (2008-2011) will provide some additional capacity, but the section between Midtown Circle and Elizabeth will continue to experience congestion.

Pueblo Blvd (SH 45)

Traffic volume on Pueblo Blvd between Thatcher (SH 96) and Lehigh Ave is currently above the evaluation threshold value for a Principal Arterial.

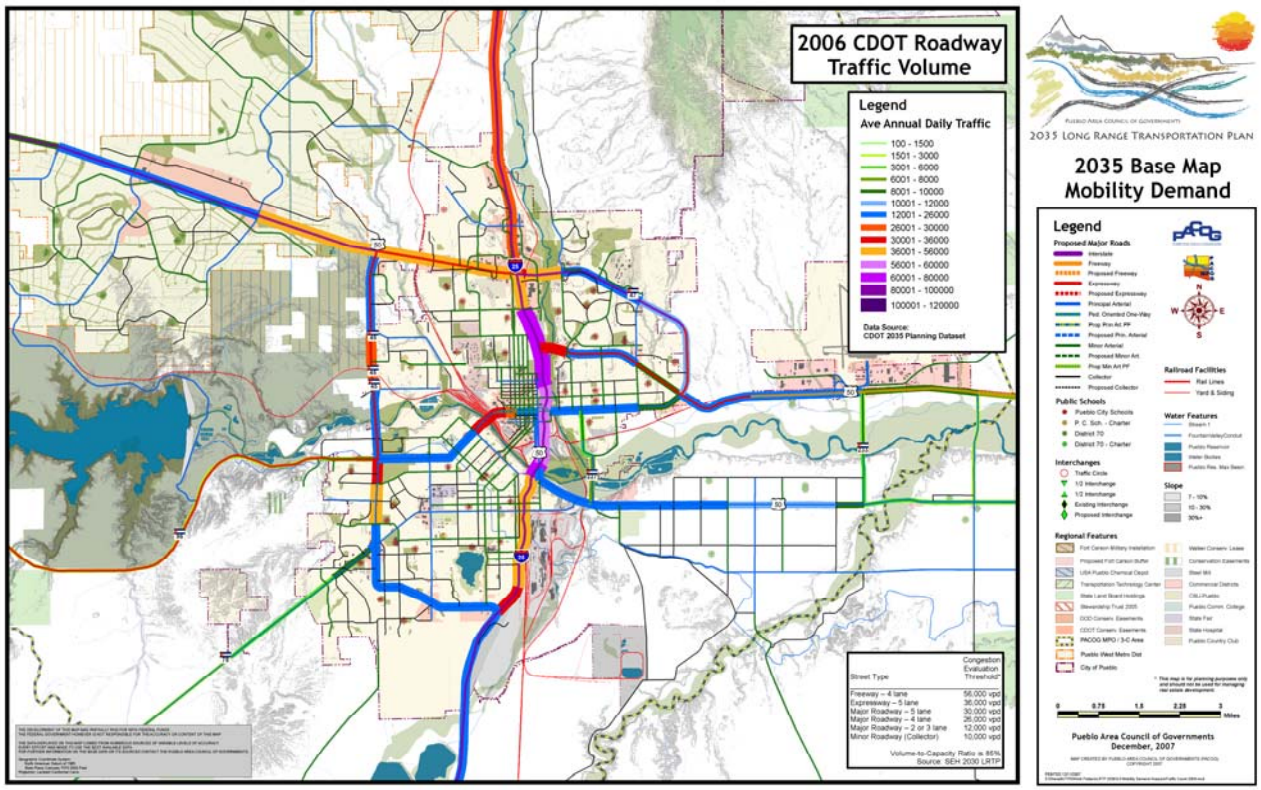
Highway 50 West

Hwy 50 West from I-25 and Pueblo Blvd (SH 45) currently has a traffic volume above the evaluation threshold for an Expressway.

Combined Graphic

The following graphic overlays the 2035 Functional Classification with current traffic volumes for comparison and analysis. This analysis necessarily assumes that the current roadways can be improved from their current status to that of the future classification. The following graphic shows that there are several sections of existing roadways currently carrying traffic volumes that would require additional improvements to increase their capacity to reflect the standards associated with their future classification..

Figure 6-3: 2006 Volumes to Future Roadway Classification

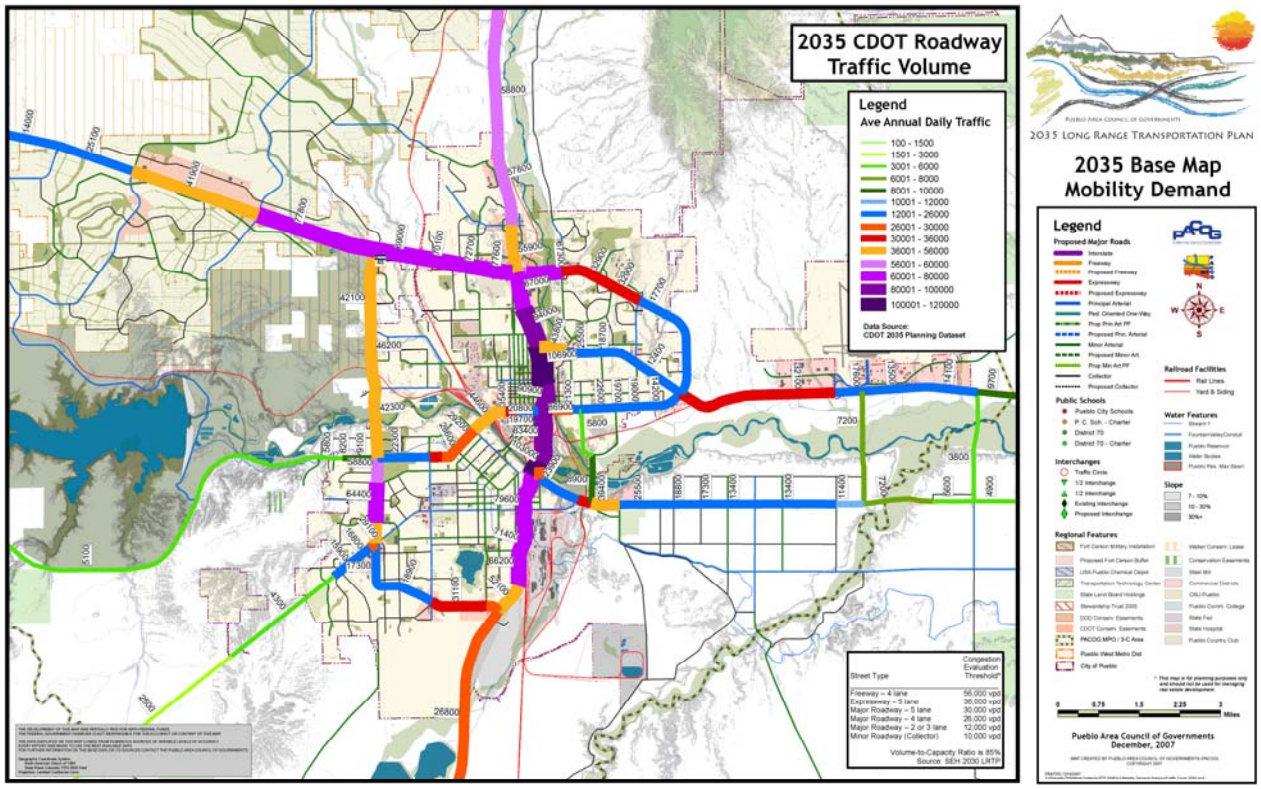


6.5 Forecast of Future Traffic Volume

The following is a review of future traffic volume on the State Highway system (as calculated by CDOT) that are above the evaluation threshold values from Table 6-2 for the future roadway classification. The projected volume on the road will exceed the proposed capacity of the roadway, resulting in significant and persistent congestion. The volumes may exceed the *Future Capacity* of the roadway even with improvements consistent with that classification.

If more additions to capacity cannot be provided through adding lanes or grade separations, these routes will need specific corridor studies to determine if options may be available for traffic diversion and/or the creation of alternate routes. The data in Table 6-2 does not cover all possible cross-sections or the development of alternate routes for the different classifications because of the considerable uncertainty about potential future development patterns.

Figure 6-4: CDOT 2035 State Highway Traffic Volumes (AADT)



US Hwy 50 West

The traffic volume projected for the US Highway 50 corridor is comparable to, or greater than the highest area traffic volume on Interstate 25 in 2006. Such volumes exceed the capacity of the future roadway classification of that facility.

4th Street (SH 96)

Parts of the 4th Street corridor are projected to experience traffic volumes associated with Freeways and Expressways although it is classified only as a Principal Arterial. This is particularly the case for the section from Prairie Ave to Elizabeth Street.

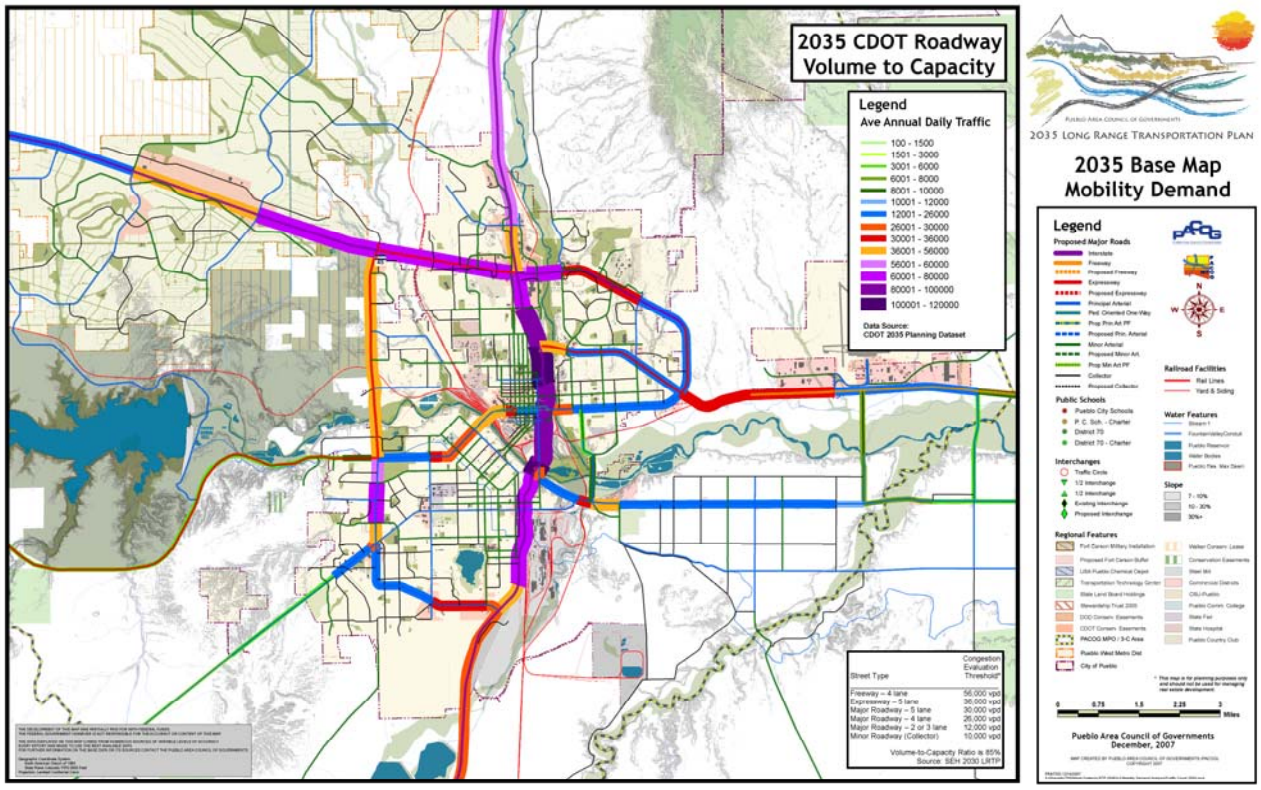
Pueblo Blvd (SH45)

Pueblo Blvd between I-25 and Prairie Ave is projected to have a significant increase in traffic volume as adjacent commercial areas continue to develop. By 2035, the projected volumes exceed the Principal Arterial classification and move well into the Expressway range. Between Thatcher to Lehigh Ave, the volume forecast for 2035 is the same as the 2006 volume on Interstate 25 near US 50/47.

Interstate 25

I-25 continues to experience growth in current traffic volumes and that growth is projected to continue unabated in the future. While capacity improvements are proposed in the New Pueblo Freeway Project no funding source has been identified for the $846 million estimated cost. Elsewhere, interchange reconstruction/addition would be financed privately or locally through the CDOT 1601 process.

Figure 6-5: 2035 Volumes to Future Classification



6.6 Future Volume & Classification Issues

In this analysis, the future roadway classifications and their related capacity are compared to the future traffic volume projections on the State Highway system. This comparison identifies future capacity deficiencies indicating either the need to change the future roadway classification (or design standard) or the need for alternative solutions in the same corridor. Changes in classification may or may not be possible given the physical and human environment of the roadway.

Development and funding of alternative routes or solutions may be problematical because of existing Transportation Commission

policies. Specifically, the "no new centerline miles on-system" policy and the policy denying the use of Federal and State funds on "off-system" improvements combine to create severe impediments for any significant alternatives to widening existing highways. Within the Pueblo area, development of only the existing system to accommodate future traffic volumes may be difficult or impossible. Individual corridor studies will be needed to address higher future congestion levels.

Note: All volumes and the following evaluation do not include the impact of proposed developments within the Northeast Quadrant of the Pueblo Area. Since these developments are regional in size, the evaluation of the entire State Highway system in Pueblo County will need to be completed once details of these developments are released.

Interstate 25

Outside the New Pueblo Freeway limits from 29th Street to Pueblo Blvd, the projected volumes for I-25 in rural Pueblo County do not exceed the capacity of the roadway. I-25 through Pueblo, where severe congestion is forecast, is addressed in the EIS for the New Pueblo Freeway Project. Three options are under analysis – do nothing, rebuild to current standards in the existing alignment, or construct a modified alignment through central Pueblo. Details of the projections used to develop these options are available via the project website – www.i25pueblo.com.

Highway 50 Bypass

Between I-25 and Bonforte/Hudson projected volumes exceed the capacity of the future roadway classification. This area is included in the New Pueblo Freeway Project.

4th Street (SH 96)

The 4th Street corridor has projected traffic volumes associated with Freeways and Expressways, particularly the section from Prairie Ave to Elizabeth Street. In the short term, the ongoing replacement of the 4th Street Bridge will lessen congestion in this section. The bridge has been designed for a maximum future cross section of 6 lanes; however significant acquisition of rights-of-way and removal of houses and businesses would be required to widen 4th Street along the remainder of its length.

Pueblo Blvd (SH45)

Pueblo Blvd between I-25 and Prairie Ave is expected to have a significant increase in traffic volumes beyond the proposed classification of a Principal Arterial. Access limitations or roadway expansion will be required to accommodate the future volume.

Between Lehigh Ave and Thatcher projected volumes are similar to existing volume on Interstate 25 north of the Highway 50 Bypass interchange. This section has limited access from the east side of the roadway, but some access exists for establishments located along the west side. Improvements will be required to increase future capacity of the roadway for projected increases in traffic volumes. North of Thatcher (SH 96) projected volumes exceed the standards for the proposed classification of Expressway.

Highway 50 West

Hwy 50 West between Purcell in Pueblo West and I-25 and east of I-25 to Jerry Murphy is projected to carry more traffic than the roadway capacity of a freeway classification. The projected daily traffic volume of 78,000 between Purcell and Pueblo Blvd (SH 45) exceeds the highest existing volume on I-25 in Pueblo.

Santa Fe Drive

Santa Fe Drive (US 50C) just east of Northern Ave and SH 227, the future traffic volumes are expected to exceed the capacity of the roadway.

6.7 Existing and Forecast Congestion

Comparing existing and projected traffic volumes with the existing capacity of roadway identifies present and future levels of traffic congestion.

Existing Congestion

Figure 6-6 shows the existing congestion for the Pueblo Urban Area based on the criteria discussed earlier in this Chapter.

The sections of the State Highway system with **some congestion** are:

- Hwy 50 West between McCulloch and Purcell Blvd.
- Hwy 50 West between Club Manor Drive and Jerry Murphy Blvd.
- Highway 50 Bypass between I-25 and Bonforte/Hudson
- I-25 between 13th Street and Indiana Street
- Santa Fe Drive between Northern Ave and 21st Lane on the St. Charles Mesa
- 4th Street (SH96) between Midtown Circle and Elizabeth Street

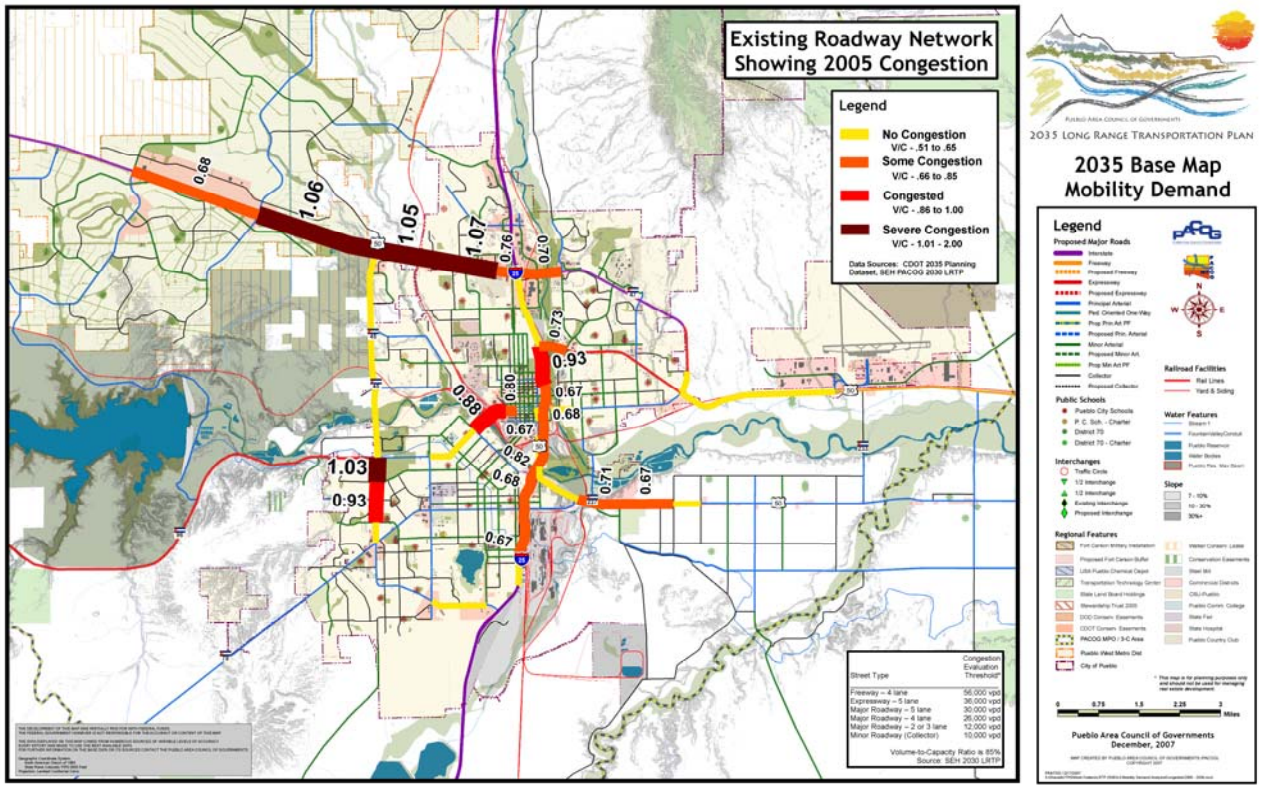
The sections of the State Highway system that are **congested** are:

- I-25 Between Highway 50 Bypass and 13th Street
- 4th Street (SH96) between Abriendo and Midtown Circle
- Pueblo Blvd (SH45) between Lehigh Ave. and St. Clair Ave.

The sections of the State Highway system that have **severe congestion** are:

- US Highway 50 west between Purcell Blvd and Pueblo Blvd. - this section is currently at 106% of capacity.
- US Highway 50 west between Pueblo Blvd. and Baltimore Street - this section is currently at 105% of capacity.
- US Highway 50 west between Baltimore Street and Club Manor Drive - this section is currently at 107% of capacity.
- Pueblo Blvd (SH45) between St. Clair Ave. and Thatcher Ave. - this section is currently at 103% of capacity.

Figure 6-6: Current Congestion



Future Congestion

Figure 6-7 shows forecasted congestion in 2035 if no transportation improvements are made to the system. The most congested sections of US50 and Pueblo Blvd are projected to have volumes in excess of 180% of capacity. Of particular concern is expected congestion where the two intersect. I-25 between 1st Street and the 29th Street Interchange is likely to have volumes that will not only increase congestion, but also are likely to impact the safety of the corridor.

Increased traffic along SH96 increases congestion through downtown and east of the Interstate as motorists try to avoid congestion on I-25.

As growth occurs surrounding the existing City of Pueblo, congestion will increase on sections of the entire State Highway system, but also on nearly all Principal Arterials and many of the Minor Arterials in the older neighborhoods. The few major off-system roadways in Pueblo West and the St. Charles Mesa are also expected to have

significant congestion as spillover from the congested highways.

The sections of the State Highway system forecast to have **some congestion** in 2035 are:

- Hwy 50 West between West McCulloch and McCulloch Blvd.
- Hwy 50 East between SH 47 and Paul Harvey (AIP)
- Pueblo Blvd between South Prairie Ave. and I-25
- Hwy 47 West between Troy Ave and east 13th street
- Highway 50 Bypass between I-25 and Bonforte/Hudson
- State Highway 78 between La Vista and Pueblo Blvd.
- I-25 north of Eagleridge Blvd.
- I-25 between 29th Street and Hwy 50 Bypass
- I-25 between Indiana Street and Pueblo Blvd.
- Santa Fe Drive between Santa Fe Ave and Northern Ave.
- Thatcher/Lincoln (SH 96) between Prairie Ave. and Abriendo
- 4th Street (SH96) between Elizabeth Street and Hudson street

The sections of the State Highway system that are forecast to be **congested** in 2035 are:

- I-25 between Eagleridge Blvd and 29th Street
- I-25 between Highway 50 bypass and Indiana Street
- Pueblo Blvd (SH45) between US Highway 50 West and West 11th Street
- Pueblo Blvd (SH45) between Lehigh and state Highway 78/Northern Ave.
- Highway 50 Bypass between I-25 and Bonforte/Hudson
- Santa Fe Drive between Northern Ave and State Highway 227/Roselawn
- Santa Fe Drive between Aspen Lane and 21st Lane

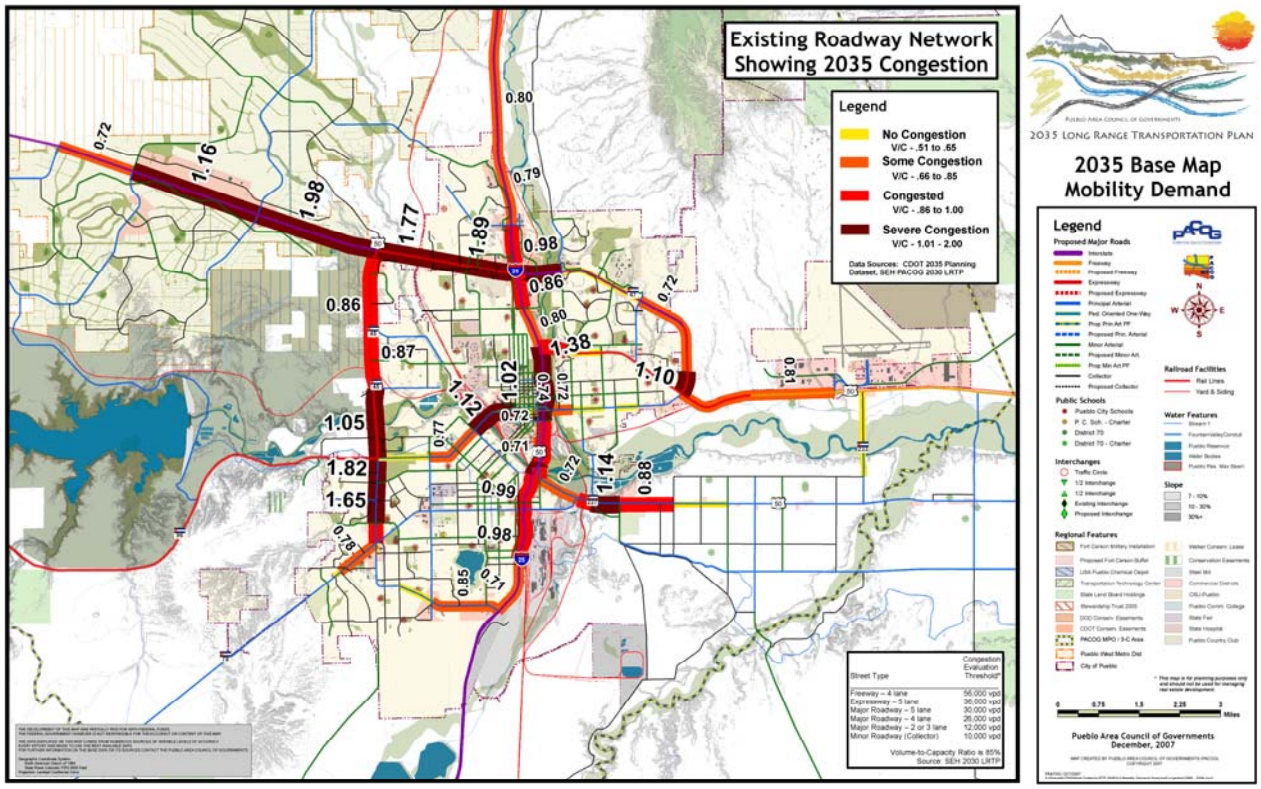
The sections of the State Highway system that are forecast to have **severe congestion** in 2035 are:

- US Highway 50 West between McCulloch and Purcell Blvd - this section is calculated at 116% of capacity.
- US Highway 50 West between Purcell Blvd and Pueblo Blvd. - this section is calculated at 198% of capacity.
- US Highway 50 West between Pueblo Blvd. and Baltimore Street - this section is calculated at 177% of capacity.
- US Highway 50 West between Baltimore Street and Club Manor Drive - this section is calculated at 189% of capacity.
- US Highway 50 West between Club Manor Drive and I-25 - this section is calculated at 135% of capacity.
- State Highway 47 between I-25 and Jerry Murphy - this section is calculated at 126% of capacity.
- Interstate 25 between Highway 50 Bypass and 13th Street - this section is calculated at 138% of capacity.
- Interstate 25 between 13th Street and 1st street- this section is calculated at 103% of capacity.
- Interstate 25 between Ilex Street and Abriendo - this section is calculated at 125% of capacity.
- 4th Street (SH96) between Abriendo and Midtown Circle - this section is calculated at 112% of capacity.
- Pueblo Blvd (SH45) between West 11th Street and Thatcher Ave. - this section is calculated at 105% of capacity.
- Pueblo Blvd (SH45) between St. Clair Ave. and Thatcher Ave. - this section is calculated at 182% of capacity.
- Pueblo Blvd (SH45) between St. Clair Ave. and Lehigh - this section is calculated at 165% of capacity.
- Santa Fe Drive between state Highway 227 and Aspen Lane - this section is calculated at 114% of capacity.

Notes:
Neighborhoods where there is a grid network are not expected to suffer the same levels of congestion as are those with single or very few points of connectivity to the major roadways.

Volumes and evaluations do not include the impact of the proposed large-scale developments within the Northeast Quadrant of Pueblo County. the evaluation of the entire State Highway system in Pueblo County will need to be completed once details of these development become available.

Figure 6-7: 2035 Forecasted Congestion (On Existing System)



6.8 Addressing Congestion

Reducing or minimizing future congestion is one of the most significant factors to consider in planning the transportation system. Based on the review of current and future forecasts of congestion, one feature is significant. Areas with limited connectivity have greater levels of congestion than do areas with multiple access points. This will be a significant factor in planning for the future development of the northeast quadrant. Not only is planning needed, but also the implementation/construction of these routes will be critical

Traditionally, additional increases in the capacity of existing facilities, or the development of alternate or parallel facilities could address or reduce areas of congestion. Local agencies can also implement measures to reduce the demand for transportation services. These "TDM" strategies include developing incentives for using alternate modes of travel such as carpooling, public transportation, traveling off-peak, or telecommuting.

The next section of the transportation plan presents some alternatives for addressing congestion in the Pueblo Region.

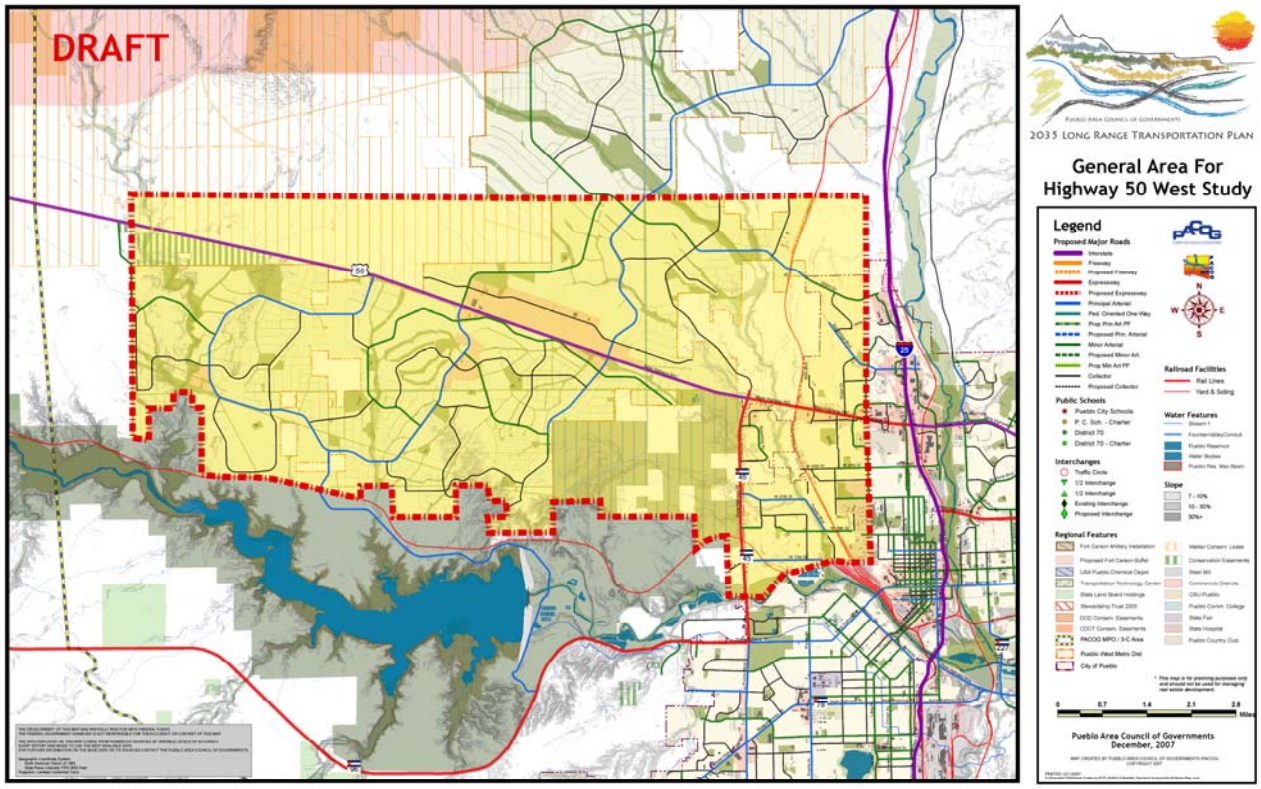
6.9 Alternatives Analysis

Addressing existing and future congestion in the Pueblo Area will require a careful assessment of facility needs with available revenue (see Chapter 9). Current plans for improvements to address roadway safety and capacity include the reconstruction of I-25 from Pueblo Boulevard to 29th Street, currently under an EIS review and the tiered EIS study of US50 from Pueblo east to the Kansas state line. A current project to improve SH96 is the reconstruction of the 4th Street Bridge across the Arkansas River.

No improvements are currently planned for US50 West of Pueblo, although the corridor is already experiencing significant congestion. A study of the US Highway 50 West corridor is scheduled to begin in 2008. The broadest definition of this corridor has boundaries encompassing Baltimore on the east, Platteville Blvd on the north, Pueblo West Metropolitan District boundary on the west, and the Lake Pueblo State Park boundary on the south (see figure 6-7).

Development of the Long Range Transportation Plan included an examination of alternatives along each of the major corridors through Pueblo for addressing the mobility, safety and system quality concerns. Alternatives for the delivery of transit services were also developed and evaluated. This section provides the results of that analysis.

Figure 6-8: General Area of US Highway 50 West Study Area



6.9.1 Corridor Approach

In the development of the 2030 LRTP, the Colorado Department of Transportation began evaluating statewide transportation needs through the development of Corridor Visions. This corridor-based approach allows for flexibility in addressing regional transportation needs and a "broad-brushed" examination of statewide transportation needs. At the MPO/TPR level, this corridor approach must be tempered with a regional, landscape-scale analysis of environmental concerns, as outlined and examined above in Chapter 3.

Regional Corridors & Inter-Regional Connectors

As discussed more detail in Chapter 7, the Pueblo MPO/TPR, in addition to many regionally significant corridors, contains four significant statewide transportation corridors, each of which contain a wide variety of modes and facilities to move goods and people to destinations within and through the SE Colorado region. Figure 6-9 shows these major corridors. They include:

Interstate 25 Corridor

Primary North-South Corridor through the Pueblo region. Includes Interstate-25, 48 miles of interstate highway running through Pueblo County; SH227 paralleling the Interstate; and the Fountain Creek Trail and associated planned trail networks south of the Arkansas River. The corridor also includes SH45 (Pueblo Boulevard) that is planned to form a parallel route west of I-25, north of US50 West.

US Highway 50 / SH47 Corridor

Primary East-West Corridor through the Pueblo region. Includes US50A, SH47, US50B, US50C, and SH96, in addition to parallel local facilities. Major trail network includes the Arkansas River Trail that encompasses sections of both the American Discovery Trail and the Colorado Front Range Trail.

The US Highway 50 Corridor connects the region's major residential areas (Pueblo and Pueblo West) with three of the region's major employment centers (the Pueblo Mall, Colorado State University, and Airport Industrial Park).

SH96 Corridor

East-West Corridor that passes through Downtown Pueblo. Includes rural highway, urban arterial sections, downtown commercial land use, and suburban commercial roadways. Corridor includes the 4th Street Bridge, a critical crossing over the Arkansas River; and one of only four roadway crossings of the Fountain Creek.

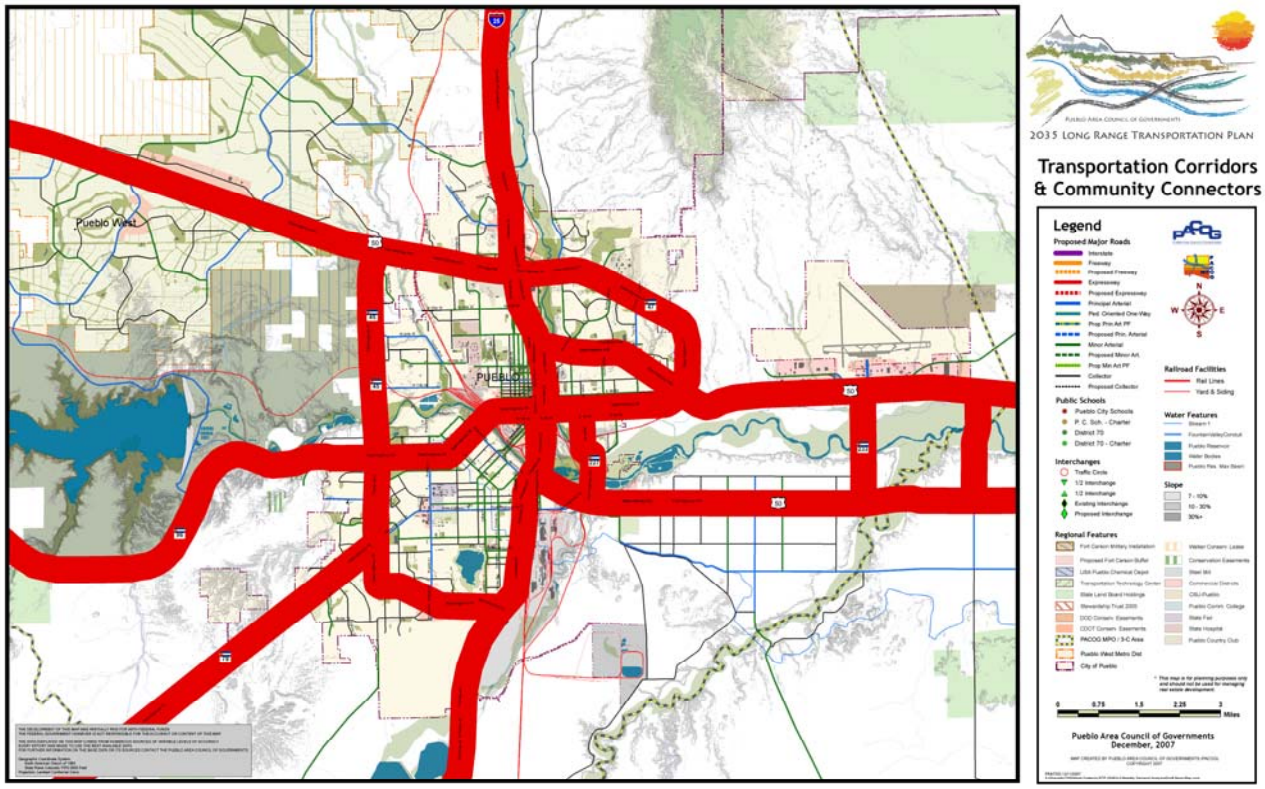
SH78 Corridor

Main Corridor connecting Beulah with the City of Pueblo. Corridor includes State Highway 78 that turns from a rural highway to a major commercial arterial. Construction of intersections along the rural to urban interface is guided by the SH78 Access Management Plan.

Community Connectors

As described earlier, many of the State Highways not only serve as regional corridors, but they also perform a critical role as the main connectors between portions of the Pueblo area. They are the primary routes that cross the physical barriers that divide portions of the Pueblo Area. They cross the five main railroad lines that are found within the Pueblo area and the three primary water features that join in Pueblo: Fountain Creek; Arkansas River above Fountain Creek; and Arkansas River below the confluence with Fountain Creek.

Figure 6-9: Pueblo Transportation Corridors and Connectors



6.10 Roadway Alternatives

At the development of the PACOG 2035 LRTP, funding for projects to improve mobility (reducing congestion), improve safety, and improve system quality within the PACOG MPO/TPR is quite uncertain and problematical. This will be discussed further in Chapter 9 (Fiscally Constrained Plan).

Addressing congestion issues and roadway safety concerns along I-25 will eventually require a major reconstruction of I-25. Part of this project also needs to address the connection between south and western portions of the Pueblo urban area north to El Paso County and Fort Carson. An extension of SH45 north of US50 to a new connection with I-25 has been proposed as an extension of the 1999 Pueblo Blvd Extension study that determined a preferred centerline alignment of a future extension of State Highway 45. At present this has not been added to the Highway System, so public funding for the development of the extension of State Highway 45 is uncertain.

From the review of the current and future congestion, the US Highway 50 corridor will need significant improvements to accommodate the forecast traffic volumes. Based on the future classification of this roadway, it still does not appear that capacity improvements alone could accommodate the future traffic volumes without further upgrades. The shift of some development to the northeast quadrant does not impact the forecast growth of population and traffic within western Pueblo, Pueblo West and along the US Highway 50 West corridor.

The cost and complexity of these projects, however, suggest a need for interim solutions that could forestall the need for these projects by improving connectivity between population and employment centers along parallel facilities. The goal of providing these lower-cost alternatives would be to remove local traffic off of the state highways and onto more direct routes to major destinations.

6.10.1 Urban Alternatives for I-25

The purpose of the New Pueblo Freeway project is to improve safety for north-south travel and to improve local and regional mobility within and through the City of Pueblo to meet existing and future travel demands.

Much of I-25 through Pueblo was actually built between 1949 and 1959 as US 85/87 before the creation of the Interstate Highway System in 1956. As a result of its age and outdated design standards, this segment of I-25 contains structural and operational deficiencies. Today, these deficiencies are evident through high accident rates, areas of reduced speed, traffic congestion, and poor traffic operations.

Two “build” alternatives were developed through an extensive community-wide public process that exemplifies Context Sensitive Design. The Alternatives were developed from the Community Vision for the project, input from numerous stakeholders, and thorough qualitative and quantitative evaluation of how well it meets the Vision, goals and criteria for the New Pueblo Freeway.

The two alternatives—the Existing Alignment Alternative and the Modified Alignment Alternative—differ only in the middle one-third of the corridor, where the Modified Alignment shifts the interstate east to enable improvements to the local street network - especially along a relocated Santa Fe Drive.

For I-25, alternatives to a reconstruction of the entire facility would be a series of phased improvements to select sections of the interstate

as well as connectivity improvements to parallel facilities. By addressing select areas of the interstate where an influx of local traffic onto the system is creating "spikes" in traffic volumes, these phased improvements could extend the functional lifespan of I-25 through Pueblo.

Alternative phases in the I-25 Corridor could include:

- Reconstruct the US50B / 29th Street Interchange along I-25;
- Reconstruct the Ilex interchange section to remove significant safety concerns:
- Improve connectivity between SH47 and US50C by completing the Dillon Drive Extension south to US50B;
- Rebuild the Abriendo Interchange to create a direct connection between the St. Charles Mesa and the Mesa Junction area of the City of Pueblo:
- Realign part of SH227 west to connect to Erie Avenue and extend Erie Avenue to a new intersection with US50B to provide direct access to the Dillon Drive extension.

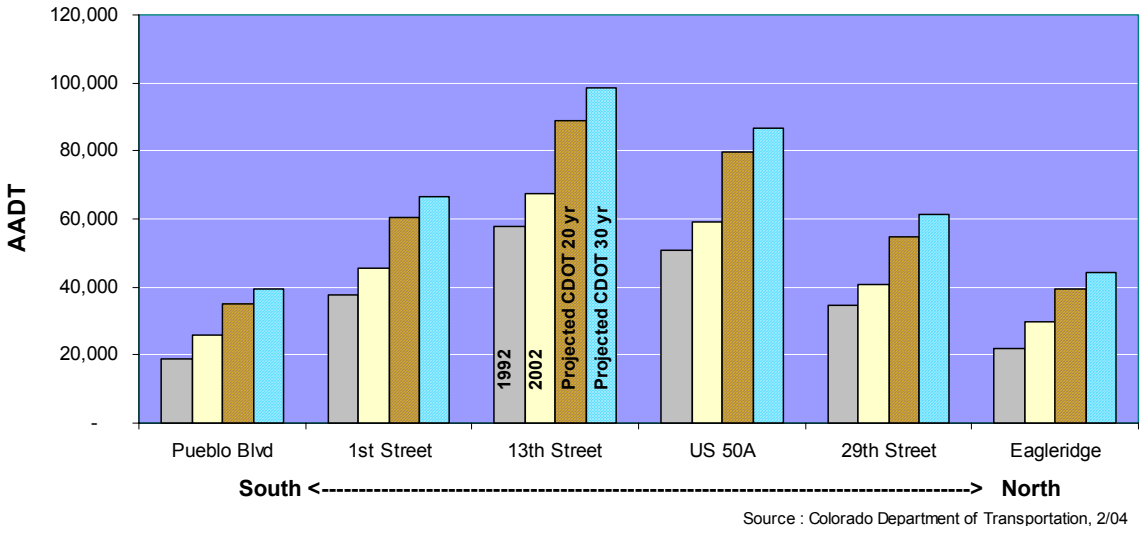
EIS Schedule

The Draft EIS is scheduled to be published for public review in Fall 2008.

6.10.2 Rural Alternatives for I-25

With the potential for significant development of the northeast quadrant, portions of I-25 north of Eagleridge may experience the need for significant improvements at interchanges. This includes the potential for a new split diamond interchange at Dillon-Eden-Platteville (mile marker 104), a new interchange at Porter Draw (mm 106), and the rebuilding to current standards of 4 existing interchanges – Purcell (mm108), Pinon (mm 110), Steel Hollow (mm114) and County Line (mm116) to provide access to and from the Interstate in the northeast quadrant. At some point in the future, expanding I-25 from Pueblo to Colorado Springs may need to be considered, or the development of parallel high-capcacity regional and inter-regional connections.

Figure 6-10: I-25 Daily Traffic, 1992 - 2030



Source : Colorado Department of Transportation, 2/04

6.10.3 US Highway 50 West Alternatives

US50 is the only existing route between I-25 and the major business and population centers west of the Interstate. Increased traffic along this corridor may require additional capacity plus the extension of SH45 north to I-25. While these could improve traffic flow in the Northwest quadrant and two major corridors, there is also a substantial demand for travel between Pueblo West and Downtown Pueblo, especially for work trips.

The cost and complexity of these projects, however, suggest a need for interim solutions that could forestall the need for these projects by improving connectivity between population and employment centers along parallel facilities.

The City of Pueblo Honor Farm Master Plan provides for an arterial parkway connection between Joe Martinez Blvd in Pueblo West and Pueblo Blvd at 24th Street. This parallel to US Highway 50 West would reduce US 50 traffic by providing a second connection between the southern parts Pueblo West and the city of Pueblo. This connection does not, however, address congestion within the City of Pueblo which needs a more direct western connection to Pueblo Blvd.

The proposed West Pueblo Connector provides a continuous corridor between Downtown and Pueblo Blvd. Similar western connections have appeared as part of many earlier plans – first as part of "*Possible Radials to Downtown*" in 1962, then as part of the "*Pueblo*

Tomorrow…" in 1968, in the 1992 "*Pueblo Blvd. (SH45) Access Study*". The current corridor alignment was identified in special studies of the Northwest Quadrant and Downtown Pueblo Access in 2002 and adopted in the 2030 LRTP as the highest off-system priority.

6.10.4 US Highway 50 East Alternatives

At the request of many residents and towns, a long-term project is underway to improve US Highway 50 to a four lane cross section form Pueblo east to the Kansas State Line. This corridor is being studied as part of a Tiered EIS. In the 2030 LRTP, an alternative corridor was proposed for US Highway 50 north of Pueblo Memorial Airport. This would also provide a direct connection to the current route of SH 47 to US Highway 50 at I-25. With the direct connection established, SH 47 could be re-designated as US 50 and eliminate the need for the current US50B highway.

6.10.5 State Highway 45

The North Pueblo Boulevard Extension study in 1999 estimated the cost of the SH45 extension to be $168 Million including a grade-separated interchange with US50. Since 1999, highway construction costs have more than doubled, so such an extension would be an investment in excess of $350 million. The completion of an alternative route between Pueblo West and the Pueblo CBD south of US50, as discussed earlier, could relieve the congestion along US50 enough to postpone the need for the full reconstruction of the interchange.

Due to the purchase of conservation easements extending about two miles from the Ft. Carson boundaries, Pueblo Blvd north of Hwy 50 will also replace the western Pinon Loop shown in the 2030 LRTP. With the loss of the proposed Pinon Loop, CDOT has been asked to update the study of the alignment of Pueblo Blvd and consider extending it as far north as the Pinon/Pace Interchange (mm 110). With an improved interchange this could also provide a connection to the potential developments in the northeast quadrant of Pueblo County.

6.10.6 SH96 Alternatives

Traffic along SH96 is expected to increase as population centers continue to grow west of SH45 and south of the Arkansas River. This vital link to downtown Pueblo will require both safety and capacity

improvements between Prairie Avenue and Interstate 25. Two special studies are needed to:

- Examine the benefits and costs of developing a one-way-pair for 4th Street and 5th Street through Downtown Pueblo.
- Analyze safety improvements along SH96 between Prairie Avenue and Abriendo. In that area, the roadway was built in an existing neighborhood where residential homes and businesses have direct access on the State Highway.

In 2007, CDOT completed a paving project on SH 96 from Abriendo west to the edge of the City of Pueblo. Although there were no significant capacity improvements, sidewalks were installed and the entire section is now ADA accessible.

6.10.7 SH47 Alternatives & Potential Connections

This section of the roadway system is a non-Interstate highway that has some existing grade separated interchanges. Traffic along SH47 is expected to increase as population centers continue to grow east and north of SH47 and east of the Fountain Creek. This vital link connects Pueblo West via US Highway 50 to the Airport Industrial Park and portions of eastern Pueblo county. If large-scale development actually materializes in the northeast quadrant of Pueblo County, major freeway/expressway corridors (as well as supporting arterials and collectors) will be required to accommodate future traffic growth. Schematic general locations for these corridors are shown as extensions from interchange points on existing SH 47 all the way north into El Paso County.

From a broader inter-regional perspective, if planned employment centers in southern El Paso County and eastern Colorado Springs are developed, similar major connections will be needed to provide continuity from northeast Pueblo County to proposed major corridors such as Powers Blvd and Banning-Lewis Pkwy in the eastern Colorado Springs area. Because of the distance and potential future traffic volumes, consideration should be given to begin now working with CDOT and the Transportation Commission to designate one or more of these parallel major facilities as an extension of the State Highway system. Such a designation would recognize both the inter-regional and inter-state implications of major connectors between existing system highways in both Pueblo and El Paso counties. From a planning perspective, the Pueblo area should take the lead in the following:

- Continue to provide timely information to the US 50 East

Tiered EIS study about proposals near the Airport and in the northeast quadrant of Pueblo County which could impact a relocated US 50 corridor from SH 47 to the east county line;

- Work with CDOT Region 2 to consider the potential impacts of locating a new interchange east of Troy to connect SH47 to future north-south corridors east and west of the Baculite Mesa;
- Continue to coordinate the planning and evaluation of future major transportation connections and facilities with the Pikes Peak Area Council of Governments MPO, the Central Front Range TPR, El Paso County, Colorado Springs, and CDOT.

6.11 Demand for Transit Service and Non-motorized Facilities

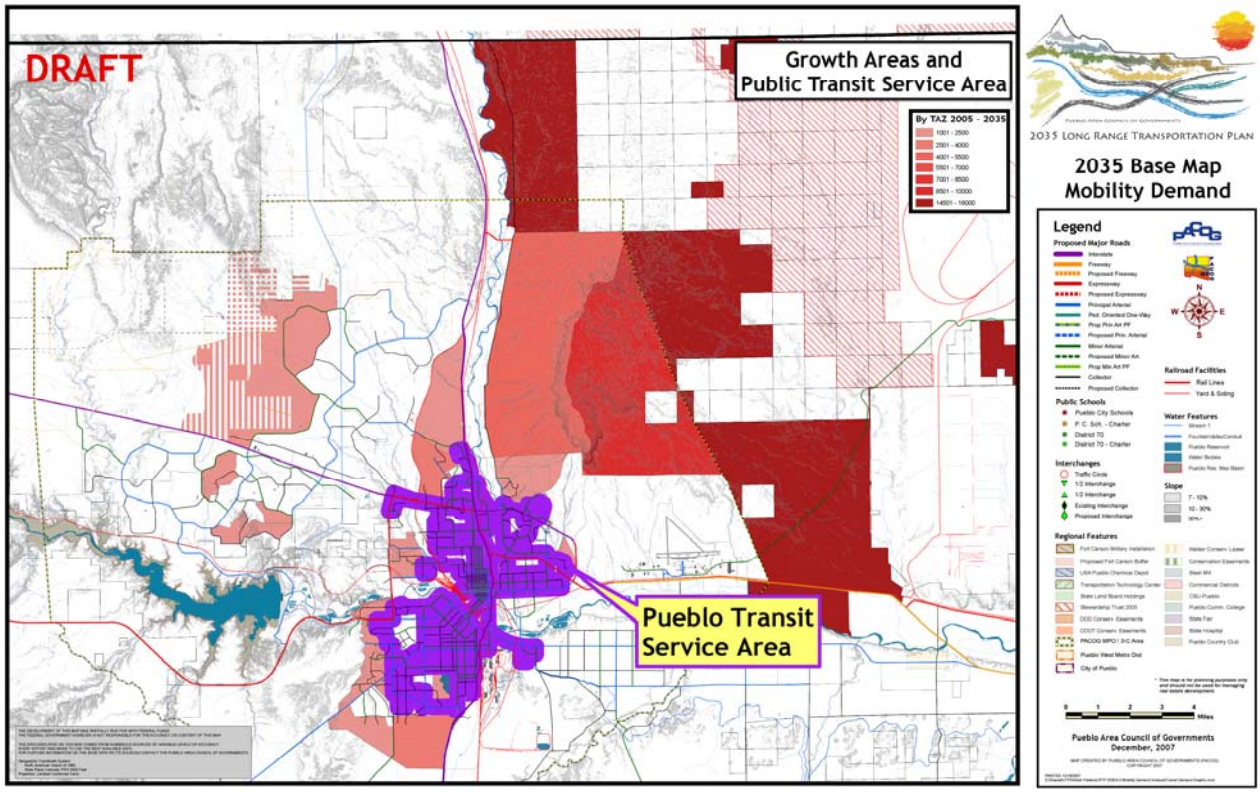
For estimates of future demand for transit services and transit improvement options, please see the detailed analysis and discussion in Chapter 5 (Coordinated Public Transit – Human Services) of this Plan. Given the current policy of providing Transit services only to areas within the City of Pueblo, projecting growth of the transit ridership can be significantly tied to the growth projections of the City of Pueblo. From the information from Table 4.1: Regional Population and Table 5.3: Potential Transit Dependent Populations is used to project the future Transit Demand.

Looking at population estimates for Adults, Students, Persons with Disabilities, and resident 60+ years of Age that are predicted to live within the City of Pueblo, the ridership is forecast to reach 1.6 million unlinked trips by 2035. There are a number of factors that may impact these numbers – greater annexations into the City of Pueblo of the overall estimated growth, the impact of rising fuel costs, and the possible greater use of Transit by the aging "baby-boomers" may increase the numbers of transit riders. As noted in Chapter 5, there are a number of service improvements that would also offer transit services to more of the population within Pueblo County and the City of Pueblo. These include longer operating hours, expanded service to regional employment centers, and service extensions to areas outside the City of Pueblo. There is significant public desire for expanded bus services to reach greater percentages of the various transit populations. The PACOG Board has requested that the PACOG MPO/TPR staff research various funding opportunities in 2008 to enable the expansion of Transit Services and greater funding for all modes of transportation system improvements.

The rate of growth in the demand for non-motorized facilities and transit service is likely to exceed that of roadway facilities due to the rising cost of automobile fuel. Continued planning and programming of improvements for pedestrians, bicyclists and transit riders will address the increased demand. Where warranted, major roadways should be designed with appropriate bicycle and sidewalk facilities, based on criteria and design standards of the local jurisdictions.

From a transportation operations planning standpoint, some additional consideration may become necessary to ensure year-round access to sidewalks. On roadways with significant vehicular traffic, or where winter snow plowing may occur, detached sidewalks should be considered to prevent "splashover" icing of sidewalks. Planning work will be done over the next few years to address the issue of developing a much more robust multi-modal transportation system – increased transit funding, complete streets studies, pedestrian connectivity through residential and commercial developments, multi-use trail development and extensions to connect the region wide amenities found throughout the Pueblo County area.

Figure 6-11: Pueblo Transit Service Area and Areas of High Growth Forecasts



6.11.1 Transit Alternatives

The Pueblo Transit fixed-route and demand-response system provides just over one million one-way passenger trips per year to residents of the city of Pueblo and a small area outside the City Limits. Transit demand and ridership are discussed in detail in the Coordinated Public Transit – Human Services Coordination Plan (See Chapter 5). The estimates include potential ridership of transit dependent groups such as the elderly, low income, and mobility limited.

Within the 2030 LRTP Transit Element there were three options proposed for changes to the Transit Services. At the time of the development of the 2035 LRTP, Pueblo Transit initiated a number of changes to the existing routes to provide expanded service within the City of Pueblo. Future transit service expansion within the City will be evaluated in the context of physical growth patterns, population growth location, and major employment locations.

Transit service outside the City to areas such as Pueblo West, the St. Charles Mesa, and the Airport Industrial Park remain in this Plan for

future consideration. Under current policies, such extensions may be implemented if sufficient funding for new vehicles and operating expenses is provided by the appropriate local jurisdictions served by new or extended routes.

6.20 Prioritization Process

Assigning specific priorities to individual projects is very difficult because of the extreme uncertainty in long term funding for CDOT. This uncertainty is discussed in more detail in Chapter 9 (Fiscally Constrained Plan).

Based on the forecast levels of future congestion, the following major corridors and sections are included as priorities for funding of major system improvements by 2035. Individual projects within these corridors will be selected and programmed through the shorter-term (6-year) Transportation Improvement Program (TIP) based on more précised estimates of actual funding levels and availability.

Table 5-3: Future Priorities—Regionally Significant Corridors

Priority	Corridor	Section		2035 V/C
	US Highway 50 West	Purcell Blvd. to Pueblo Blvd		**198%**
		Joe Martinez Parkway Extension	Optional off-system project	
	US Highway 50 West	Baltimore to Club Manor		**189%**
		West Pueblo Connector	Optional off-system project	
	Pueblo Blvd (SH 45)	St. Clair to Thatcher Ave		**182%**
		Bandera Parkway		
	US Highway 50 West	Pueblo Blvd to Baltimore		**177%**
		West Pueblo Connector	Optional off-system project solution	
	Pueblo Blvd (SH 45)	Lehigh to St. Clair Ave		**165%**
		Bandera Parkway	Optional off-system project solution	
	Interstate 25	Highway 50 Bypass to 13th Street		**138%**
		Dillon south to 4th Street	Optional off-system project solution	

	US Highway 50 West	Club Manor to I-25		**135%**
	State Highway 47	I-25 to Jerry Murphy		**126%**
	Interstate 25	Ilex Interchange – 1st to Ark. River		**125%**
		SH227 Extension to 4th Street	Optional off-system project solution	
	US Highway 50 West	McCulloch to Purcell Blvd.		**116%**
	Santa Fe Dr (SH 50C)	SH 227 to Aspen Lane		**114%**
	4th Street (SH96)	Abriendo to Elizabeth		**112%**
	Pueblo Blvd (SH 45)	West 11th Street to Thatcher Ave		**105%**
		West Pueblo Connector	Optional off-system project solution	
	Interstate 25	13th Street to 1st Street		**103%**
	Pueblo Blvd Extension	US Hwy 50 West to I-25		