CHAPTER 5: REGIONAL TRANSPORTATION VISION

INTRODUCTION

A Vision Plan is a picture of what we would like to see the transportation system for the Pikes Peak area to be in the future. The Vision Plan is the inspirational framework for strategic planning. The Vision Plan answers the question, "Where do we want to go?" The Vision Plan articulates the regions dreams and hopes for a transportation system that provides choice in travel modes, whether automobile, transit, biking or walking. It reminds us of what we are trying to build.

The Vision Plan does not tell us how you're going to get there, but it does set the direction for the development of the Financially Constrained Plan. The Vision Plan allows us to dare to dream and captures our passion.

A Vision should be lofty, compelling, and inspiring to the participants. Defining the transportation system that a region desires to implement is a complicated process bringing together diverse interests, perspectives, and needs to consider an endless combination of challenges, options, and impacts. For a regional transportation plan to succeed, the process to develop it must seek the varied perspectives of all the system users, be perceived as "fair," and strive to articulate the desires of the regional community.

VISION, MISSION AND PRINCIPALS

Vision:

Create a pre-eminent multi-modal transportation system that meets regional mobility and accessibility expectations as essential elements of the Pikes Peak Area's quality of life.

Mission:

Plan multi-modal transportation facilities and services that efficiently move people and goods and support economic vitality while sustaining and improving the quality of life in the Pikes Peak Region.

Principles:

1. Preserve the function of the existing transportation system.
2. Provide efficient transportation for people and goods.
3. Develop a multi-modal transportation system that provides access to employment, services, military installations, and other destinations.
4. Fully integrate connections within and between modes for people and for freight.
5. Increase the safety of motorized and non-motorized travel.
6. Increase the security of the multi-modal transportation system.
7. Support the economic vitality of the Pikes Peak Area.
8. Improve mobility of people and goods.
9. Protect and enhance the environment by implementing transportation solutions that are sensitive to natural and human contexts.

This section describes the visioning process and presents the Moving Forward Vision Plan – Our Dream.

THE VISIONING PROCESS

The visioning process began with the development of a Vision Statement, Mission, and Principles at the start of the process to develop the 2035 Regional Transportation Plan.

- The Vision "paints" a picture of the desired future regional transportation system. The *MOVING FORWARD* Vision is responsive to the needs of the region's citizens, encompasses the varied plans of the jurisdictions within the region, and challenges participants to develop a system that addresses the region's quality of life.

- The Mission provides guidance on how those involved in this planning effort will move forward to achieve the desired outcomes.

- The Principles are standards that describe the integrated multi-modal transportation system we are striving to achieve and provide an overview of the factors that must be addressed in the plan. The Principles establish the framework in which objectives are defined to reach those standards and measurements calculated to gauge how well various proposals succeed in meeting those standards.

PPACG initiated the *MOVING FORWARD* 2035 Regional Transportation Plan development process through a series of public meetings designed to obtain citizen reaction and input on the draft *MOVING FORWARD* Vision, Mission, and Principles. Six public meetings held around the region in September 2007, each set in a different community to allow the opportunity for citizens to provide input on the draft Vision, Mission and Principles. The Colorado Department of Transportation and respective local entity staffs assisted PPACG Transportation Planning staff in providing information to participants. Participants were encouraged to inform PPACG Transportation Planners of respective local and regional transportation concerns.

Key PPACG advisory committees: the Community Advisory Committee (CAC); the Transportation Advisory Committee (TAC) and two subcommittees, the Specialized Transportation Advisory Subcommittee and the Transportation Enhancement Subcommittee used the citizen input to develop an initial draft for further public comment. The committees considered a number of elements including: Board direction, Federal planning factors, the transportation-related vision and goals of local governments, previous planning efforts, and public input. The initial draft was completed at a joint workshop of the Community Advisory Committee and the Transportation Advisory Committee in June 2006 and released by the PPACG Board of Directors for citizen input in July 2006. In order to increase public awareness of the process and

increase comments on the vision, mission and principles the PPACG Transportation Team participated in the Council of Neighbors and Organizations (CONO) Forum.

With the Vision, Mission and Principles in place, the next step was to elicit input to the Vision Plan. On October 2, 2007 PPACG hosted two Regional Transportation Roundtables at the Weber Street Center in Colorado Springs to bring the region together to plan the future transportation system. More than 150 people participated in creating future plans for the region. Each event began with background information on regional trends followed by the *MOVING FORWARD* Exercise where a small group of 5 to 10 people created a future transportation system using a regional map and "game" pieces for different types of transportation improvements.

ROUNDTABLE AGENDA

- OPENING RECEPTION AND REGISTRATION
- BACKGROUND PRESENTATIONS
  - Regional Trends
  - Opportunities for Public Participation
- MOVING FORWARD EXERCISE
  - How It Works
  - Table Introductions
  - Round 1: Build Your Plan
  - Round 2: Enhance Your Plan
  - Table Summaries and Individual Questionnaires
- WRAP UP
  - Table Reports
  - Next Steps

The Roundtables were designed to bring the region together. Our goals were to:

- Promote a stronger understanding of regional transportation and transportation funding realities;
- Learn preferences for future transportation improvements for the region; and
- Obtain public input on alternatives to study in the Regional Transportation Plan.

Key factors considered in designing the event were:

- Bringing together people from different parts of the region;
- Making it centrally located;
- Using many information channels to publicize the Roundtables;
- Making the event both engaging and meaningful by designing an exercise that could feed into the Regional Transportation Plan process; and
- Laying the groundwork for additional regional conversations on transportation needs.

At the Roundtable, participants were randomly assigned to groups of 6 to 8 people at a table. The session began with an opening presentation about the existing transportation system and regional

trends. At their tables, people started discussions by introducing themselves, where they live and their reflections on key messages from the opening presentation. Participants then began the process of working together to create a future transportation system. The board for the exercise was a map of the region which highlighted existing and planned (projects for which funding is committed) transportation improvements. The board included space for summarizing results and key themes, as well as space for comments and bright ideas. In the exercise, participants were asked to work together in table groups to explore where they would make transportation improvements if there were additional funds available and what types of improvements they would make. Each table had a booklet of maps from the opening presentation on existing and future travel information to refer to during their discussions.

The Moving Forward Exercise was Conducted in Two Rounds

- In **ROUND 1**, participants were given $1.5 billion to spend in making future transportation improvements. This total is roughly equivalent to what will be available to the Region from federal and state funds.

- In **ROUND 2**, the total budget was increased by another $2.0 billion. This scenario assumed increased federal or state funding, or renewal of funding for the Pikes Peak Regional Transportation Authority.

Each table had a trained facilitator who also served as banker. The facilitator began the exercise by explaining all the pieces and the tally sheet for keeping track of expenditures. In addition, to give participants a general feeling for how effective various transportation choices are in moving people, the facilitator also calculated Personal Miles Traveled for the system built by the participants. Total expenditures and Personal Miles Traveled were tallied on a worksheet.

At the end of the exercise, the facilitator stayed at their tables while the participants moved around the room to see and learn about the work done at other tables. The maps created in the afternoon session were spread out in the evening so that the participants in the evening could see the work from the previous session.

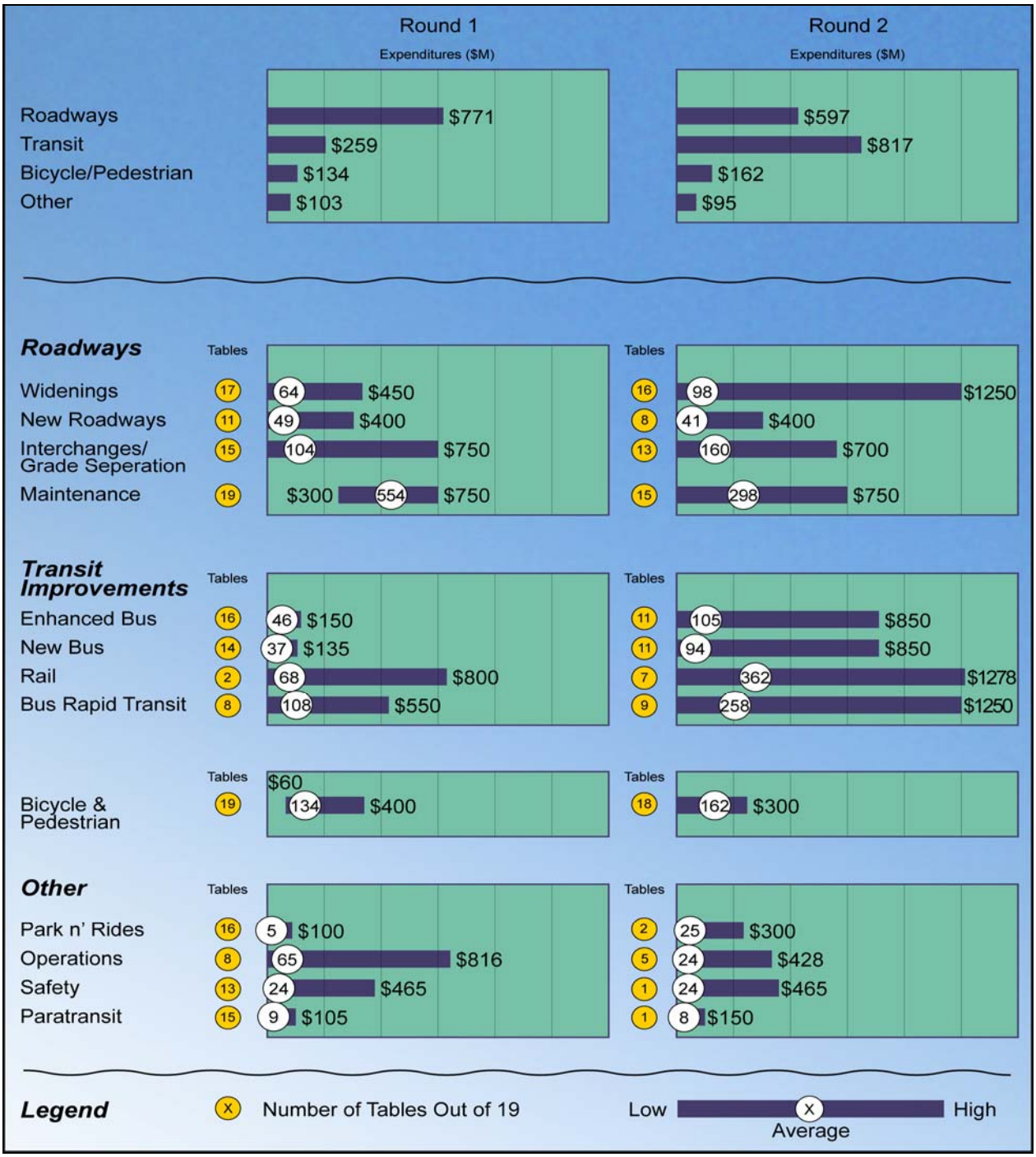
The analysis of findings from the Roundtables included tallying board expenditures, examining the maps to identify common elements, and analysis of the individual exit questionnaires completed by most participants. Key findings and summary results from the table maps are as follows:

- In Round 1, where the budget was $1.5 billion, the improvements on which participants spent the most were Maintenance, new interchanges and bicycle/pedestrian improvements.

- In Round 2, when the table groups had an additional $2.0 billion to spend, the most funds were spent on the average on maintenance, new interchanges and bus rapid transit.

Table 5-1 summarizes data for all tables on expenditures for different types of improvements.

TABLE 5-1: ROUNDTABLE EXPENDITURES



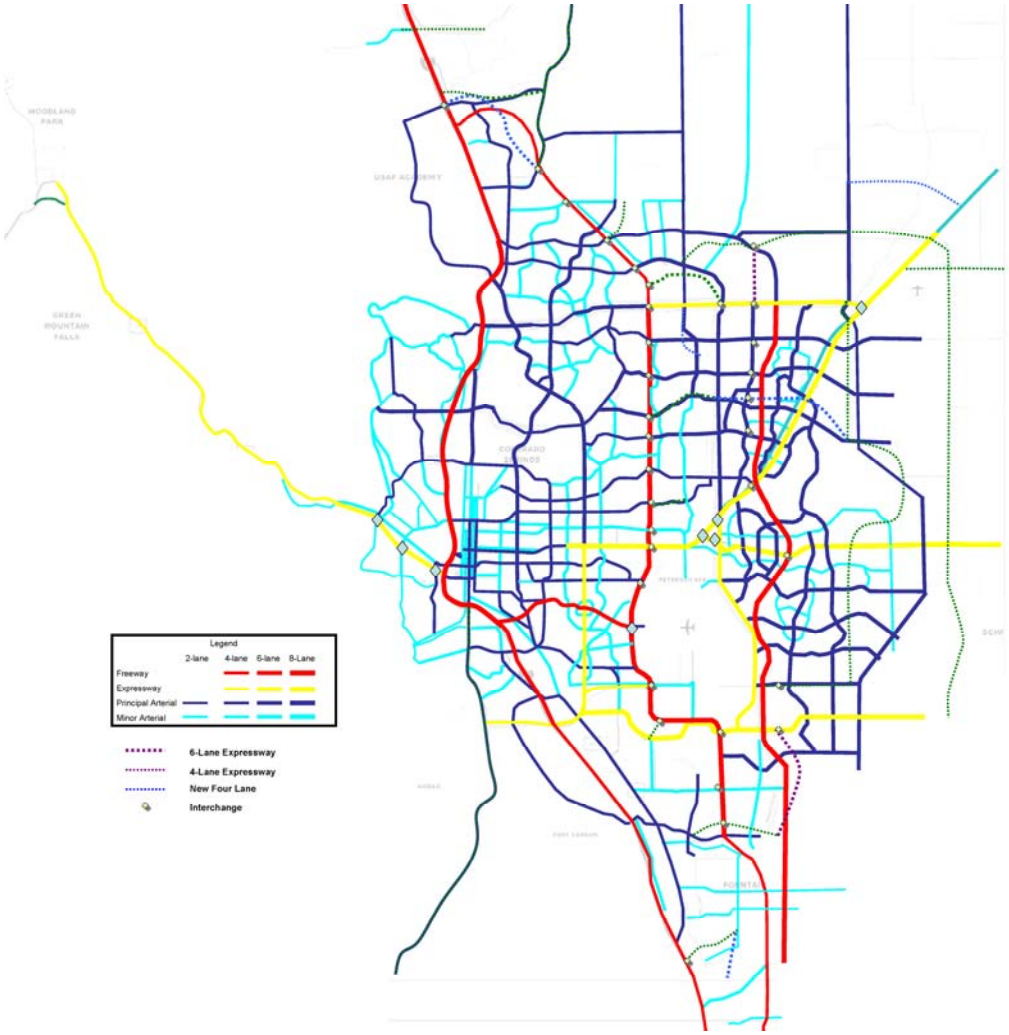
CONSOLIDATED VISIONS

Based on work effort from each of the tables, coupled with input from PPACG's Transportation Advisory Committee, Community Advisory Committee, and Public Participation Working Group, PPACG's Transportation Enhancement Committee and city staff three consolidated vision plans were developed for roadway, transit, and non-motorized.

Consolidated Roadway Vision Plan

The Consolidated Roadway Vision Plan incorporated all recommended major roadway improvements and is presented in Figure 5-1. This Consolidated Roadway Vision Plan incorporates major six and eight lane freeways, expressways and arterials to accommodate the regions growth.

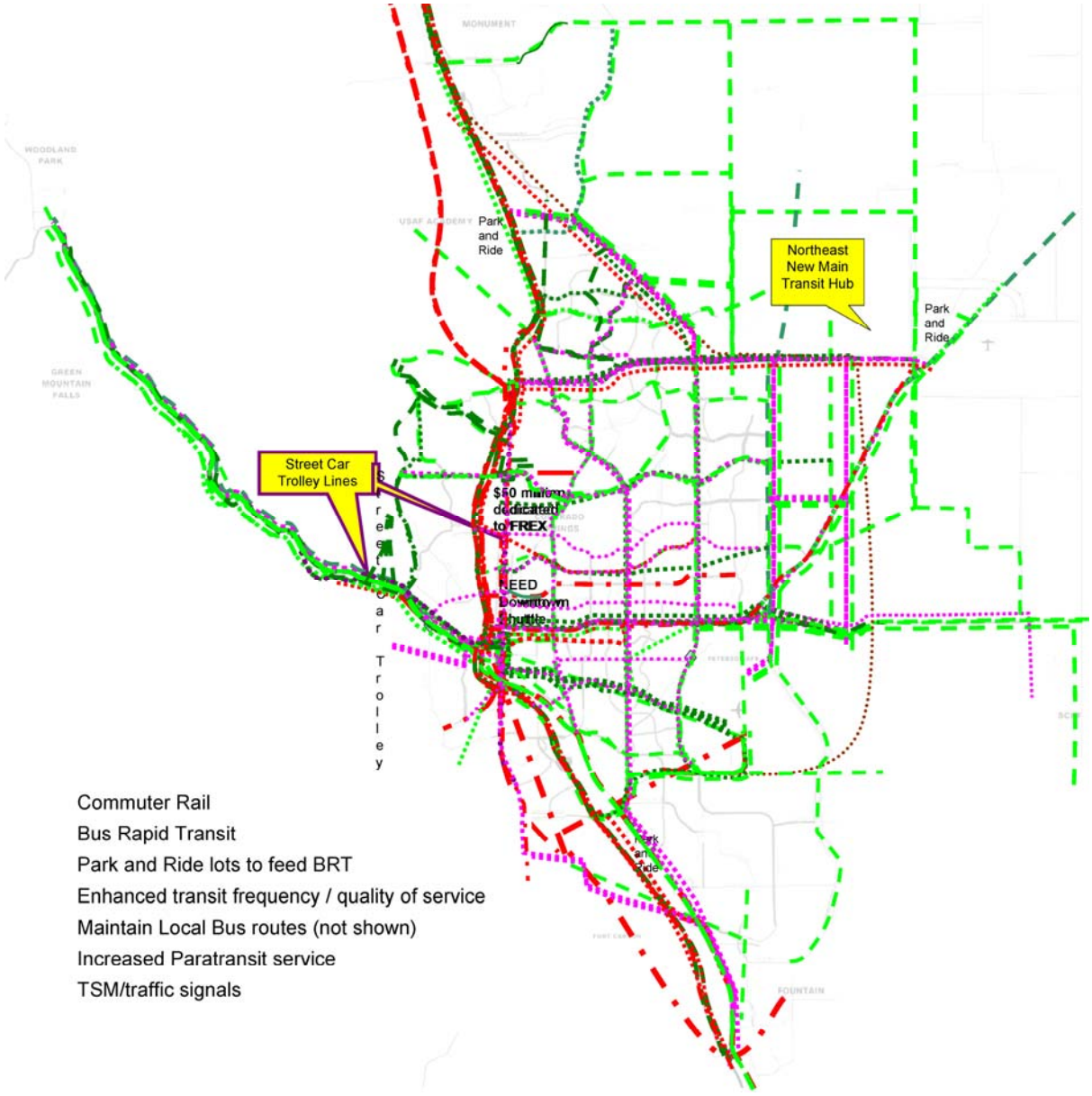
FIGURE 5-1: CONSOLIDATED ROADWAY VISION PLAN



Consolidated Transit Vision Plan

The Consolidated Vision Plan presented in Figure 5-2 incorporates a broad range of transit improvements to address future mobility for the Pikes Peak Area. Transit improvements include regional commuter rail, Bus Rapid Transit, Park and Ride lots to support the commuter rail, increased transit frequency and extended hours for existing transit service, expanded local transit service, increased paratransit service and improved roadway operations including transportation system management and traffic signals.

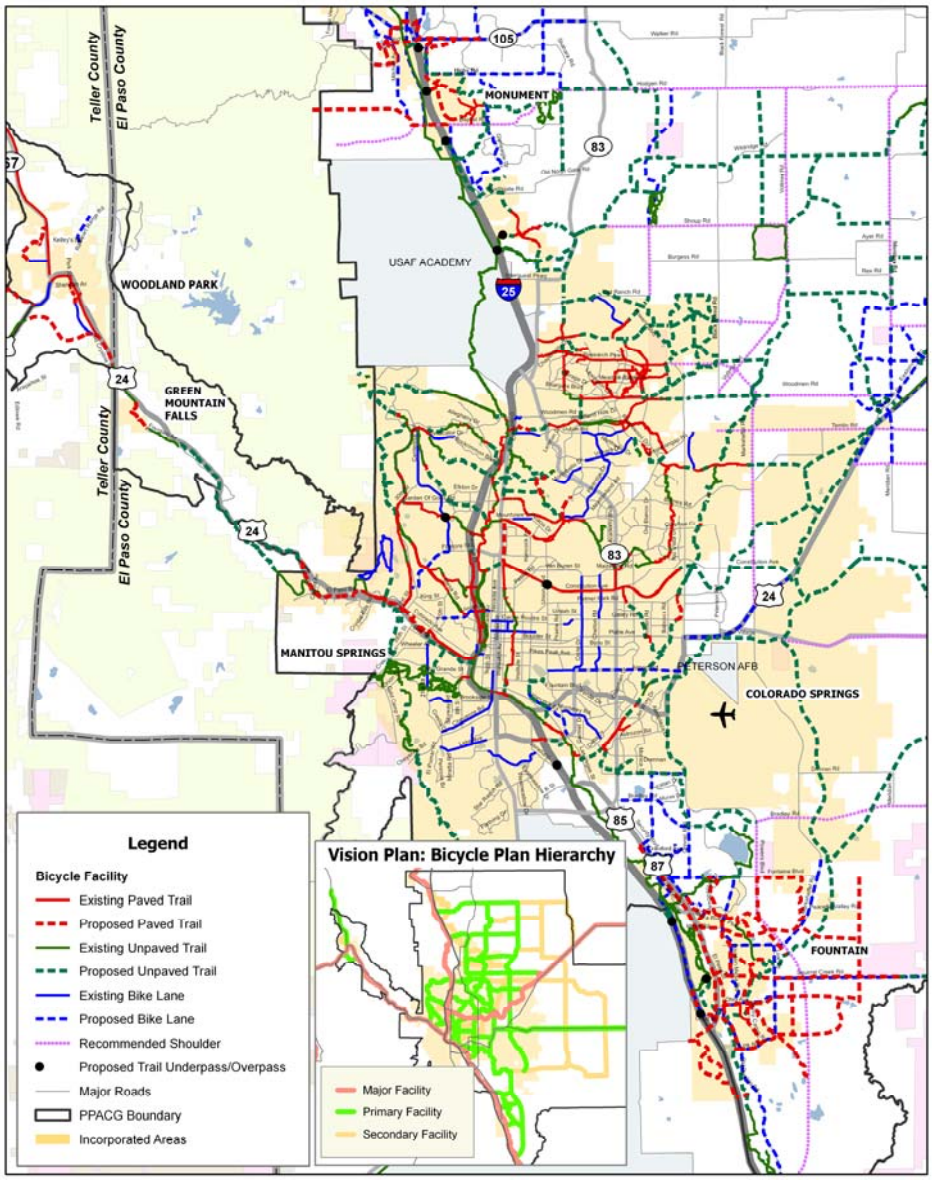
FIGURE 5-2: CONSOLIDATED TRANSIT VISION PLAN



Consolidated Non-Motorized Transportation Vision

As part of a separate work effort which included a parallel public involvement process, a non-motorized transportation vision was developed and is presented in Figure 5-3. The vision plan for the bicycle element was to have a system or hierarchy of bikeways and to provide connections of bicycle trails, lanes and shoulders that would permit effective non-motorized travel. The pedestrian vision was to provide a system of sidewalks and safe street crossings from and between residential, commercial retail, office, school, park and recreation areas and government uses.

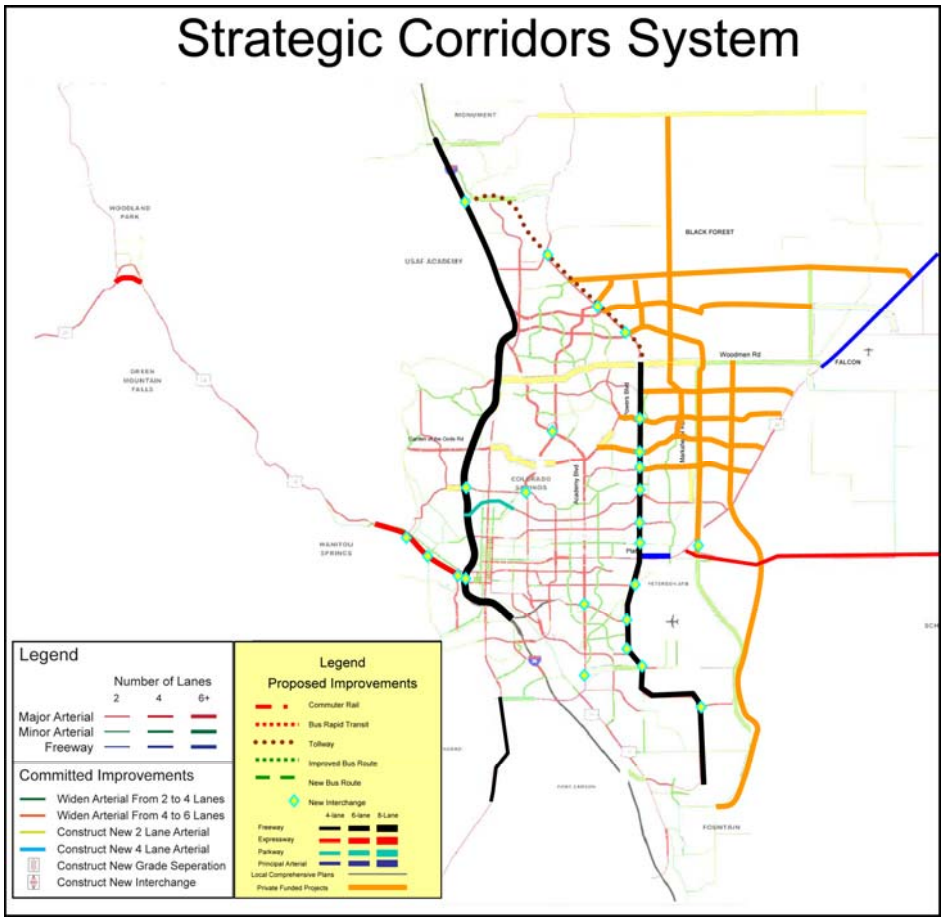
FIGURE 5-3: CONSOLIDATED NON-MOTORIZED TRANSPORTATION VISION



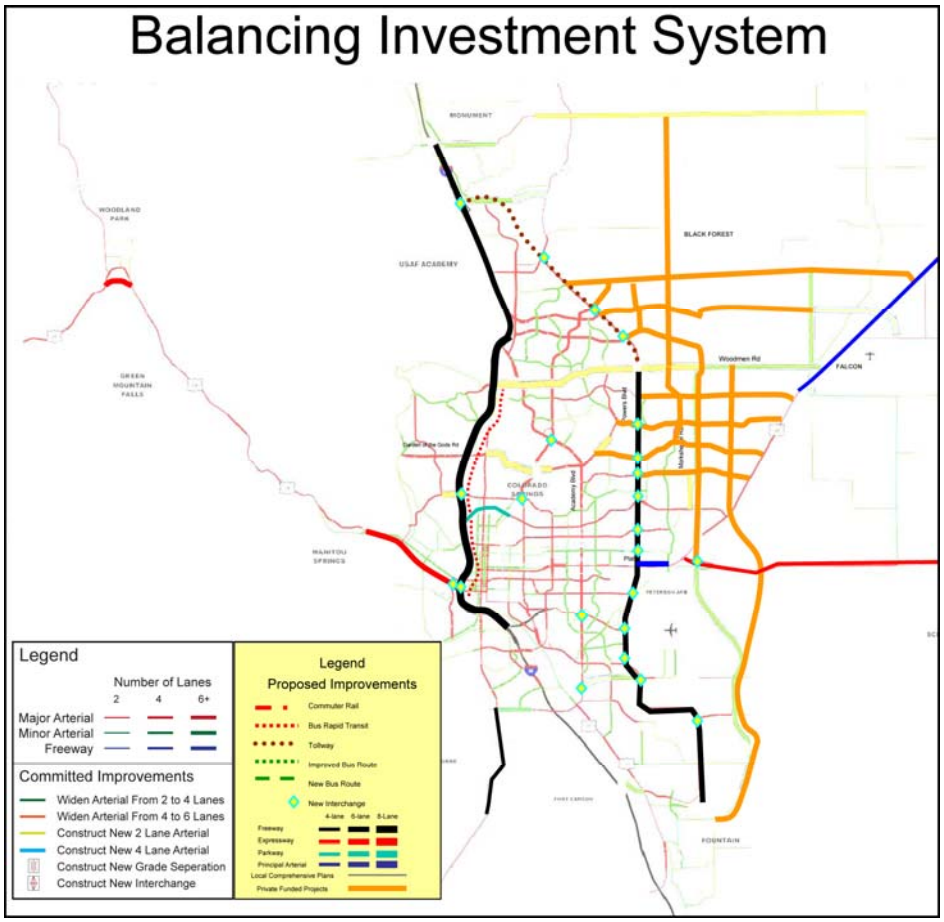
SELECTION OF VISION ALTERNATIVES

In late October, members of PPACG's Transportation Advisory Committee, Community Advisory Committee, and Public Participation Working Group met in a joint session to view all the maps, and begin the process of working with PPACG to create alternative transportation vision plans to study in the Regional Transportation Plan. Whereas the consolidated roadway, transit and non-motorized visions provide modal futures for the region, they do not provide a vision for direction regarding how to grow. Based on all of the inputs, the group composed three conceptual vision plans:

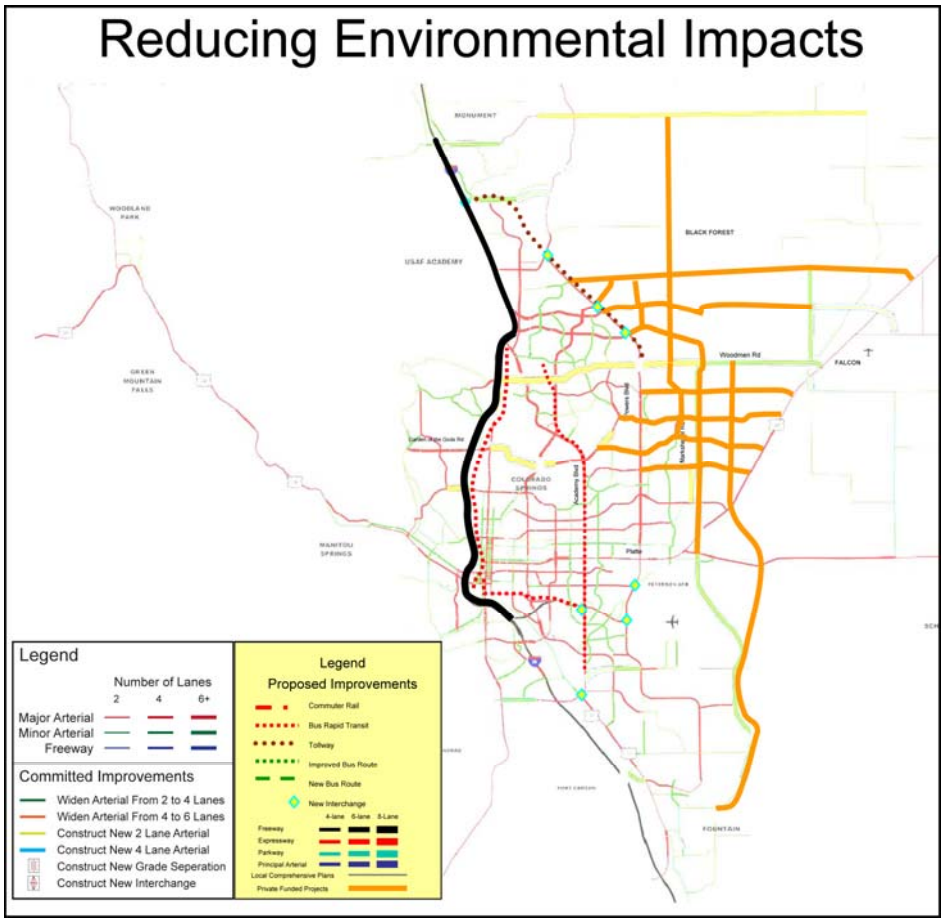
1) **STRATEGIC CORRIDORS SYSTEM** – This vision plan alternative emphasized the regionally significant roadway projects and improving transit on regionally significant corridors. The regionally significant roadway projects included completing Central Powers Blvd as a freeway; widening I-25 North and I-25 High Occupancy Vehicle lanes; US-24 widening from I-25 west to Manitou Springs Exit and east of Woodmen Rd., and the Woodland Park Bypass; SH-94 and SH-115 widening; central Colorado Springs east-west improvements. This vision plan also assumes North Powers Extension being completed privately, potentially as a toll road. This vision plan alternative proposed the transit system be funded at the current level.



2) **BALANCING INVESTMENTS SYSTEM** – The second vision plan for the Pikes Peak region emphasized improved transit coverage and frequency; express bus and bus rapid transit and lower impact roadway improvements. This vision alternative includes improved and new bus service on major corridors throughout the region. This vision also includes the introduction of bus rapid transit. The Vision's roadway improvements include the US-24 widening from I-25 west to the Manitou Springs Exit and east of Woodmen Rd., and the Woodland Park Bypass; completing Central Powers Blvd. as a freeway; central Colorado Springs east-west improvements; and SH-94 and SH-115 widening. This vision alternative also assumes North Powers Extension is completed privately as a toll road.



3) **REDUCING ENVIRONMENTAL IMPACTS** – The third vision plan for the Pikes Peak region focuses heavily on transit improvements including new bus routes, enhancing existing routes; adding bus rapid transit. This alternative would include ITS (intelligent transportation systems) improvements on major corridors and widening I-25 Academy to Monument and I-25 HOV lanes. It should be noted that to provide for the transit ridership to support the transit vision this vision also assumes a compact development scenario to encourage greater transit use. Option: North Powers Extension is completed privately, potentially as a toll road.



These concepts provided the basis for developing the fiscally-constrained plan and the Moving Forward Vision Plan.

Additional vision plan alternatives were developed but not pursued. As described in Chapter 2, key projects contained in these additional alternatives were reviewed and used to enhance the three refined visions.

The three refined alternatives were presented at the December 11, 2007 open house for public comments.

THE VISION PLAN

Upon completion of the public comment period, the Transportation Advisory Committee and Community Advisory Committee met to review and evaluate the three potential directions for the transportation vision that would lead to the selection of a preferred transportation vision for the region.

The evaluation was based on two scores as presented in Table 5-2. The first score was in response to the importance of each of the ten evaluation criteria categories that were based on the Federal SAFTE-LU transportation planning requirements and the Pikes Peak Transportation Plan Vision, Goals and Objectives. Three sets of scores were collected. The first was from the Citizen Advisory Committee. The second was Technical Advisory Committee input. A third set of scores was from an independent focus group. In essence each group was asked to rate from 1 to 100 what they though was the importance of each of the evaluation criteria categories. As presented in Table 5-2 the most important measure of the ten criteria was efficient intersections. It should be noted that this was near or at the top of the list for the CAC and Focus Group, but not the highest with the TAC.

The second part of the Vision Plan Evaluation Process was having the CAC and TAC score from 1 to 9 how well a particular alternative faired in responding to a given criteria. For a few criteria, there was a subset in which the CAC and TAC were also asked of these two criteria, how they wait the importance of one over the other.

Also presented in Table 5.2 are the results of the evaluation of each of the three alternatives. As presented these scores were computed for the individual groups and for an average of the three groups.

The results are also presented in Figure 5-4. In review of the results, it was clear that a Strategic Corridors based plan was the least favorite of the CAC, TAC and Focus Group. In essence a vision that relies heavily on the automobile through roadway investments needed to shift to transit.

VISION PLAN ALTERNATIVES

In addition to the three alternative vision plans selected from the public process and from the Transportation Advisory Committee, Community Advisory Committee, and Public Participation Working Group there were four additional alternatives prepared, modeled and evaluated as follows:

- 2015 EXISTING SYSTEM PLUS COMMITTED PROJECTS – The adopted 2035 Socioeconomic Forecast of Households and Employment Scenario was used to prepare a forecast of travel patterns which evaluated a network consisting of existing facilities and those most likely to be implemented by 2015: projects in the current adopted Transportation Improvement Program Strategic and locally funded projects, including the PPRTA projects in the “A” list. The 2015 Existing + Committed System network also served as the base for comparison of the remaining alternatives.
- 2030 REGIONAL TRANSPORTATION PLAN PROJECTS – The current adopted long-range plan projects that had not yet been funded or built.
- ALL INTERCHANGES – This alternative was prepared to conduct a sensitivity analysis to test impacts of upgrading existing facilities with grade-separated interchanges.
- DISPERSED PROJECTS – This project alternative was composed of proposed projects that meet or reduce a mobility need and/or are included in local entity transportation plans but were not in a previous alternative.

TABLE 5-2: CRITERIA WEIGHTING AND ALTERNATIVE SCORING

Evaluation Category Weighting		1	2	3	4	5	6	7	8	9	10
		Pavement Condition	Safe Bridges	Efficient Intersections	Timely Travel	Travel Choices	Safe Travel	Reduced Impacts on Neighbor-hoods, Historic/ Cultural Areas	Reduced Impacts Natural Areas	Reduced Fuel Use/ Emissions	Effective Freight Movement
CAC Evaluation Category Weight	Normalized (100 highest)	81	70	100	78	58	81	57	36	31	54
TAC Evaluation Category Weight	Normalized (100 highest)	56	61	76	78	100	83	53	40	34	34
Focus Groups Evaluation Category Weight	Normalized (100 highest)	81	73	99	80	48	100	51	40	56	32
Average Evaluation Category Weight	Normalized (100 highest)	73	68	92	79	69	88	54	39	41	40

Measurements		Person trip miles traveled on good, fair, and poor pavement conditions	Bicycle trail and lane surface condition and completion of missing links	CDOT Bridge Condition Index	Trips per hour entering the intersection	Intellegent Transportation System (ITS) Improvements	Region wide congestion (VMT/VHT)	Average Travel Time Per Trip	Number of people/jobs within 1/4 mile of transit route or non-motorized facility	Cost Per Trip	Automobile Crash Rate (Fatality, Injury and Property Damage)	Non-Motorized Crash Rate (Fatality and Injury)	Impacts to adjacent neighborhoods and historic/cultural areas	Impacts to adjacent natural areas	Fuel Consumption Reduction	Emission Reduction	Average Travel Time Per Trip	Cost Per Ton Per Mile	Total Scores
Type		#	#	#	#	$	#	#	#	$	#	#	Qualitative (1-10)	Qualitative (1-10)	#	#	#	$	
Sub-Category Weight		0.9	0.1		0.6	0.4	0.5	0.5	0.4	0.6	0.6	0.4			0.5	0.5	0.5	0.5	
1. Strategic Regional Corridors	TAC/CAC Scores (1 to 9)	138	69	107	140	106	127	130	84	97	87	76	96	85	87	81	146	144	
	Normalized TAC/CAC Scores	100%	51%	100%	100%	88%	100%	100%	63%	73%	64%	53%	71%	59%	64%	58%	100%	100%	
	CAC Final Score (Measurement Weight Times Normalized Score	73	4	70	60	35	39	39	15	26	31	17	40	21	10	9	27	27	543
	TAC Final Score (Measurement Weight Times Normalized Score	50	3	61	46	27	39	39	25	44	32	18	38	24	11	10	17	17	500
	Focus Group Final Score (Measurement Weight Times Normalized Score	73	4	73	59	35	40	40	12	21	39	21	36	24	18	16	16	16	543
	Average Final Score (Measurement Weight Times Normalized Score	66	4	68	55	32	39	39	17	30	34	19	38	23	13	12	20	20	529
2. Balanced Investment	TAC/CAC Scores (1 to 9)	116	130	99	124	117	116	110	119	114	115	111	114	109	112	112	123	121	
	Normalized TAC/CAC Scores	84%	96%	93%	89%	97%	91%	85%	89%	86%	85%	78%	84%	76%	82%	80%	84%	84%	
	CAC Final Score (Measurement Weight Times Normalized Score	62	8	65	53	39	35	33	21	30	41	25	48	27	13	13	23	23	557
	TAC Final Score (Measurement Weight Times Normalized Score	42	5	57	41	30	36	33	36	52	42	26	45	30	14	14	14	14	530
	Focus Group Final Score (Measurement Weight Times Normalized Score	62	8	68	52	38	37	34	17	25	51	31	42	30	23	22	13	13	567
	Average Final Score (Measurement Weight Times Normalized Score	55	7	63	49	35	36	33	24	36	45	27	45	29	17	16	17	17	551
3. Reduced Negative Impacts	TAC/CAC Scores (1 to 9)	90	136	89	95	121	109	98	134	132	135	143	136	144	136	140	81	86	
	Normalized TAC/CAC Scores	65%	100%	83%	68%	100%	86%	75%	100%	100%	100%	100%	100%	100%	100%	100%	55%	60%	
	CAC Final Score (Measurement Weight Times Normalized Score	48	8	58	41	40	33	29	23	35	48	32	57	36	16	16	15	16	551
	TAC Final Score (Measurement Weight Times Normalized Score	33	6	51	31	31	34	29	40	60	50	33	53	40	17	17	9	10	544
	Focus Group Final Score (Measurement Weight Times Normalized Score	48	8	61	40	39	34	30	19	29	60	40	51	40	28	28	9	10	574
	Average Final Score (Measurement Weight Times Normalized Score	43	7	57	37	37	34	30	27	41	53	35	54	39	20	20	11	12	556

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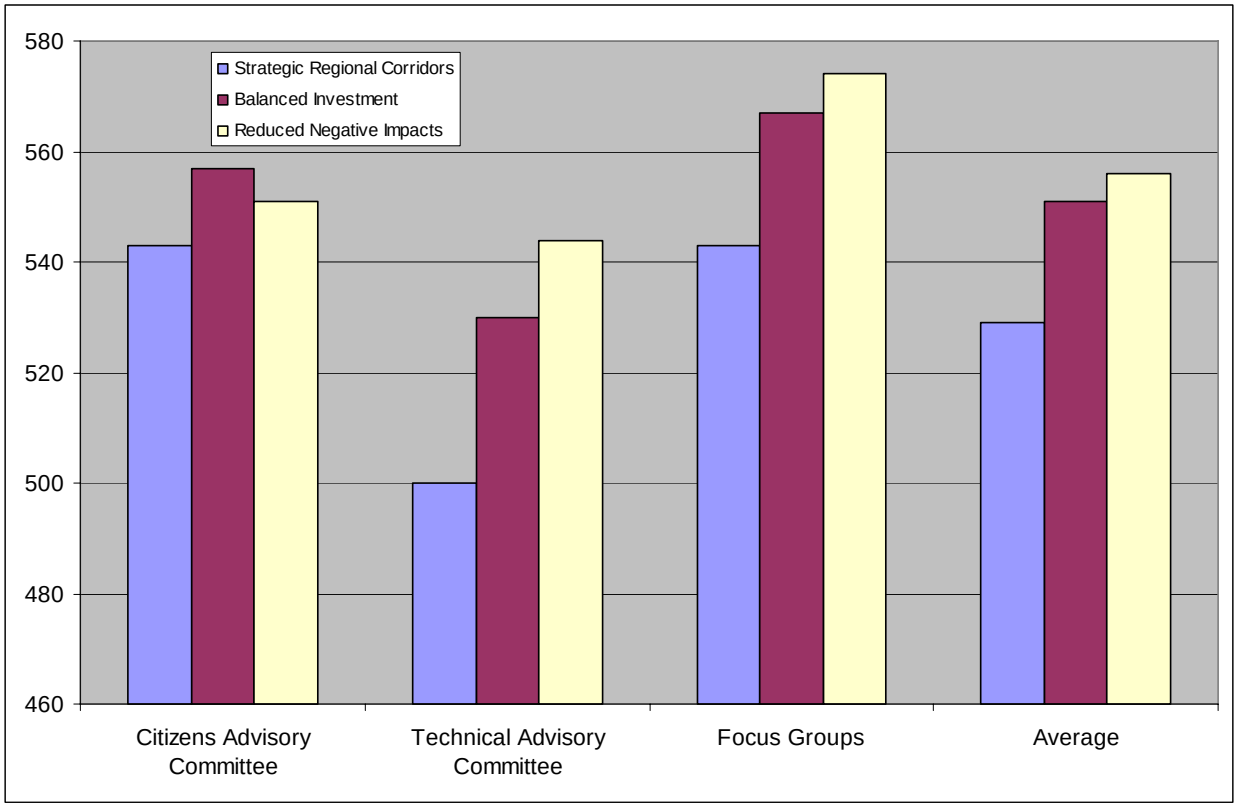
FIGURE 5-4: EVALUATION RESULTS



The differences between the Balanced Investment Vision, with less road improvements and more emphasis on transit, and the Reduced Neighborhood Impacts which was heavy transit and reduced roads was not as clear. Whereas the CAC favored the Balanced Investment alternative over the Reduced Negative Impacts alternative, the opposite was for the TAC and focus group. When looking at a simple average of the three, the two alternatives were virtually tied.

As the virtues of each alternative were discussed, concerns were raised that for the Reduced Negative Impact Alternative to be realized, the land use plans and growth for the region would need to be redirected toward locations adjacent to the proposed transit improvements. The TAC/ CAC, therefore, favored the Balanced Investment Alternative: 1) a change in land use would not be required; and 2) the Balanced Network Vision Alternative proposes a change in vision from a roadway emphasis to a balanced transportation vision.

The Balanced Investment Vision Plan combines the strengths of each of the three composite modal plans future concepts. It includes a major investment in transit, including the improvements in the Mountain Metro Transit Vision developed in conjunction with this regional plan. Road improvements include strategic corridors with adequate investment in maintenance to keep the full system in good condition. The Plan also includes development of the region's non-motorized transportation system.

CHAPTER 6: FINANCIAL PLAN

OVERVIEW

This chapter describes the revenue sources, anticipated revenues, estimated costs to maintain, operate and expand the transportation system in the Pikes Peak Area Metropolitan Planning Region from 2008 until 2035. The financial analysis presented in this chapter meets the new federal requirements stated in SAFETEA-LU. It also discusses changes to revenue sources since adoption of the 2030 plan. It must be emphasized that this is a long range systems level plan, many of the cost estimates and most of the revenue estimates are preliminary and will be revisited several times before the years they represent come to pass. The intent is to prepare an approximate, but realistic, estimate of both the total funds available and total program cost.

Satisfying the Pikes Peak region's transportation financial needs during the next 28 years is a major undertaking. The infrastructure demands associated with building and maintaining the roadway, non-motorized, freight, aviation, and public transportation systems will be challenged by the Pikes Peak region's projected population growth and by the aging of the existing infrastructure already in use. The limited availability of federal, state and local moneys will also have a significant impact on the ability to fund proposed projects. Demands on the transportation system have grown significantly in the past and the increase in this demand will accelerate faster than the growth in funding.

Federal rules require that long range transportation plans (LRTPs) such as *Moving Forward* and the associated transportation improvement program (TIP) are fiscally-constrained. That is, planned expenditures shall not exceed the revenue estimates to support the operations, maintenance, and new construction during the 28 years covered by *Moving Forward* or the eight years in the 2008-2015 TIP.

Moving Forward is a fiscally-constrained transportation plan as it is anticipated that the specific transportation investments identified in Chapter 12 can be accomplished with revenues that are projected to be available.

This Plan acknowledges that projected funding levels are not sufficient to adequately maintain existing functions or serve projected increases from regional population and economic growth.

Meeting the needs or achieving the transportation vision identified during the *Moving Forward* planning time frame will require new revenues for maintenance, operating and capital from as yet unidentified revenue sources. Without additional revenues regional accessibility and mobility will deteriorate and the infrastructure will decline. This will, in turn, severely constrain the movement of goods and people throughout the region. The gap between requirements and resources is not new, and simply reallocating resources will not close it. After years of under investment, the region has a backlog of needs resulting in current investment levels which are below the level needed to sustain and improve the regional transportation system.

The Pikes Peak region, like the rest of Colorado, has and will continue to have additional transportation needs beyond those improvements listed within the constrained portion of the plan. There are projects identified which can meet these needs but cannot be incorporated into the Plan at this time due to insufficient revenues projected to be available for their construction and/or implementation. They are listed in Appendix K, "Mobility Strategies Excluded from Constrained Plan."

Requirements for a Financial Plan

The Code of Federal Regulations describes the elements of a transportation financial plan. A new requirement of SAFETEA-LU is that the plan must include the revenues and costs to operate and maintain the roads and associated systems (signals, signage, snow removal, etc) to allow MPOs to estimate future transportation conditions and promote making fullest use of existing infrastructure. This has not previously been done at the long range plan level in the Pikes Peak region. PPACG staff is working with local entity staff to assemble this information.

The requirement that the financial plan include recommendations on new financing strategies is also new. The timing of *Moving Forward* coincided with the release of the Governors Transportation Finance and Implementation Panel recommendations. These recommendations are summarized later in this chapter.

Another new requirement of SAFETEA-LU is to use of year of expenditure dollars for planning purposes. The USDOT has provided guidance that a 4% inflation per year for costs shall be utilized in the absence of a rigorously developed rate for each MPO. This change in methodology will accent the reduction in the buying power of the transportation revenues that had not been previously accounted for during the planning process.

The CDOT Metropolitan Planning Organization Guidance Manual defines fiscal constraint for regional long-range transportation plans. The guidance states:

> *Long-range, 20-year regional transportation plan must be "fiscally-constrained," and contain only those projects the MPOs can reasonably pay for over the 20-year planning horizon. CDOT and the MPOs cooperatively develop resource allocations to be used by the MPOs to prioritize projects in the Regional Transportation Plans. In addition to the fiscally-constrained plan, MPOs may choose to also develop a "preferred" 20-year plan that contains all desirable transportation projects for the region.*

Approach to Fiscal Constraint

The approach used to determine the adequacy of the financial resources for maintaining, operating, and expanding the regional transportation system involved four primary steps:

- Determining the costs of adding new capacity: This was done by inflating the costs of the projects from the 2030 plan from their 2004 base to a 2007 base level. The 2007 base level is then extended into the future by adding a 4% annual inflation rate.

- Estimating the costs for routine maintenance and life-cycle treatments: The costs to maintain and operate the regional transportation system were developed using USDOT's Highway Economic Resource System for States (HERS_ST). This methodology developed costs per mile for routine maintenance and life-cycle treatments per lane mile by functional class (principal arterial, minor arterial, collector, and local). Routine maintenance includes patching, joint and crack filling, slope repair, drainage structure clearing, cutting and clearing vegetation, sweeping and clearing debris, striping and pavement repairs. Life-cycle treatments include periodic application of bituminous overlays, seal treatments, milling, crack routing and filling, and base repair.

- Adjusting estimates of existing and future anticipated financial revenues to a year of expenditure level. – Effective December 11, 2007 it is required that revenue and cost estimates that support the metropolitan transportation plan use an inflation rate to reflect years of expenditure dollars, pursuant to

CODE OF FEDERAL REGULATIONS 23 CFR 450.322 (10)

A financial plan that demonstrates how the adopted transportation plan can be implemented.

(i) For purposes of transportation system operations and maintenance, the financial plan shall contain system-level estimates of costs and revenue sources that are reasonably expected to be available to adequately operate and maintain Federal-aid highways (as defined by 23 U.S.C. 101(a)(5)) and public transportation (as defined by title 49 U.S.C. Chapter 53).

(ii) For the purpose of developing the metropolitan transportation plan, the MPO, public transportation operator(s), and State shall cooperatively develop estimates of funds that will be available to support metropolitan transportation plan implementation, as required under § 450.314(a). All necessary financial resources from public and private sources that are reasonably expected to be made available to carry out the transportation plan shall be identified.

(iii) The financial plan shall include recommendations on any additional financing strategies to fund projects and programs included in the metropolitan transportation plan. In the case of new funding sources, strategies for ensuring their availability shall be identified.

(iv) In developing the financial plan, the MPO shall take into account all projects and strategies proposed for funding under title 23 U.S.C., title 49 U.S.C. Chapter 53 or with other Federal funds; State assistance; local sources; and private participation. Starting December 11, 2007, revenue and cost estimates that support the metropolitan transportation plan must use an inflation rate(s) to reflect "year of expenditure dollars," based on reasonable financial principles and information, developed cooperatively by the MPO, State(s), and public transportation operator(s).

(v) For the outer years of the metropolitan transportation plan (i.e., beyond the first 10 years), the financial plan may reflect aggregate cost ranges/cost bands, as long as the future funding source(s) is reasonably expected to be available to support the projected cost ranges/cost bands.

(vi) For non-attainment and maintenance areas, the financial plan shall address the specific financial strategies required to ensure the implementation of TCMs in the applicable SIP.

(vii) For illustrative purposes, the financial plan may (but is not required to) include additional projects that would be included in the adopted transportation plan if additional resources beyond those identified in the financial plan were to become available.

(viii) In cases that the FHWA and the FTA find a metropolitan transportation plan to be fiscally-constrained and a revenue source is subsequently removed or substantially reduced (i.e., by legislative or administrative actions), the FHWA and the FTA will not withdraw the original determination of fiscal constraint; however, in such cases, the FHWA and the FTA will not act on an updated or amended metropolitan transportation plan that does not reflect the changed revenue situation.

SAFETEA-LU. CDOT's Office of Financial Management and Budget provided Pikes Peak MPO a year by year forecast of revenues adjusted for inflation. The policies and assumptions used to determine the growth rates for anticipated revenues are listed in the Colorado Department of Transportation 2035 Revenue Forecast and Resource Allocation dated December 14, 2006.

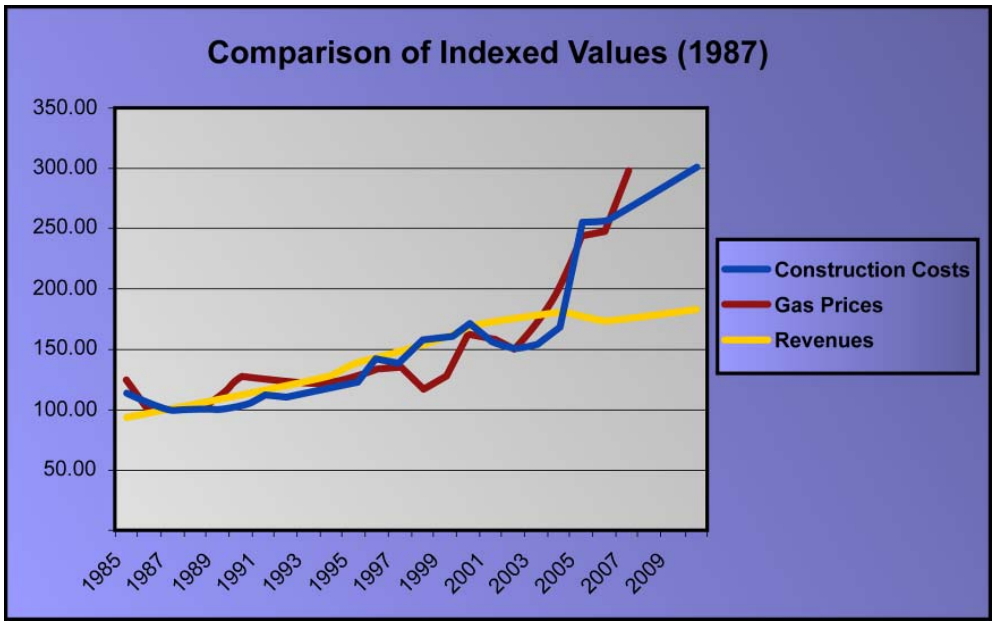
- Comparing forecast revenues against forecast costs. The first eight years of the plan are comprised of two TIP periods, 2008 through 2011 and 2012 through 2015 Individual inflated costs and revenues were used to compare revenues against costs for those years. The outer years of the plan is grouped into five-year time periods. The third year of the five-year term revenue estimate was used for each time period. The costs of the projects were inflated to the third year of each time period as well.

Projected Funding Gap

Simply stated, the costs of maintaining, operating and expanding the transportation system has dramatically risen, while revenues have slowed and demands on the system are pressured by an increasing population and a growing economy.

The primary revenue source for transportation funding is state and federal gas tax revenues. Gas taxes are not indexed to inflation and have not been increased since 1991 (state) and 1993 (federal). Furthermore, due to the steady increase in fuel efficiency, drivers pay less in gas taxes per vehicle mile traveled (VMT) than they did 10 or 20 years ago. Figure 6-1 illustrates how revenues have flattened while costs continue to rise. Absent new state or federal legislation, it is expected that this trend will continue.

FIGURE 6-1: COMPARISON OF INDEXED VALUES (1987)



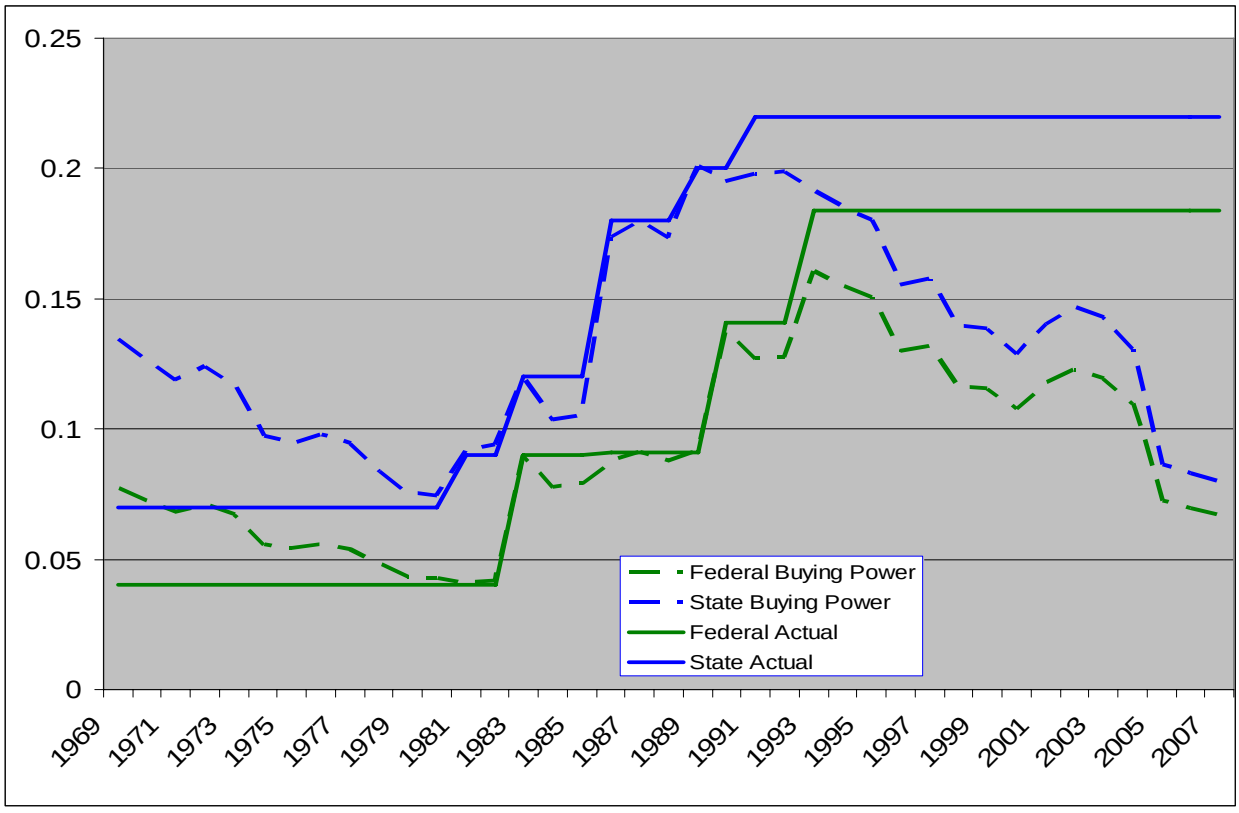
It is projected, that the federal gas tax trust fund will exhaust its surplus in 2009. If the projection is realized, it is expected that while Congress has "authorized" $2.45 Billion for Colorado over the life of SAFETEA-LU, it will likely reduce the "obligation limitation" of the funding. The obligation limitation is a ceiling on contract authority for authorized federal –aid funds in order to reduce highway program spending in response to economic and budgetary conditions. Future obligation limitations could reduce the federal funding expected by a range 10 to 40%.

As shown below in Figure 6-2, there is a continuing and significant decline in the purchasing power of both the state and federal gas tax. From 1994 to 2005, the Colorado construction index increased 114.8%. If the state gas tax had been indexed annually since the last tax increase in 1992, it would currently be 33 cents per gallon. Assuming an inflation rate of 4% per year, in order to compensate for lost purchasing power; Colorado's gas tax would have to increase from its current level of 22 cents per gallon to $ .56 cents in 2015 and $1.24 in 2035.

In 1957, the federal gas tax was $.03 per gallon. Indexed for inflation, the equivalent tax in 2006 would be $ 20.8 cents per gallon. Federal gas tax is currently $ 18.4 cents per gallon.

The forecast cost of the transportation system needs, as determined during the *Moving Forward* planning process, are approximately $12,000,000,000. This is approximately four times (400%) of the funds forecast to be available for the Pikes Peak regions' transportation system.

FIGURE 6-2: ACTUAL GASOLINE EXCISE TAX RATE AND ADJUSTED BUYING POWER (1987)



STRATEGIES TO INCREASE TRANSPORTATION FUNDING

The Pikes Peak region participated in the Governor's efforts to identify long term sustainable programs and funding sources for transportation in Colorado. In April, 2007, Governor Ritter established the Transportation Finance and Implementation Panel. In November 2007, the panel recommended an investment focus and funding thresholds with potential revenue sources. The preferred funding threshold was $1.5 B additional funds for transportation annually. Table 6-1 below is a summary of the Panel's Funding Sources Recommendation.

TABLE 6-1: FUNDING SOURCES RECOMMENDATION

Revenue Source	Incremental Fee or Tax	Revenue Generated
Increased Vehicle Registration	$100 average	$500M
Increased Motor Fuel Tax	13 per gallon	$361M
New Daily Visitor Fee	$6 daily fee	$240 M
Increased Sales & Use Tax	.35% increase	$312 M
Increased Severance Tax	1.7% effective increase	$ 96M

In changing the current structure of taxes and fees, policymakers are not restricted to just one source. In other words, the entire increase needed to generate sufficient revenue to close the funding gap does not have to be loaded onto a single source, as doing so could lead to an onerous increase. Rather, policymakers may find it more equitable and politically palatable to distribute tax or fee increases across several sources. Moreover, the increase need not be uniform across sources; a 4¢ gas tax increase can be combined with a 2¢ sales tax increase, for example. Additionally, taxes and fees can be increased in any increment preferred by policymakers. There should be a logical connection between the source and the use of the funding.

On April 19, 2007, Charles Brown Consulting and Carter & Burgess Inc. prepared for CDOT a draft report on Transportation Revenue Options to assist state policy makers. Given the variety of tax and fee increments, as well as the numerous combinations that policymakers may select, the report outlined a variety of policy options is provided in easily scaleable units. Exerts from the report are provided in Tables 6-2 through 6-4 below indicating a 1¢ fuel tax increase, indexing fuel taxes to inflation, increasing motor vehicle registration fees by $1.00. This reflects changes to state revenues only.

TABLE 6-2: ESTIMATED REVENUE FROM AN INCREASE OF ONE CENT IN FUEL TAX RATES (NOMINAL DOLLARS)

Period	Baseline Scenario		Minimum Growth Scenario		Maximum Growth Scenario	
	Revenues During Period	Cumulative Revenues	Revenues During Period	Cumulative Revenues	Revenues During Period	Cumulative Revenues
FY 2008-09 to 2009-10	$42	$42	$42	$42	$42	$42
FY 2010-11 to 2014-15	$148	$190	$147	$189	$152	$194
FY 2015-16 to 2019-20	$163	$353	$159	$348	$179	$373
FY 2020-21 to 2024-25	$178	$531	$172	$520	$213	$586
FY 2025-26 to 2029-30	$193	$724	$185	$705	$254	$840
FY 2030-31 to 2034-35	$209	$933	$199	$903	$305	$1,145

Source: Draft Transportation Revenue Options Study, April, 2007

TABLE 6-3: ESTIMATED REVENUE FROM INDEXING THE FUEL TAX TO INFLATION (NOMINAL DOLLARS)

Period	Baseline Scenario		Minimum Growth Scenario		Maximum Growth Scenario	
	Revenues During Period	Cumulative Revenues	Revenues During Period	Cumulative Revenues	Revenues During Period	Cumulative Revenues
FY 2008-09 to 2009-10	$26	$26	$26	$26	$27	$27
FY 2010-11 to 2014-15	$497	$523	$466	$492	$546	$574
FY 2015-16 to 2019-20	$1,188	$1,711	$1,059	$1,551	$1,433	$2,007
FY 2020-21 to 2024-25	$2,117	$3,829	$1,797	$3,347	$2,839	$4,846
FY 2025-26 to 2029-30	$3,293	$7,121	$2,681	$6,029	$4,979	$9,825
FY 2030-31 to 2034-35	$4,784	$11,905	$3,777	$9,806	$8,299	$18,125

Note: All values in millions.

TABLE 6-4: ESTIMATED REVENUE FROM INCREASING THE MOTOR VEHICLE REGISTRATION FEE BY $1.00 (2008 CONSTANT DOLLARS)

Period	Baseline Scenario		Minimum Growth Scenario		Maximum Growth Scenario	
	Revenues During Period	Cumulative Revenues	Revenues During Period	Cumulative Revenues	Revenues During Period	Cumulative Revenues
FY 2008-09 to 2009-10	$7	$7	$7	$7	$7	$7
FY 2010-11 to 2014-15	$24	$32	$24	$31	$24	$32
FY 2015-16 to 2019-20	$23	$54	$22	$54	$24	$56
FY 2020-21 to 2024-25	$22	$76	$21	$75	$24	$80
FY 2025-26 to 2029-30	$20	$96	$20	$94	$24	$104
FY 2030-31 to 2034-35	$19	$115	$18	$113	$24	$127

Note: All values in millions.

SYSTEM COST PROJECTIONS

This Plan considers the cost to expand, maintain and operate the transportation system needed by the Pikes Peak region. Before consideration can be given to system expansion, the region needs to determine the funding needed and available to operate and maintain the transportation system already in existence. These two aspects of the transportation system are clarified below. Public comments indicated a preference for maintaining existing infrastructure and improving operations of existing infrastructure.

System Maintenance and Preservation

Roadway maintenance activities protect the investment in the infrastructure. Maintenance activities vary widely but can include: roadway patching and sealing, blading unpaved surfaces and shoulders and ditches, cleaning drainage structures, repairing slopes due to washout or erosion, maintaining stream beds, sweeping the roadway surface, picking up litter and trash, controlling vegetation, maintaining ITS devices, roadway signs and lighting, guardrail repair, bridge repair, painting bridges, tunnel maintenance, rest area maintenance, snow plowing and ice control, removing snow and sand. This preservation effort is vital to the integrity of the infrastructure and an important highway safety component.

For the regional roadway system, costs to maintain existing lanes through year 2035 exceed $4 billion. There is also a current backlog of needed maintenance approaching $500 million. These costs will consume a larger proportion of transportation funding as the transportation system ages and grows.

System Management and Operations

Operational and management activities enable more efficient travel and improve the reliability of the system. They are intended to make the best use of the existing transportation facilities by managing and operating systems, improving traffic operations and safety. . Examples of operational strategies include intersection improvements, signal timing, ITS deployment, ramp metering, incident management, access management. Transit operating costs are assumed to be covered by available revenues to the transit system.

System Expansion

In a rapidly growing region such as Pikes Peak, there is large demand for system expansion. The needed regional transportation system expansion costs have been estimated at $7.5 billion over the twenty eight year period. Cost estimates are reviewed in detail during each plan update.

REVENUE SOURCES

Transportation has traditionally been funded by user fees. Today, the major tax sources to fund transportation are the fuel taxes and license fees, as well as transit fare box revenues.

Local Sources

Local revenue comes from a variety of sources such as property tax for highway projects and sales tax for transit projects. Other revenues include moneys from street use permits, gas tax, utility permits, and impact fees. The entities that have adopted the PPRTA have an IGA that requires maintenance of effort, that is, the funding levels that existed for transportation in 2005(?) must be maintained as a minimum into the future

State of Colorado Sources

Colorado Highway Users Tax Fund (HUTF)

The primary source of revenue in Colorado is the Highway Users Tax Fund. The HUTF is a dedicated revenue source comprised of motor-fuel tax, car registration fees and other miscellaneous revenue. There are two levels of funding to the HUTF: a basic and an additional funding level. A portion of the basic funding is allocated Off the Top to the Department of Public Safety for the State Patrol and Department of Revenue for the Ports of Entry. The State Treasury distributes the remaining basic funding in the following manner: 65% to CDOT, 26% to Colorado Counties and 9% to Colorado cities. All additional funding is distributed 60% to CDOT, 22% to Colorado Counties and 18% to Colorado Cities. Motor fuel tax is the largest revenue source in the HUTF. All motor fuel taxes up to 7 cents per gallon are considered basic funding and subject to Off the Top. The amount over 7 cents per gallon is considered motor additional funding. The HUTF can be used for acquisition of right – of –way and the construction, engineering, safety and reconstruction, repair, improvement, maintenance and administration of the state highway system and public roads system.

Besides Motor Fuel Tax, the HUTF revenue sources include driver's license fees, interest, penalty assessments and other miscellaneous sources.

Sales and Use Taxes (S.B. 97-01)

In 1997, the Colorado General Assembly enacted S.B. 97-001. This bill provided that under certain conditions, 10% of the State sales and use tax attributable to the sales and use of vehicles and related items would be transferred to the HUTF and subsequently transferred to the State Highway Fund and expended for the Strategic Transportation Project Investment Program with a minimum of 10% going to transit strategic projects. Before a transfer can occur, adequate general fund revenue must exist to fund a maximum of 6% increase in appropriations.

Gaming Funds

In 1991, limited gaming began in Colorado. The Department of Transportation may request an appropriation from the State's Limited Gaming Fund to address the construction and maintenance of roads associated with the increased traffic on state highways in the vicinity of gaming communities. State highways in the vicinity of Cripple Creek, including SH 24, have received funding from this appropriation.

Capital Construction Fund

In 1995, new legislation provided that the Transportation Commission must annually submit to the Capital Development Committee (CDC) a prioritized list of State Highway reconstruction, repair and maintenance projects for possible funding with Capital Construction Funds. Prior to that time, Capital Construction funds had been limited to non-transportation related capital improvements such as state buildings. Between FY 1996 and FY 2001, the Department of Transportation received $36.5 M in Capital Construction Fund appropriation. From FY 2002 through FY05 the Department did not receive any Capital Construction Funds. From FY 2006 through FY 2008, $45 M was received.

HB02-1310

This house bill provides for a transfer of two-thirds of the general fund surplus to the highway users tax fund. From FY04 through FY 06, $149.5 M was received by CDOT.

Federal Sources of Funding

The transportation system eligible for federal funds are state jurisdiction roads and local jurisdiction roads designated as functional classification collector or above. Mountain Metro Transit, the regional transit system operator, is also eligible for funding, as are other Specialized Transit services, as defined in PPACG's adopted Coordinated Human Services Plan attached as Appendix H. Federal funding is derived primarily from the federal fuel tax which is currently $0.184 per gallon.

The federal transportation funding picture changed significantly with the 1991 passage of the Intermodal Surface Transportation Efficiency Act (ISTEA), and successor Acts, the 1998 Transportation Equity Act for the 21st Century (TEA-21), and 2005's Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). Federal funds are apportioned back to states on a formula basis. Colorado is a 'donor' state meaning that it gets back less in funding than it provides in fees.

ISTEA was considered landmark legislation because it enhanced the role of the Metropolitan Planning Organization in the programming, planning, and prioritization of Surface

Transportation Program (STP) funds and because it gives these regions greater independence to invest in alternate modes of travel, including capital transit projects, such as High Occupancy Vehicle (HOV), Light Rail Transit (LRT), and park and ride facilities. The Act also established Transportation Management Areas (TMAs) where populations exceeded 200,000 and created a funding category for transportation projects to help regions meet air quality standards. In states, such as Colorado, where the amount of public lands and Indian lands exceed 5% of the total State area, the federal share for projects will be increased above those outlined in SAFETEA-LU. SAFETEA-LU is funded through projected revenues from the Highway Trust Fund and General Fund as well as ethanol tax reform.

A brief description of the existing funding programs available authorized through the federal legislation follows.

Congestion Mitigation and Air Quality Improvement Program

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) provides funding for projects and programs that will reduce transportation related emissions and contribute to attainment or maintenance of the national ambient air quality standards in air quality non-attainment and maintenance areas for ozone, carbon monoxide (CO), and particulate matter (PM-10, PM-2.5). Projects in this category of funding are selected by the Pikes Peak Area Council of Governments Board of Directors.

CMAQ funds provide a flexible funding source for transportation projects to the Pikes Peak Area because it is designated as an air quality maintenance area. The Clean Air Act Amendments of 1990 require that highest priority for funding be given to the implementation of the transportation elements of applicable State Implementation Plans (SIPs) and Transportation Control Measures identified in applicable SIPs. SAFETEA-LU adds new requirements that States and MPOs give priority to diesel retrofits and other cost-effective emission and congestion reduction projects and programs that provide air quality benefits. These federal funds are apportioned to the states based on weighted non- attainment and maintenance area population. Colorado has three non-attainment MPO's: The Denver/Longmont, Colorado Springs and Fort Collins/ Greeley Metropolitan areas as well as five rural non attainment areas: Canon City, Pagosa Springs, Aspen, Telluride and Steamboat Springs. The Transportation Commission has allocated the CMAQ funds to the MPO's area based on a population and vehicle miles traveled after allocating $1 million State of Colorado. The Pikes Peak area receives (18.13%) of the total MPO apportionment.

Projects or programs that improve transportation systems management and operations that mitigate congestion and improve air quality can be funded under this program. Funds in this category cannot be used for new highway capacity. However, construction of high occupancy vehicle lanes is allowed with the understanding that capacity may be used by single occupancy vehicles during the non-rush hour period.

Surface Transportation Program (STP) Flexible

The Surface Transportation Program combines the old Federal Aid Primary, Federal Aid Urban, and Federal Aid Secondary categories into a single, flexible, intermodal block grant type funding program which provides flexible funding that may be used by States and localities for projects on any Federal-aid highway including the NHS, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities. A portion of the funds reserved for rural areas may be spent on rural minor collectors. In addition to eligibility for operational and capacity improvements to roadways, it allows for the programming of transit capital projects, intracity and intercity bus terminals, carpool projects, fringe and corridor parking, capital and operating costs for traffic monitoring, management or control, transportation enhancements, transportation planning, and transportation control measures for air quality. If an area, such as the Pikes Peak region, has been designated a Transportation Management Area (TMA), money cannot be spent on road capacity improvements for general purpose traffic unless the improvements are part of the Congestion Management Program. The following outlines the STP subprograms:

- **ENHANCEMENTS:** The Transportation Enhancement Program funds activities or projects that add community or environmental value to any active or completed transportation project, and are over and above what is required for normal environmental mitigation for transportation improvements. The maintenance of these projects is not eligible for those funds. Ten percent of federal funds distributed to Colorado are dedicated to transportation enhancement activities (bikeways, walkways, highway beautification, and scenic or historic transportation projects). Projects in this subcategory of funding are selected by the Pikes Peak Area Council of Governments Board of Directors.

- **STP-URBAN (METRO):** The STP-Urban program is a formula allocation to the Pikes Peak Transportation Management Area (TMA) based on the population of the Colorado Springs Urban Area. Projects eligible for this funding include planning studies, enhancement activities, or road projects on a route functionally classified as rural major collector or above. Projects in this subcategory of funding are selected by the Pikes Peak Area Council of Governments Board of Directors.

Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program was established in SAFETEA-LU as a new, separately funded, core program, It allows states to target funds to their most critical safety needs to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. By October 1, 2007, each State must have a strategic highway safety plan that identifies and analyzes safety problems and opportunities in order to use HSIP funds for new eligible activities under 23 USC 148. CDOT completed this plan in October, 2006 and PPACG has used it as a base from which to develop a local safety plan. States are also required submit annual reports describing at least 5% of the State's most hazardous locations, progress in implementing projects, and their effectiveness in reducing fatalities and injuries.

This program provides federal funds (90% Federal, 10% State/Local) for projects that improve the safety of high accident locations. Certain safety projects qualify for 100% federal funding. Projects in this category of funding are selected by CDOT. Only projects of $50,000 and over are funded, as cost effectiveness of the federal dollar diminishes below this amount. Projects can be combined to meet this $50,000 threshold.

Applications are requested from City and County transportation officials on an annual basis. Any project selected for this federal funding must be included in, or added to, the Statewide Transportation Improvement Program (STIP), and, if in an urban area, in the appropriate Transportation Improvement Program (TIP) of the respective Metropolitan Planning Organization (MPO). Local governments within the Pikes Peak area are advised to send a copy of their applications to the PPACG. The major factors in evaluating applications are the accident history and the cost benefit. Candidate projects must have a potential for accident reduction.

Safe Routes to School Program

The Safe Routes to Schools Program was created in SAFETEA-LU to enable and encourage children, including those with disabilities, to walk and bicycle to school; to make walking and bicycling to school safe and more appealing; and to facilitate the planning, development, and implementation of projects that will improve safety, and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. Projects in this category of funding are chosen by a statewide committee established by Colorado state law. The Federal share is 100%.

Highway Bridge Program

The Highway Bridge Program provides funding to enable States to improve the condition of their bridges through replacement, rehabilitation, and systematic preventive maintenance. SAFETEA-LU made it possible for all Highway Bridge Program funds to be used for bridges off of the state highway system. Within Colorado, about $ $1,145,700 is expected to be received for bridge projects between 2008 and 2035. Distribution of Bridge funds to individual bridge replacement projects for local agencies is governed by policies established by the Bridge committee. The costs are shared approximately 80% federal and 20% local match.

Interstate Maintenance (IM) Program

The Interstate Maintenance Program provides funding for resurfacing, restoring, rehabilitating, and reconstructing routes on the Interstate System. The Dwight D. Eisenhower National System of Interstate and Defense Highways retain a separate identity within the National Highway System. This program is similar to the former FAI-4R program and is intended for projects to rehabilitate, reconstruct, restore, and resurface the Interstate System. IM funds may not be used for new travel lanes, other than High Occupancy Vehicle lanes or auxiliary lanes or reconstruction.

National Highway System Program

The National Highway System (NHS) program provides funding for improvements to rural and urban roads that are part of the NHS, including the Interstate System and designated connections to major intermodal terminals. The NHS includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. National Highway System was a new funding category in ISTEA. It established a National Highway System (NHS) which consists of major roads in the U.S. including the interstate system; other routes identified for their strategic defense characteristics; routes providing access to major ports, airports, public transportation and intermodal transportation facilities; and principal arterials that provide regional service. Funding in this category may be used for a wide variety of projects. In addition to roadway construction, operational and maintenance improvements, eligible projects include: start-up for traffic management and control, infrastructure-based intelligent transportation system capital improvements, fringe and corridor parking, carpool and vanpool projects, bicycle and pedestrian projects, and wetlands and natural habitat mitigation. In certain circumstances, transit projects in the corridor are also allowed if they benefit the NHS facility. Publicly-owned intracity and intercity bus terminals are also eligible. In addition, states have the option to shift 50% of the money to the STP category, which has greater project flexibility.

Discretionary Funds

Discretionary funds are additional funds (not formula funds) that the federal government may decide to award to a region. Examples include Transportation, Community and System Preservation funding, Public Lands Highways funding, and congressional allocations.

Transportation and Community and System Preservation Pilot (TCSP)

The TCSP Program is intended for eligible projects to integrate transportation, community, and system preservation plans and practices that improve the efficiency of the transportation system of the United States, reduce the impacts of transportation on the environment, reduce the need for costly future investments in public infrastructure, provide efficient access to jobs, services, and centers of trade and examine community development patterns and identify strategies to encourage private sector development. Projects in this category of funding are awarded by the FHWA or FTA. The federal share is 80/20.

Federal Lands Highways

The Federal Lands Highways Program provides for transportation planning, research, engineering, and construction of highways, roads, and parkways and transit facilities that provide access to or within public lands, national parks, and Indian reservations. The federal share is 100%. Projects are selected at the federal level.

"Flexible" Funds

The Federal Highway and Transit Laws authorize certain funds to be "flexible." For example, FHWA Surface Transportation Program funds can be transferred from FHWA to FTA for use in transit projects, while FTA Urbanized Area Formula funds may be available for highway projects to the extent that the PPACG is able to certify that:

- The funds are not needed for investments required by the Americans with Disabilities Act of 1990, as amended;
- A notice and opportunity for comment and appeal have been provided to affected transit providers during the public outreach period; and
- Local funds proposed for the non-Federal match are eligible to provide assistance for either highway or transit projects.

Transit Revenues

Revenue sources that have been described above are intended exclusively for highway investment or have the flexibility to be used for highway/transit funding. Transit systems are also funded by fare box proceeds, transit specific federal funds and other local funds. The following section describes the various funding sources for FTA programs. Governor Ritter recently named the City of Colorado Springs as the designated recipient for JARC and New Freedom funds apportioned to the Colorado Springs UZA, and the Pikes Peak Area COG as the planning agency for these funds. JARC and New Freedom funds are statutorily required to have a completed coordinated public transit-human services transportation plan before they can be programmed.

FTA Job Access and Reverse Commute (JARC) 49 U.S.C. §5316

The federal Job Access and Reverse Commute (JARC) grant program's goal is to improve access to transportation services to employment and employment related activities for welfare recipients and eligible low-income individuals and to transport residents of urbanized areas and non-urbanized areas to suburban employment opportunities. The JARC program was established as part of the Transportation Equity Act for the 21st Century (TEA-21) to address the unique transportation challenges that welfare recipients and low-income individuals face in finding and keeping jobs. JARC began as a discretionary grant program, but transitioned to a formula-based program under the Safe, Accountable, Flexible, Efficient Transportation Equity Act, A Legacy

for Users (SAFETEA-LU). FY 2006 marks the first year of the restructured JARC program, now also known as Section 5316.

Job Access projects should develop new or expand existing transportation services such as shuttles, vanpools, new bus routes, connector services to mass transit, and guaranteed ride home programs for welfare recipients and low income persons. Reverse Commute projects should provide transportation services to suburban employment centers from urban, rural and other suburban locations for all populations.

FTA New Freedom Program, 49 U.S.C. §5317

The New Freedom program provides new public transportation services and public transportation alternatives beyond those currently required by the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) that assist individuals with disabilities with transportation, including transportation to and from jobs and employment support services.

Urbanized Area Formula Program, 49 U.S.C. §5307 (Section 5307)

Section 5307 may be used for Federal capital, operating, and planning assistance for transit in Urbanized Areas (UZAs), although operating assistance is not an eligible expense for urban areas with populations of 200,000 or more (a designated Transportation Management area (TMA)). The City of Colorado Springs is the designated recipient of funds apportioned to the Colorado Springs Urban Area. The funds are apportioned based on legislative formulas, with different formulas applying to TMA MPOs versus non-TMA MPOs. One percent of funds appropriated for Section 5307 are set aside for Small Transit Intensive Cities (STIC). FTA apportions these funds to UZAs under 200,000 in population that operate at a level of service equal to or above the industry average level of service for all UZAs with a population of at least 200,000, but not more than 999,999, in one or more of six performance categories. Based on language in the SAFETEA-LU conference report, FTA consolidates several amounts and identifies a single apportionment amount for each urban area. Section 5307 funds are available for transit vehicles and facilities, preventive maintenance, and a transfer to FHWA. FTA allows all maintenance costs to be eligible for capital assistance under “preventive maintenance.”

FTA Capital Investment Program, 49 U.S.C. §5309

The Section 5309 Capital Investment Grant program provides capital funds for major transit investment projects. Eligible purposes are light rail, rapid rail (heavy rail), commuter rail, monorail, automated fixed guideway system (such as a “people mover”), or a busway/high occupancy vehicle (HOV) facility, Bus Rapid Transit that is fixed guideway, or an extension of any of these. 5309 funds are discretionary and are usually allocated by Congress. The Section 5309 program has three project categories. The categories are New Starts, Small Starts and Very Small starts. Projects costing over $250 M are eligible for New Starts. Small starts is for transit capital project less than $250M and requiring less than $75M and Very Small Starts projects must be less than $50M in total cost.

REVENUE PROJECTIONS

This section describes revenue sources reasonably expected to be available for expenditure in the Pikes Peak region. Implementation of *Moving Forward* requires available fiscal resources to be identified over the life of the plan. The availability of federal, state and local moneys from these sources will have a significant impact on the ability to fund proposed projects. PPACG, Mountain Metro Transit, and CDOT prepared a joint estimation of the anticipated revenues that can reasonably be expected to be available from all sources for transportation projects.

TRANSPORTATION FUNDING FORECAST UNCERTAINTY

This financial plan or any financing forecast that is predicated on achieving results in the future contains a number of risks. Risk considerations frequently have both positive and negative elements. The major risk elements that have an influence on this financial plan are described below.

- Gasoline tax, fuel tax, and registration fee revenues are related to employment, population, and income growth. Historical data indicate that the Pikes Peak region has performed above the national average across these demographic/economic measures. The future direction of measures will largely determine whether there are in increases or decreases in revenues.
- Federal funding was assumed to reset to TEA-21 levels during years 2010 through 2015, it was then assumed to return to rates found in SAFETEA-LU. At the current level of revenue growth and expenditure, this will be difficult to achieve. Conversely, the federal government may choose to add tax capacity to the transportation program or create demonstration programs using non-transportation-related funds that are not accounted for in this forecast.
- Traditionally, SUVs and light-duty trucks have been the fastest growing segment of the vehicle fleet. These vehicle types have below-average fuel economy, thus increasing gasoline tax revenues. Currently, hybrid vehicles are attaining a market presence, and automobile manufacturers are developing models across categories (including SUVs) that will lead to fuel displacement and long-term decreases in gasoline tax revenues that are not included in these forecasts.
- Inflation forecasting has inherent risk. The costs of the needs identified in the plan are assumed to increase at an annual inflation rate of 4% annually until 2035. Should inflation vary from this rate, there will be corresponding changes to funding needs.

Changes since the 2030 Regional Transportation Plan

The Finance Plan component of the long range plan has undergone a comprehensive update from the 2030 plan. From the time when the 2030 plan was adopted, voters in portions of the Pikes Peak region have approved a Rural Transportation Authority (RTA) sales tax of 1% on goods sold within their jurisdiction. This is currently generating over $70 million per year in revenues. Over half (55%) of this tax is for specific capital projects and may expire in 2014. For purposes of this financial plan it was assumed that voters will renew the tax throughout the life of the document. The remaining 45% of the tax does not expire and is dedicated to transit 10% and maintenance of the transportation system 35%.

Other changes at the federal level, include approval of the SAFETEA-LU. SAFETEA-LU includes $286.5 billion in authorized spending for all programs over the six years of the Act, 2004 through 2009. It must be pointed out that while the federal government authorizes transportation dollars at a certain level, the actual appropriation for their use is at a lower level, typically for transportation it is in the 80%-90% range. Still, SAFETEA-LU is a 38% increase over TEA-21's $218 billion for transportation programs. Approximately 75% of SAFETEA-LU authorizations are for highway and safety programs, 18.5% for transit and 6% for additional safety and other program. Colorado received $2.45 B in spending authority from SAFETEA-LU.

Table 6-5 illustrates the joint estimate of the revenue anticipated to be available through 2035 to implement the fiscally-constrained portion of *Moving Forward*. Table 6-6 describes the assumptions used for each of the funding sources.

TABLE 6-5: FUNDING TABLE FOR THE 2008-2015 TRANSPORTATION IMPROVEMENT PROGRAM AND 2035 REGIONAL TRANSPORTATION PLAN

	2008	2009	2010	2011	2012	2013	2014	2015	TIP Total 08-15	2016-2020	2021-2025	2026-2030	2031-2035	PLAN Total 08-35
Strategic Projects (7th Pot)	$ 6,625,662	$ 6,502,619	$ 257,588	$ -	$ 36,053,551	$ 38,883,433	$ 41,619,219	$ 44,309,737	**$ 174,251,809**	$ 368,500,000	$ 426,000,000	$ -	$ -	**$ 968,751,809**
Strategic Projects (8th Pot)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	**$ -**	$ -	$ 57,250,000	$ 470,250,000	$ 526,250,000	**$ 1,053,750,000**
System Quality														
Surface Treatment	$ 6,917,435	$ 7,268,372	$ 6,448,089	$ 4,638,649	$ 7,012,019	$ 6,393,272	$ 6,307,402	$ 6,695,072	**$ 51,680,310**	$ 39,000,000	$ 43,000,000	$ 47,000,000	$ 100,000,000	**$ 280,680,310**
Bridge Program	$ 1,288,192	$ 1,330,325	$ 1,295,485	$ 1,146,062	$ 1,724,166	$ 1,785,324	$ 1,837,360	$ 1,924,948	**$ 12,331,861**	$ 10,750,000	$ 11,500,000	$ 12,500,000	$ 20,000,000	**$ 67,081,861**
Maintenance (MLOS)	$ 1,961,484	$ 2,015,811	$ 2,072,997	$ 2,077,635	$ 2,122,825	$ 2,171,676	$ 2,221,050	$ 2,264,597	**$ 16,908,075**	$ 12,000,000	$ 13,000,000	$ 14,000,000	$ 20,000,000	**$ 75,908,075**
ITS Maintenance	$ 822,096	$ 844,866	$ 729,854	$ 490,780	$ 733,414	$ 733,370	$ 732,757	$ 763,588	**$ 5,850,724**	$ 4,250,000	$ 4,500,000	$ 4,500,000	$ 9,000,000	**$ 28,100,724**
Mobility														
Congestion Relief	$ 704,906	$ 740,668	$ 653,565	$ 457,920	$ 699,501	$ 712,809	$ 724,546	$ 769,078	**$ 5,462,993**	$ 4,500,000	$ 5,000,000	$ 5,500,000	$ 11,500,000	**$ 31,962,993**
Snow and Ice Maintenance	$ 1,341,915	$ 1,379,082	$ 1,418,205	$ 1,421,378	$ 1,452,294	$ 1,485,714	$ 1,519,493	$ 1,549,285	**$ 11,567,366**	$ 8,250,000	$ 9,000,000	$ 9,750,000	$ 15,000,000	**$ 53,567,366**
STP-Enhancement	$ 778,163	$ 787,486	$ 825,421	$ 825,747	$ 825,897	$ 826,031	$ 826,120	$ 826,198	**$ 6,521,063**	$ 4,313,396	$ 4,661,699	$ 5,014,051	$ 5,359,883	**$ 25,870,092**
STP- Metro	*$ 7,264,584*	*$ 7,337,033*	*$ 5,179,982*	*$ 5,555,268*	*$ 5,896,251*	*$ 6,228,321*	*$ 6,507,505*	*$ 6,768,672*	***$ 50,737,616***	*$ 35,559,465*	*$ 38,427,622*	*$ 41,329,051*	*$ 44,176,790*	***$ 210,230,544***
CMAQ	$ 4,833,099	$ 4,880,813	$ 3,172,713	$ 3,370,207	$ 3,549,648	$ 3,724,399	$ 3,871,319	$ 4,010,500	**$ 31,412,698**	$ 21,055,956	$ 22,754,289	$ 14,472,322	$ 26,158,565	**$ 115,853,830**
Safety														
Safety Surface Treatment	$ 231,942	$ 238,366	$ 207,024	$ 142,932	$ 211,371	$ 189,110	$ 183,395	$ 191,111	**$ 1,595,251**	$ 1,000,000	$ 1,000,000	$ 1,250,000	$ 2,250,000	**$ 7,095,251**
Traffic Operations Maintenance	$ 2,729,707	$ 2,805,311	$ 2,884,894	$ 2,891,349	$ 2,954,238	$ 3,022,221	$ 3,090,933	$ 3,151,535	**$ 23,530,188**	$ 16,500,000	$ 18,000,000	$ 19,500,000	$ 30,500,000	**$ 108,030,188**
Hazard Elimination	$ 1,835,755	$ 1,863,881	$ 1,532,493	$ 1,630,010	$ 1,718,378	$ 1,804,437	$ 1,876,760	$ 1,944,416	**$ 14,206,130**	$ 10,250,000	$ 11,000,000	$ 11,750,000	$ 12,750,000	**$ 59,956,130**
Safe Routes To Schools	$ 184,643	$ 231,344	$ 207,088	$ 219,119	$ 230,018	$ 240,633	$ 250,277	$ 259,300	**$ 1,822,421**	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 1,750,000	**$ 8,072,421**
Program Delivery														
Maintenance	$ 408,290	$ 419,599	$ 431,502	$ 432,468	$ 441,874	$ 452,042	$ 462,320	$ 471,384	**$ 3,519,479**	$ 2,500,000	$ 2,750,000	$ 3,000,000	$ 4,500,000	**$ 16,269,479**
Maintenance Incentive Program	$ 948,000	$ 974,257	$ 1,001,895	$ 1,004,137	$ 1,025,977	$ 1,049,587	$ 1,073,450		**$ 7,077,303**	$ -	$ -	$ -	$ -	**$ 7,077,303**
Road Equipment	$ 341,085	$ 350,532	$ 302,814	$ 203,623	$ 304,291	$ 304,273	$ 304,019	$ 316,810	**$ 2,427,447**	$ 1,750,000	$ 1,750,000	$ 1,750,000	$ 3,750,000	**$ 11,427,447**
TC Contingency	$ 3,354,128	$ 3,438,058	$ 2,923,393	$ 2,116,149	$ 2,978,167	$ 2,997,805	$ 3,013,813	$ 3,137,730	**$ 23,959,244**	$ 16,000,000	$ 16,500,000	$ 17,000,000	$ 33,000,000	**$ 106,459,244**
Property	$ 121,094	$ 123,986	$ 109,406	$ 79,246	$ 109,865	$ 110,008	$ 110,451	$ 114,910	**$ 878,966**	$ 750,000	$ 750,000	$ 750,000	$ 1,250,000	**$ 4,378,966**
Metro Planning (FHWA & FTA)	$ 830,251	$ 894,656	$ 802,578	$ 848,871	$ 890,933	$ 931,895	$ 969,141	$ 1,003,984	**$ 7,172,309**	$ 5,250,000	$ 5,750,000	$ 6,250,000	$ 6,500,000	**$ 30,922,309**
Regional Priority Program	$ 2,097,402	$ 937,059	$ 2,760,001	$ 2,915,787	$ 3,059,040	$ 3,198,550	$ 3,326,381	$ 3,445,963	**$ 21,740,183**	$ 9,000,000	$ 9,750,000	$ 10,500,000	$ 11,250,000	**$ 62,240,183**
RTA (Capital through 2035)*	$ 76,437,901	$ 79,044,433	$ 81,739,848	$ 84,527,177	$ 87,409,554	$ 90,390,220	$ 93,472,526	$ 96,659,939	**$ 689,681,598**	$ 550,000,000	$ 650,000,000	$ 750,000,000	$ 875,000,000	**$ 3,514,681,598**
Capital	*$ 42,040,845*	*$ 43,474,438*	*$ 44,956,917*	*$ 46,489,947*	*$ 48,075,255*	*$ 49,714,621*	*$ 51,409,889*	*$ 53,162,967*	*$ 379,324,879*	*$ 302,500,000*	*$ 357,500,000*	*$ 412,500,000*	*$ 481,250,000*	*$ 1,933,074,879*
Mainteance	*$ 26,753,265*	*$ 27,665,552*	*$ 28,608,947*	*$ 29,584,512*	*$ 30,593,344*	*$ 31,636,577*	*$ 32,715,384*	*$ 33,830,979*	*$ 241,388,559*	*$ 192,500,000*	*$ 227,500,000*	*$ 262,500,000*	*$ 306,250,000*	*$ 1,230,138,559*
Transit	*$ 7,643,790*	*$ 7,904,443*	*$ 8,173,985*	*$ 8,452,718*	*$ 8,740,955*	*$ 9,039,022*	*$ 9,347,253*	*$ 9,665,994*	*$ 68,968,160*	*$ 55,000,000*	*$ 65,000,000*	*$ 75,000,000*	*$ 87,500,000*	*$ 351,468,160*
CDOT 5307-PPACG	$5,419,332	$5,764,520	$5,905,093	$6,245,702	$6,555,178	$6,856,565	$7,130,609	$7,386,967	**$ 51,263,964**	$ 38,783,104	$ 41,911,273	$ 45,075,730	$ 48,181,631	**$ 225,215,702**
CDOT 5316-PPACG	$193,494	$204,037	$209,013	$221,069	$232,023	$242,690	$252,390	$261,464	**$ 1,816,179**	$ 1,372,740	$ 1,483,463	$ 1,595,470	$ 1,705,404	**$ 7,973,255**
CDOT 5317-PPACG	$119,758	$126,601	$129,689	$137,169	$143,966	$150,585	$156,603	$162,234	**$ 1,126,605**	$ 851,760	$ 920,462	$ 989,960	$ 1,058,172	**$ 4,946,958**
CDOT 5309-PPACG-B&BF	$1,004,459	$1,044,637	$1,070,112	$1,131,836	$1,187,919	$1,242,536	$1,292,198	$1,338,654	**$ 9,312,351**	$ 7,028,213	$ 7,595,095	$ 8,168,553	$ 8,731,399	**$ 40,835,611**
CDOT 5309-PPACG-New Starts									**$ -**	$ 103,250,000	$ 21,750,000	$ -	$ -	**$ 125,000,000**
CDOT 5309-PPACG-Small Starts	$0	$0	$0	$0	$10,000,000	$10,000,000	$11,750,000	$11,750,000	**$ 43,500,000**	$ -	$ -	$ -	$ -	**$ 43,500,000**
CDOT 5310-PPACG	$289,716	$304,153	$311,570	$329,541	$345,870	$361,772	$376,232	$389,758	**$ 2,708,611**	$ -	$ -	$ -	$ -	**$ 2,708,611**
	$205,522,393	$210,896,938	$206,322,158	$209,587,008	$267,277,782	$276,879,497	$288,730,795	$298,527,773	$1,963,744,344	$1,823,964,635	$2,077,503,902	$2,253,395,136	$2,694,621,844	$7,298,548,262

*This forecast assumes that the full 1-cent is reauthorized in every year through 2035 for capital projects. IF this does not happen numerous proijects must be taken out of the constrained plan.

Funding for known allocations is based on formula.

Estimated funds based on historic success in obtaining funds from this category. Projects identified in 2035 Regional Transportation Plan are likely to be funded.

Operating Funds for CDOT and local governments to maintain the transportation system. No specific projects identified in the 2035 Regional Transportation Plan.

The 9.48% of statewide pools is for planning purposes only, funding for these categories will differ, potentially significantly from these estimates.

The fiscally constrained plan assumes that some local funds are spent on state highways. If this does not occur the projects will not proceed on this schedule.

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TABLE 6-6: PROJECTED REVENUE 2008-2035 FEDERAL STATE AND LOCAL SOURCES (INCLUDES LOCAL MATCHES AS REQUIRED)

	TIP (2008-2015) Funding Level ($1,000s)	LRTP (2008-2035) Funding Level ($1,000s)	Notes (Total Funds In ($1,000s)
CDOT Strategic Projects: SB-1 Funds	$221,000	$2,000,000	CDOT State Strategic Corridors funded through 7th Pot and Senate Bill 97-01 funding mechanisms. TIP years based on OSPB June 2007 estimate of transferred funds ($1.2 billion) and CDOT using half for debt service (600 million) and half for construction. PPACG has one third of ready to go projects' remaining balance.
Surface Treatment Program	$51,700	$279,900	Projects are selected on the basis of performance factors as determined by CDOT Region 2. The estimate for the 2035 Plan was developed by CDOT Region 2.
Bridge Program	$12,100	$51,890	Projects are selected on the basis of need as determined by CDOT Region 2. The estimate for the 2035 Plan was developed by CDOT Region 2. Estimate composed of CDOT estimated portion of Region 2 coming to PPACG plus 9.48% of statewide pool.
Surface Quality Maintenance Program	$16,900	$77,500	Projects are selected on the basis of need as determined by CDOT Region 2.
Congestion Relief	$5,500	$31,600	New Funding Category based on lane miles of congestion above the 0.85 volume-to-capacity ratio.
Enhancements	$7,000	$30,000	Based on historic allocation (1983-2001) estimate. PPACG receives 45% of CDOT Region 2 Enhancement Program total. Forecast assumes that beginning in year 2012 the funding level returns to SAFETEA-LU levels and increases using CDOT's Federal Growth Rate by year. This category also includes TOPS/GOCO/Colorado Springs Bike Tax funds.
Metro	$56,600	$251,300	CDOT and PPACG revenue estimates based on formula. Funds for local roadway system projects to help achieve 2035 plan and air quality goals as determined by the MPO. Forecast assumes that beginning in year 2012 the funding level returns to SAFETEA-LU levels and increases using CDOT's Federal Growth Rate by year.
CMAQ	$37,100	$166,600	Colorado Transportation Commission Allocation of 18.13% to PPACG Non-Attainment (Maintenance) Area. Federal Formula determines Colorado allocation of national CMAQ program. Forecast assumes that beginning in year 2012 the funding level returns to SAFETEA-LU levels and increases using CDOT's Federal Growth Rate by year.
Snow & Ice Maintenance	11,600	$53,500	Projects are selected on the basis of need as determined by CDOT Region 2. The estimate for the 2035 Plan was developed by CDOT Region 2.

	TIP (2008-2015) Funding Level ($1,000s)	LRTP (2008-2035) Funding Level ($1,000s)	Notes (Total Funds In ($1,000s)
Safety – Rockfall Mitigation	$2,066	$7,982	Projects are selected on the basis of need as determined by CDOT Region 2.
Safety – Hazard Elimination Program	$13,500	$46,394	Projects are selected on the basis of need as determined by CDOT Region 2.
Safe Routes to Schools	$1,186	$4,635	Projects are selected on the basis of need as determined by CDOT. The estimate for the 2035 Plan was developed by CDOT. Forecast assumes that beginning in year 2012 the funding level returns to SAFETEA-LU levels and increases using CDOT's Federal Growth Rate by year. State law specifies distribution based on percentage of K-8 school age children.
Safety - Traffic Operations	$20,450	$82,509	Projects are selected on the basis of need as determined by CDOT Region 2.
Metro Planning (PPACG)	$8,400	$37,100	PPACG Federal allocation of funds for regional transportation planning.
Regional Priority Programs	$21,600	$49,422	PPACG receives 45% of the funding of the CDOT Region 2 allocation from Colorado Transportation Commission.
CDOT Maintenance Incentive Program	$6,636	$6,636	Projects are selected on a competitive basis by CDOT. Forecasts use 9.48% of total pool.
Public Transportation Programs	$	$	Colorado Springs Transit's estimated revenue. Capital: $; Operations: $
Department of Defense/ Defense Access Road, TEA/Fed Discretionary	$20,000	$85,000	$20 million construction priority military bases funding. 3 allocations of $15 million for Defense Access Roadway funding 2 allocations of $10 million other military construction funding
Local/Private Capital Project Funding	$505,000	$1,999,000	Includes local member government projects, private developer funds and local ballot initiatives. Also includes revenues from the Pikes Peak Regional Transportation Authority (RTA) and private developer commitments.
Local Government Maintenance & Operations Funding	$300,000	$2,000,000	Local government estimated outlay for operations and maintenance of transportation systems including roadway maintenance, bridge repair, restriping, curb and gutter, paving, snow removal, etc. Also includes revenues from the Pikes Peak Regional Transportation Authority (RTA) and private developer commitments. Excludes Transit Maint. & Operations (see public Transportation line item above).
TOTAL			

Notes:

1. *Known Allocation. Funding is based on formula.*
2. *Estimated funds based on historic success in obtaining funds from this category. Projects identified in 2035 Regional Transportation Plan are likely to be funded.*
3. *Operating Funds for CDOT and local governments to maintain the transportation system. No specific projects identified in the 2035 Regional Transportation Plan.*

CHAPTER 7: IMPLEMENTATION PLAN

Jurisdictions that own components of the transportation system will implement the vast majority of the transportation improvements in the next 27 years. To assure that the transportation system meets existing and future travel needs of the Region, the *2035 Regional Transportation Plan* includes implementation guidance for maintenance, operational, safety, and capacity improvements, as well as transit, non-motorized and ridesharing systems. The *2008 – 2013 Transportation Improvement Program* (Appendix B) is a six year listing of all federally and state funded transportation projects programmed to be built within the MPO boundaries. Since the TIP must be updated every four years, it is the ultimate implementation tool of the *2035 Regional Transportation Plan*.

In the development of the *2035 Regional Transportation* Plan, several alternative investment philosophies were created using an extensive public input process. Based on public comments received, policies that maintain and operate the existing transportation system are more important than projects that increase system capacity. The projects in the recommended system are outlined in Figure 7-1 and listed in Table 7-1 below.

SYSTEM MAINTENANCE AND PRESERVATION

Maintenance of the transportation system requires commitment to funding preventive maintenance. This generally refers to maintaining or rehabilitating the surface of roads and to replacing or repairing bridges.

Even with a design life of 75 years, there are many bridges that currently, or will in the next 27 years, need rehabilitation. The bridge maintenance goal is to improve all deficient structures as soon as possible, and to provide adequate funding to inspect, maintain, rehabilitate or replace all state and local structures. The primary source of bridge funding requires competition with other regions around the state. In order to secure this funding for local and regional needs the needs must be communicated to state and federal officials.

FIGURE 7-1: RECOMMENDED SYSTEM

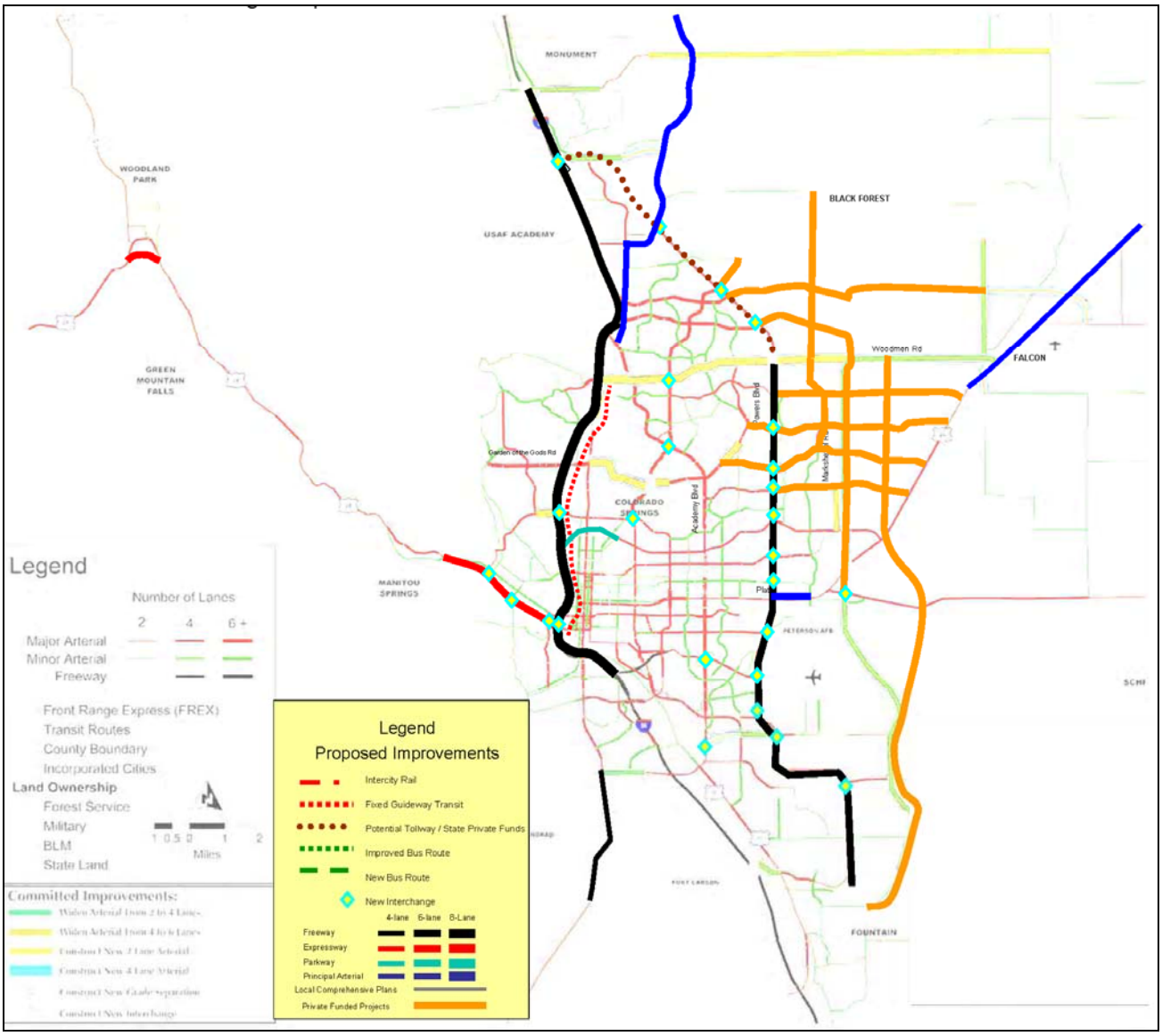


TABLE 7-1: FISCALLY-CONSTRAINED MULTI-MODAL PROJECT LIST

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
102	21st St Corridor Improvements	Private	$17,175	Widen roadway and install curb and gutter on 21st St between US 24 and Lower Gold Camp Rd. Install on-street bike lanes along entire length of roadway for this primary N-S Bikeway Corridor. Upgrade to minor arterial, construct curb and gutter, and install drainage improvements.	Private
320	25th St Bridge	Colorado Springs	$392	Replace existing 2-lane functionally obsolete bridge structure at Fountain Creek	Local
321	30th St Bicycle Lanes	Colorado Springs	$1,592	Construct paved shoulders and install signage and markings to provide continuous on-street bicycling on 30th St. from Fontanero St. to Garden of the Gods Rd.	Enhance-ments
322	Academy Blvd/Flintridge Dr Intersection Improvements	Colorado Springs	$1,036	Upgrade the intersection by adding turn lanes and improving intersection geometry.	Local
323	Academy Blvd/Fountain Blvd Interchange	Colorado Springs	$51,861	Construct an interchange at the intersection of Academy Blvd and Fountain Blvd.	Local
107	Academy Blvd/Union Blvd Interchange	Colorado Springs	$86,333	Construction of a grade-separated interchange at the intersection of Academy Blvd and Union Blvd.	Metro
111	ADA Pedestrian Ramp Program	Colorado Springs	$17,270	Provide ADA pedestrian ramps throughout established neighborhoods to increase walk ability and comply with ADA.	Local
324	Airport Rd Bicycle Lanes	Colorado Springs	$924	Install bicycle lanes on Airport Rd. from Circle Dr. to Powers Blvd. This project would require some asphalt and concrete construction.	Enhance-ments

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
	American Discovery Trail Connection	Woodland Park	$157	Ten foot paved trail with Fountain Creek bridge/crossing from the US 24 underpass along Laura Lane to Fountain Creek and across the creek to the American Discovery Trail.	Enhance-ment
325	Arrival/Departure Airfield Control Group Facility for Peterson Air Force Base	CDOT	$8,100	Construct military deployment facilities at Colorado Springs Airport.	Dept. of Defense
115	Austin Bluffs Bridge Widening at Cottonwood Creek	Colorado Springs	$2,576	Widen bridge from 49 feet to 150 feet. Accommodate the Cottonwood Creek Trail below.	Local
116	Austin Bluffs Corridor Improvements (East)	Colorado Springs	$3,695	Widen as a 6-lane principal arterial with median control, improved signal coordination and other safety improvements between Barnes Rd and Ruby Rd.	Local
117	Austin Bluffs Corridor Improvements (West)	Colorado Springs	$3,060	Widen as a 6-lane principal arterial with median control, improved signal coordination and other safety improvements between Nevada Ave and Academy Blvd. Accommodate bicycles with Austin Bluffs Multi-use Trail and/or on-street bike lanes.	Local
	Austin Bluffs/Union/Fillmore ITS Project	Colorado Springs	$1,385	Connect I-25 ITS to Academy Blvd ITS; extend Austin Bluffs Pkwy. ITS from I-25 to Academy; install Union Blvd. ITS from Austin Bluffs Pkwy. to Fillmore St.; install Fillmore St. ITS from I-25 to Union Blvd.	CMAQ
119	Banning Lewis Pkwy	Private	$207,000	Construct new four-lane expressway from Bradley Rd. to Woodmen Rd. and new four-lane principal arterial from Woodmen Rd. to Briargate/Stapelton.	Private
	Banning Lewis Ranch Roads	Private	$100,000	Construct new four-lane principal arterials within the Banning Lewis Ranch.	Private

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
326	Baptist Rd and Interchange Improvements	El Paso County	$21,500	Upgrade from a 2-lane collector to a 4-lane major arterial from Mithcell Rd. to Tari Dr. and reconstruct the interchange at I-25.	Local/ Private
125	Barnes Rd Extension	Private	$13,600	Extend as principal arterial from Marksheffel Rd to US 24 in 2 phases. Phase I from Marksheffel to Banning Lewis Pkwy (2015), and Phase II from Banning Lewis to US 24 (2025)	Private
327	Bijou St Bridge Improvements	Colorado Springs	$6,223	Improve the Bijou St. bridge over Shooks Run.	Local
328	Black Forest Rd Alignment Upgrade	El Paso County	$1,141	Safety project to realign Black Forest Rd. at its intersection with Hodgen Rd.	Local
126	Black Forest Rd Extension	Private	$4,995	Extend from Woodmen Rd to Dublin Blvd.	Private
127	Black Forest Rd Widening	Private	$3,330	Widen to a six lane principal arterial from Woodmen Rd to Briargate Pkwy.	Private
130	Black Forest Rd: Old Ranch Rd to Research Blvd	Private	$3,494	Expand 2-lane minor arterial to a 4-lane major arterial.	Private
	BNSF Railroad Corridor Acquistion	Colorado Springs	$1,060	Purchase and/or develop the BNSF rail right-of-way along Nevada Ave. into a multimodal corridor for non-motorized transportation and/or bus rapid transit.	Enhance-ments
131	Bradley Rd Extension: Grinnell St to Powers Blvd	El Paso County	$4,202	Construct 4-lane major arterial.	Local/ Private
133	Briargate Pkwy/Stapelteon Rd Extension	El Paso County	$17,495	Extend as a 4-lane principal arterial extension from Black Forest Rd to Curtis Rd.	Local/ Private
329	B Street Underpass Improvements	El Paso County	$1,204	Improvements to Fountain Creek Regional Trail underpass at S. Academy and I-25.	Enhance-ments

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
141	Centennial Blvd Design and Construction	Colorado Springs	$32,791	Design a 4-lane minor arterial extension from Fillmore St to I-25. Include bike lanes, pedestrian facilities with pedestrian access to Sonderman Park from Mesa Springs neighborhood. Include noise walls/berms adequate to shield Sonderman Park and Mesa Springs Neighborhood from excessive noise.	Local, Private
330	Chamberlain Trail Improvements	El Paso County	$304	Culvert improvements under I-25 south of SH 16 connecting Fountain Creek Regional Trail to Fort Carson.	Enhance-ments
331	Cheyenne Blvd/Tejon St Intersection Improvements	Colorado Springs	$1,660	Upgrade the intersection by adding turn lanes and improving intersection geometrics.	Local
143	Cheyenne Blvd Corridor Improvements	Colorado Springs	$4,995	Design and construct intersection improvements at the Cheyenne Blvd/Tejon/Ramona/Cascade intersection and improve access to Nevada Ave via Ramona; construct on-street bike lanes on Cheyenne Blvd for this primary E-W bikeway corridor connecting the Tejon St Bikeway with the Cresta/21st St Bikeway and Cheyenne Canyon Park; improve pedestrian access at the intersection; reduce travel lanes from 4 to 3 from Nevada to Cresta.	CMAQ
332	Cimarron St Bridge	Colorado Springs	$5,376	Replace existing 4-lane bridge structure at Conejos Street	Local

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
144	Citywide Congestion and Incident Management Signal Improvement	Colorado Springs	$1,120	Design and implement a citywide Intelligent Transportation System (ITS) to reduce congestion and improve safety without the cost of roadway expansion. Improvements include video camera systems at key traffic locations; fiber optic lines, variable message signs, ramp metering, HAR and trailblazer signs to route traffic around accidents and congestion problems. Develop traveler information systems to communicate with drivers and the public when problems with the system occur; develop intelligent work zone control; develop intelligent public agency vehicles that include two way communications and interact with the signal system.	Local
145	Citywide On-Street Bikeway Improvements	Colorado Springs	$240	Identify and construct on-street bike lanes citywide for bikeways shown in the Intermodal Transportation Plan.	Local
146	Citywide Roadway Safety and Traffic Operations	Colorado Springs	$3,920	Install safety facilities such as guard rail, redesign medians and intersection to improve capacity, and install new traffic signals where warranted to improve traffic operations and safety. Purchase and install impact attenuators at locations where fixed hazards cannot be moved.	Local
	Citywide Pedestrian Access/Mobility Improvements	Colorado Springs	$145	Construct transit waiting pads; install accessible curb ramps, sidewalks, pedestrian count-down signalheads, and Accessible Pedestrian Signals	Metro

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
333	Constitution Ave. Extension	Colorado Springs	$100,000	Extend as a 4-lane principal arterial from Paseo Rd. to I-25 at the Fontanero St. interchange. The Constitution Ave. corridor from Paseo to I-25 should be preserved for the future transportation needs of the community. If Constitution Ave. is to be extended, it should be no sooner than the 2020 time frame as recommended by City staff. It should be no more than four lanes, and it should include the noise and safety mitigation measures recommended in February 2002 by staff, possible below grade placement, pedestrian crossovers, etc. This project must be based on a thorough corridor study involving affected School District 11 schools and all neighborhoods, churches, etc. along Constitution Ave.	Local
334	Constitution Ave/Paseo Rd Intersection Improvements	Colorado Springs	$41	Upgrade intersection between Constitution Ave and Paseo Rd to improve traffic flow and turning movements.	Local
335	Cottonwood Trail Construction	Colorado Springs	$636	Construct a 12 foot concrete trail from Academy Boulevard to Vincent Road.	Enhance-ments
151	County Line Rd: I-25 to Furrow Rd	El Paso County	$1,786	Upgrade from 2-lane collector to a 2-lane minor arterial.	Local

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
152	Cresta Rd Sidewalks	Colorado Springs	$388	Construct 5-foot detached sidewalks on westside of road from La Veta Wy to Cheyenne Blvd. Sidewalk from La Veta Wy to Hermosa Wy can be built in existing right-of-way using existing curb and gutter. Construction of sidewalk from Hermosa to Cheyenne Blvd will require elimination of the existing southbound right-turn lane and construction of a 4 to 6 foot high retaining wall ($20,000 -$40,000). This section would require new curb and gutter as well.	Local
336	Creekwalk Trail Improvements	Manitou Springs	$1,176	Extend Colorado Springs Midland Trail to the west and connect with multi-use systems. Improvement Creekwalk Trail from the eastern Manitou Springs city limits, through five parks and the downtown area of Manitou Springs, to the western city limits.	Enhance-ments
156	Curtis Rd Upgrade	El Paso County	$24,893	Widen and upgrade to a 4-lane principal arterial from Judge Orr Rd to SH 94.	Local/ Private
161	Dublin Blvd Extension	Private	$9,101	Extend as a principal arterial from its current terminus just east of Tutt Blvd through Banning Lewis Ranch to US 24 in 2 phases. Phase I east to Banning Lewis Pkwy (2015) and Phase II from BLP to US 24 (2020). Include on-street bike lanes per ITP.	Private
164	El Paso County ITS Program	El Paso County	$2,414	Intelligent Transportation Systems implementation for unincorporated El Paso County.	CMAQ
337	Evans Ave. Bridge Improvements	Colorado Springs	$519	Make improvements to the Evans Ave. bridge over N. Cheyenne Creek	Local

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
338	Fillmore St Bicycle Lanes	Colorado Springs	$647	Install on-street bicycle lanes on Fillmore St. and Fontmore Rd from Centennial Blvd west to 31st St.	Enhance-ments
170	Fillmore St Corridor West	Colorado Springs	$7,992	Widen to 6 lanes between I-25 and Centennial Blvd. Project to also include turn lanes, bike lanes, curb and gutter, and sidewalks.	Local
171	Fillmore St TSM Improvements	Colorado Springs	$5,376	Make transportation system management and intersection improvements between I-25 and Union Blvd as outlined in the East West Mobility Study: Fillmore/ Union intersection, Prospect intersection, El Paso intersection, and Prospect St storm sewer--Phase I. Improve safety at Fillmore and Cascade intersection.	Local
	Fixed Guideway System to Downtown	Colorado Springs	$79,500	Plan and implement a fixed guideway public transportation system from UCCS to downtown Colorado Springs.	FTA Small Starts
	Fixed Guideway System Along Garden of the Gods	Colorado Springs	$230,300	Plan and implement a fixed guideway public transportation system along the Garden of the Gods/Austin Bluffs corridor to Powers Blvd.	FTA New Starts
	Fixed Guideway New Buses and Replacements	Colorado Springs	$6,700	Purchase of new and replacement buses for fixed guideway systems.	FTA 5307
172	Fontaine Blvd Extension	El Paso County	$9,000	Construct a 4-lane principal arterial from Marksheffel Rd to Meridian Rd.	Local
339	Fountain Creek Trail Bridge Repair	El Paso County	$304	Bridge abutments on the south side of Fountain Creek Regional Park, damaged by recent flooding, will be replaced.	Enhance-ments
	Fountain Creek Regional Trail Extension	Fountain	$456	Extend as an unpaved trail from Fountain south to the county border.	Enhance-ments
	Fountain Creek Regional Trail – Rosemont Section	Woodland Park	$191	Construct a ten foot paved trail from Sheridan Ave. to the Safeway shopping center along Fountain Creek.	Enhance-ments

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
340	Front Range Trail Underpass Improvements	El Paso County	$424	Improve an existing culvert underneath I-25 for pedestrian access.	Enhance-ments
178	Garden of the Gods Rd Intersection Improvements	Colorado Springs	$892	Upgrade intersection between Forge Rd and Chestnut St to improve traffic flow and turning movements by widening the North Forge approach and installing dedicated left turn lanes at both intersections.	Local
179	Garrett Rd: US 24 to Curtis Rd	El Paso County	$3,177	Expand 2-lane collector to a 2-lane minor arterial.	Local
180	Gleneagle Extension: SH 105 to Baptist Rd	El Paso County	$4,315	Construct 2-lane minor arterial.	Local
341	Hancock Ave Bridge	Colorado Springs	$800	Replace existing 2-lane structurally deficient bridge at Templeton Gap Floodway	Local
182	Hancock Ave Corridor	Colorado Springs	$899	Upgrade to include the construction of center medians and modifications to geometry between Union Blvd and Fountain Blvd.	Local
183	Hancock Expressway	Colorado Springs	$10,340	Construct street and drainage improvements by extending Chelton Rd south to Drennan Rd and realigning Hancock Expressway east from Monica/Claredon to new Chelton Rd. and then east to Powers Blvd.	Local, Private
342	Hancock Expressway Bicycle Lanes	Colorado Springs	$4,243	Install on-street bicycle lanes on Hancock Expressway from Fountain Blvd. to the S. Circle Ave. overpass.	Enhance-ments
343	Hodgen Rd Upgrade	El Paso County	$8,345	Upgrade from 2-lane collector to a 2-lane minor arterial from Roller Coaster Rd. to Eastonville Rd.	Local
189	I-25 Bridges in the Pikes Peak TPR	CDOT	$4,200	Replace bridges on I-25 in the Colorado Springs Metropolitan Area. Project selection based on project need/structural deficiency.	Bridge-On State Highway System

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
344	I-25: Northgate Rd to El Paso County Line	CDOT	$1,000	Construction of a chain-up station on I-25 south of Monument Hill and safety improvments.	CDOT Regional Priorities, Safety
191	I-25: S. Powers Blvd to Douglas County Line	CDOT	$794,000	Complete the reconstruction of I-25 from S. Academy Blvd. to Douglas County line. Includes reconstruction of some interchanges including the Cimarron St. interchange, widening to 6 general purpose lanes from S. Academy Blvd. to SH 105 and adding one HOV lane in each direction from MLK Bypass to Briargate Pkwy.	Strategic (7th Pot), CMAQ, Metro, CDOT Regional Priorities
345	Interquest Corridor Project Phase II	Colorado Springs	$1,763	Coordinate traffic signal expansion along Powers Blvd. corridor to the completion of the I-25 north-south connection	CMAQ
346	Jackson Creek Trail Improvements	El Paso County	$608	Culvert improvements along Jackson Creek Trail at I-25 to provide access to AFA from Gleneagle.	Enhance-ments
347	Jimmy Camp Creek Trail Construction	Fountain	$6,996	Complete the unpaved trail on the northwest side of Fountain to the confluence of Jimmy Camp Creek with Fountain Creek in the southwesterly portion of the city.	Enhance-ments
	Jobs Access Reverse Commute Service	Colorado Springs	$9,700	Transit projects to be determined that enhance access to reverse peak hour commuter transit trips for riders with low incomes.	FTA 5316
348	La Foret Trail Improvements	El Paso County	$688	Improvements to the existing culvert structure to facilitate passage underneath I-25 for the La Foret Trail east of the Air Force Academy.	Enhance-ments
349	Lake Ave Sidewalk	Woodland Park	$153	Complete curb, gutter, sidewalk and drainage improvements.	Enhance-ments
350	Las Vegas St Shoulders	Colorado Springs	$1,410	Install paved shoulders on Las Vegas St. from Tejon St. to US 85/87.	Enhance-ments

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
351	Lewis Palmer Pedestrian Bridge Construction	El Paso County	$2,880	Construct a pedestrian bridge over I-25 north of Baptist Rd. connecting the west side of Monument to Lewis-Palmer H.S.	Enhance-ments
	Maintenance and Operations	Various	$1,582,915	Maintenance and operations by state and local entities.	Mainten-ance
	Manitou Ave Pedestrian and Drainage Improvements	Manitou Springs	$3,633	Improve drainage, road, intersections; widen walks; landscape; bumpouts & ramps; lighting, undergrounding, wayfinding	Metro
195	Marksheffel Rd Widening: Woodmen Rd to US 24	Private	$16,096	Widen as a 6-lane principal arterial.	Local, Private
196	Marksheffel Rd: US 24 to Mesa Ridge Pkwy	El Paso County	$111,000	Expand 2-lane minor arterial to a 4-lane principal arterial between US 24 and Bradley Rd and expand to a 4-lane expressway between Bradley Rd and Mesa Ridge Pkwy. Construct an interchange at SH 94.	Local, Metro, Private
197	Meridian Rd: Hodgen Rd to Rex Rd	El Paso County	$3,505	Upgrade from 2-lane collector to a 2-lane minor arterial.	Local
198	Meridian Rd: Rex Rd to Woodmen Rd	El Paso County	$6,011	Upgrade from 2-lane collector to a 4-lane, then 6-lane principal arterial.	Local/ Private
199	Meridian Rd: US 24 to Falcon Hwy	El Paso County	$420	Construct 4-lane major arterial transition to existing 2-lane Falcon Hwy.	Local
200	Meridian Rd: Woodmen Rd to US 24	El Paso County	$4,499	Construct 4-lane, then 6-lane principal arterial.	Private
202	Mesa Ridge Pkwy Extension	El Paso County	$4,149	Construct 4-lane principal arterial from Powers Blvd to Marksheffel Rd.	Local

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
242	Metro Rides	Colorado Springs	$20,200	RIDEFINDERS' programs are designed to reduce automobile dependency and to promote the use of alternative transportation options in the Pikes Peak region. Services include free carpool matching for the general public, long distance commuter vanpools, Bike Week, telecommuting consultation, School Pool for families, and general transportation information (bus routes, walking and biking trails etc.).	CMAQ
	Metro Bus Stop Improvements	Colorado Springs	$2,800	Improve pedestrian and bicycle safety and access to the public transportation system on various routes.	Enhance-ments
203	Milam Rd: Old Ranch Rd to Shoup Rd	El Paso County	$2,973	Upgrade from 2-lane collector to a 2-lane minor arterial.	Local
	Mobilitiy Management Services	PPACG	$88	Develop a coordination program for human services and public transportation	FTA 5310
206	N Carefree Extension	Private	$9,990	Extend as a three-lane principal arterial from Peterson Rd. to US 24.	Private
207	N Nevada Ave Revitalization and Safety Improvements	Colorado Springs	$7,053	From Fillmore St. to I-25 install basic infrastructure such as curb and gutter, sidewalk, drainage facilities and street lights, turn lanes, parking controls and crosswalks along with landscaped medians. Widen to six lanes from Austin Bluffs Pkwy to I-25.	Local, Metro, Private
210	Nevada Ave/Mt. View Lane Intersection	Colorado Springs	$1,499	Upgrade intersection to improve geometrics, increase safety and improve crossing of Templeton Gap multi-use Trail. Improvements should include curb and gutter, sidewalks, improved signalization and delineated traffic lanes.	Local

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
352	Nevada Ave Streetscaping	Colorado Springs	$3,397	Install raised landscaped medians, corner bumpouts, ADA compliant ramps, and upgrade other streetscaping (aesthetic paving treatment, planters, bike parking, street lighting, landscaping) on Nevada Ave. from Boulder St. to Cucharras St.	Enhance-ments
	New Freedom Transit Service	Colorado Springs	$5,800	Transit projects to be determined that enhance transit service for riders with special needs who are not otherwise able to qualify for special paratransit (ADA) service rider status.	FTA 5317
214	Northgate Rd Corridor	Private	$20,000	Reconstruct as a 6-lane facility and straighten the excessive curves, add turn lanes and provide safety improvements. This project will be funded jointly with an area developer. Reconstruction will include an on-street trail crossing for Smith Creek Trail. Project limits are SH 83 to I-25	Private
353	Ohio Ave Trail	Fountain	$860	Construct a paved trail between Highway 85 and Jimmy Camp Creek.	Enhance-ments
215	Old Pueblo Rd Bypass	Fountain	$5,624	Expansion of Old Pueblo Rd and bridge at Jimmy Camp Creek; relocation of the existing connection to the US 85 south of Illinois Ave; new railroad crossing.	Local
	Park-and-Ride Access for Bicycles and Pedestrians	Colorado Springs	$76	Make bicycle and/or pedestrian access improvements to existing park-and-ride lots and transit substations. This will include improved sidewalks, trail connectivity, bicycle parking, directional and information signage, etc.	Enhance-ments
217	Park-and-Ride Lots, Phase 2	Colorado Springs	$12,100	Design and construct 5 park-and-ride facilities with 300 parking spaces each.	CMAQ/ FTA 5307

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
219	Peterson Rd Construction	Private	$1,125	Extend from current terminus north to Dublin Blvd.	Private
	Pikes Peak Greenway Improvements	Colorado Springs	$11,046	Pave and make other improvements to various sections of the Pikes Peak Greenway trail along Monument Creek.	Enhance-ments, Local
	Pikes Peak Library District Bookmobiles	Pikes Peak Library District	$642	Purchase and operate two bookmobiles.	CMAQ
229	Planning	PPACG	$30,815	Funds for PPACG regional planning activities.	Planning
354	Platte Ave Bridge Improvements	Colorado Springs	$17,517	Improve the Platte Ave. bridge over Sand Creek.	Local
355	Platte Ave Widening	Colorado Springs	$8,298	Widen to six lanes from Academy Blvd to Powers Blvd.	Local
230	Platte Ave TSM	Colorado Springs	$8,325	Improve the efficiency of the existing roadway network by implementing measures that improve the operations and safety of Platte Ave, including improved traffic signalization, expanded intersection capacity, and better access management. Project limits are Cascade to Academy.	Local
232	Powers Blvd: Mesa Ridge Pkwy to I-25 (at Northgate Rd)	CDOT	$1,107,500	Complete studies to determine needed corridor improvements and implement them. Construct new facility from SH 83 to I-25. Upgrade the corridor to a grade separated freeway from Barnes Rd to Platte Ave. This will include roadway construction and new interchanges and grade separations at 25 locations.	Strategic (7th Pot), CDOT Regional Priroties, Local, Private
239	Research Pkwy Extension	Private	$14,986	Extend as a 6-lane principal arterial from Powers Blvd to Black Forest Rd and from Black Forest Rd to Woodmen.	Private

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
356	Rock Island Trail Construction	Colorado Springs	$2,736	Construct a 10-foot, paved trail from Powers Blvd. through Banning Lewis Ranch to the eastern City limits. Construct a trail underpass under Union Blvd. at Constitution Ave.	Enhance-ments
243	Rockrimmon/ Delmonico North	Colorado Springs	$1,660	Upgrade the intersection by adding turn lanes and improving intersection geometry.	Local
244	Rockrimmon/Pro Rodeo Dr	Colorado Springs	$830	Upgrade intersection to improve traffic flow and turning movements. Provide on-street bike lanes on Pro Rodeo as per City Bicycle Plan.	Local
357	Sand Creek Trail	Colorado Springs	$171	Construct 1.1 mi. 12' concrete trail; construct three 8' concrete access trails from Barnes Rd. to Stetson Hills Blvd.; build 2 ped. bridges	Enhance-ments
250	SH 16: I-25 to Powers Blvd (including Mesa Ridge Pkwy)	CDOT	$55,930	Complete needed studies for improvements along this corridor. Expand from 2-lane to 4-lane facility from I-25 to SH 85 including reconstruction of I-25/SH 16 interchange and SH 16/SH 85 Interchange. Improve geometrics and intersections along Mesa Ridge Pkwy from SH 85 to Powers Blvd.	Bridge-On State Highway, Congestion Relief, Discretion-ary, Strategic (7th Pot)
251	SH 67 Corridor Improvements	Woodland Park	$3,462	Implementation of access control plan, widening turn lanes, raised medians, sidewalks, drainage improvements and signalization from US 24 north to Triple B Ranch Rd.	CDOT Regional Priorities, Private
252	SH 67/Kelley's Rd Intersection Improvement	Private	$1,832	Implementation of improvements at intersection of SH 67 and Kelley's Rd.	Private
253	SH 83: Shoup Rd to County Line Rd	CDOT	$209,000	Widen to 4-lane principal arterial.	CDOT Regional Priorities, Private

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
254	SH 85: SH 16 to Academy Blvd (SH 83)	CDOT	$5,624	Widen to 4 lanes.	CDOT Regional Priorities
255	SH 94: US 24/SH 94 Intersection to Enoch Rd	CDOT	$60,000	Widen to four lanes from US 24 to Enoch Rd.	CDOT Regional Priorities
358	SH 115 Widening and Safety Improvements	CDOT	$88,000	Widen to four lanes from Nelson Blvd to Rock Creek Canyon Rd.	CDOT Regional Priorities
257	Shoup Rd: Black Forest Rd to Vollmer Rd	El Paso County	$1,637	Upgrade from 2-lane collector to a 2-lane minor arterial.	Local
258	Shoup Rd: SH 83 to Black Forest Rd	El Paso County	$3,654	Upgrade from 2-lane collector to a 2-lane minor arterial.	Local
359	Sinton Trail Underpass Improvements	Colorado Springs	$672	Reconstruct an existing trail tunnel, under Centennial Blvd., which is substandard in design.	Enhance-ments
260	Southeast Corridor Extension, Phase 1	Colorado Springs	$30,122	Widen to 4 lanes between SH 115 and B St; interchange improvements at SH 115 and I-25; construction of a 4-lane expressway between Academy and Powers; construction of a new road 600 feet south of existing Drennan between Academy and Hancock and a widening of existing Drennan between Hancock and Powers; and purchase of right-of-way for the ultimate project, with interchanges at Academy and Hancock.	Local
263	Stapleton/Curtis Extension: Eastonville Rd to US 24	El Paso County	$1,400	Construct 4-lane major arterial.	Local
264	Stapleton/Curtis Extension: US 24 to Judge Orr Rd	El Paso County	$2,500	Construct 4-lane principal arterial	Local/ Private
265	Stetson Hills Extension	Private	$3,330	Extend as principal arterial with on-street bike lanes from Marksheffel to US 24.	Private
266	Struthers Rd: Falcons Nest to Baptist Rd	El Paso County	$3,375	Construct a 4-lane minor arterial.	Local/ Private
	Teller County Trail Construction	Teller County	$612	Construct a 10-foot paved trail from Wal-Mart to Crystola	Enhance-ments

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
273	Traffic System Upgrade	Colorado Springs	$1,238	New signals and signal upgrades in the City of Colorado Springs.	Metro
	Transit – Existing Service Improvements	Colorado Springs	$809,300	Improve bus service to achieve 30 minute peak and 60 minute off-peak headways.	FTA 5307, CMAQ, Local
	Transit Facilities	Colorado Springs	$11,700	Construction of new transit contractor and fixed route facilities.	FTA 5309
	Transit – New Service Area	Colorado Springs	$27,700	Expand possible call-and-ride and fixed route bus service to the northern and eastern areas of Colorado Springs.	FTA 5307, CMAQ, Local
	Transit – New Call and Ride Service	Colorado Springs	$15,100	Implement call-and-ride bus service in key areas.	FTA 5307, CMAQ, Local
	Transit – Capital Improvements	Colorado Springs	$28,000	Capital improvements and planning efforts for transit services.	FTA 5307
	Transit Communication and IT	Colorado Springs	$17,300	Installation of communication and intelligent transportation equipment such as surveillance and security equipment, radios, scheduling software, and automatic vehicle location equipment.	FTA 5307
276	Transit Planning and Administration	Colorado Springs	$14,700	FTA eligible staff salaries/benefits for planning and administrative activities (2005-2030).	FTA 5307, Metro
279	Transit System Maintenance and Misc Capital	Colorado Springs	$25,100	Capitalized maintenance, Paratransit offset transit enhancement (1% of FTA required), surveillance equipment (1% of FTA required), support vehicles overhauls/shop equipment/TVM hardware/software.	FTA 5307
280	Transit Vehicles for Elderly and Disabled Transportation Services	PPACG	$224,460	69 small paratransit vehicles replacement and rehabilitation and service expansion; 151 large paratransit vehicles replacement and service expansion.	FTA 5310, FTA 5311, Metro

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
	Transit Vehicles	Colorado Springs	$266,600	Purchase of new and replacement fixed route and paratransit vehicles.	FTA 5307, FTA 5309
282	Tutt Blvd Extension	Private	$6,749	Extend as arterial (2010) from Dublin Blvd to Milam Rd, except for short section from Cottonwood Creek to Research Pkwy Extension (2015).	Private
360	Uintah St Bicycle Lanes	Colorado Springs	$356	Construct bicyle lanes on Uintah St. west of I-25. Project requires shoulder stabilization and new paving in existing right-of-way.	Enhance-ments
284	Union Blvd Extension	Private	$3,375	Design and construct as a principal arterial from Research to Powers (2005) and from Powers to Milam Rd (2010).	Private
361	Union Blvd/ Academy Blvd Interchange	Colorado Springs	$86,000	Construct a grade-separated interchange at the intersection of Union Blvd and Academy Blvd. Ensure accommodation of bicycles and pedestrians in the design.	Local
362	Union Blvd/ Constitution Ave. Intersection Improvements	Colorado Springs	$3,199	Upgrade intersection of Union Blvd. and Constitution Ave. to improve traffic flow and turning movements.	Local
285	Union Blvd/ Fillmore Interchange	Colorado Springs	$86,000	Construct a grade-separated interchange at the intersection of Union Blvd and Fillmore. Ensure accommodation of bicycles and pedestrians in the design, as well as access issues for the many medical campuses in the area.	Local
286	Union Blvd/Austin Bluffs Pkwy Interchange	Colorado Springs	$31,700	Construct a grade-separated interchange at the intersection of Union Blvd and Austin Bluffs Pkwy. Ensure accommodation of utility relocations and accommodate intersection of multi-use trails (Templeton Gap and Austin Bluffs Trails).	Local

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
363	Union Blvd/Woodmen Rd Interchange	Colorado Springs	$48,000	Construct a grade-separated interchange at the intersection of Union Blvd and Woodmen Rd. Ensure accommodation of bicycles and pedestrians in the design.	Local
364	University Park Trail Construction	Colorado Springs	$1,290	Construct a paved trail from Rockhurst Blvd. to N. Nevada Ave. through the UCCS campus.	Enhance-ments
288	US 24 Realignment/ Woodland Park Bypass	Woodland Park	$50,000	Corridor preservation for US 24 Woodland Park Bypass.	CDOT Regional Priorities
289	US 24/Serpentine Ave Park-and-Ride Overlook	Manitou Springs	$916	Acquisition, design and construction of a park-and-ride facility on Higginbotham Flats overlook to Manitou Springs adjacent to US 24 near Serpentine Ave intersection. Project also provides overlook bench seating with restroom and landscaping for park-and-ride users.	CMAQ
291	US 24 East: Powers Blvd to Elbert Hwy	CDOT	$330,000	Complete expansion to 4 lane facility from Powers to Elbert Rd. Reconstruct interchange at Peterson Rd and construct an interchange at Marksheffel Rd. Replace bridge over Sand Creek and over drainage south of Judge Orr Rd (I-18-G). Conduct planning study to identify future needs from Powers Blvd. to Calhan.	Bridge, CDOT Regional Priorities, Local

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
290	US 24 West: I-25 to Edlowe Rd.	CDOT	$460,000	Complete studies to identify needed improvements along this corridor and implement recommendations. Improve geometrics and intersections from I-25 to Edlowe Rd. west of Woodland Park. Add interchanges to various locations from 8th St. to Manitou Springs. Widen to six lanes from I-25 to Manitou Ave. and reconstruct interchange at Manitou Ave. Construct a park-and-ride facility at 31st St. Construct a four-lane bypass from about Glendale Dr. to Bluebird Hill St.	CDOT Regional Priorities
365	Ute Pass Ave Improvements	Green Mountain Falls	$893	Widen the paving on Ute Pass Ave to provide bicycle/pedestrian lanes from Town line to Town line (5,355 FT). Construct sidewalks, street lights, paved parking spaces, enhanced signage, remove utility poles and overhead lines, and plant street trees, and other landscaping.	Enhance-ments
366	Ute Pass Trail Phase III	El Paso County	$1,368	Construct Ute Pass Trail from Cascade to Ute Pass Elementary School along Fountain Creek and Hwy 24.	Enhance-ments
292	Vincent Dr Extension	Colorado Springs	$7,845	Extend from Dublin Blvd to Nevada Ave to relieve pressure on Woodmen Rd and I-25. Include sidewalks and on-street bike lanes as shown in the approved ITP.	Local
367	Vincent Dr Bridge	Colorado Springs	$5,952	Replace existing 2-lane functionally obsolete bridge structure at Cottonwood Creek	Local
293	Vollmer Rd: Briargate Pkwy to Black Forest Rd	El Paso County	$1,548	Upgrade from 2-lane collector to a 4-lane principal arterial.	Local
294	Vollmer Rd: Hodgen Rd to Shoup Rd	El Paso County	$1,458	Upgrade from 2-lane collector to a 2-lane minor arterial.	Local

Map ID	Project Name	Sponsoring Entity	Total Cost (in $1,000s)	Project Description	Funding Source
295	Vollmer Rd: Shoup Rd to Briargate Pkwy	El Paso County	$1,843	Upgrade from 2-lane collector to a 2-lane minor arterial.	Local
296	W Uintah St Intermodal Safety Improvements (2 phases)	Colorado Springs	$1,867	Expand the existing road cut between Cooper Ave and Mesa Rd on the north side to allow room for sidewalk, striped bike lanes, and a striped median to improve vehicle lane geometry. Re-grade hillside to north of existing roadway and install retaining wall to protect facilities. Combination of retaining wall, sidewalk and curb and gutter will provide pedestrian facilities and protect roadway from seasonal mudflows ($1.0M). Phase II will make similar improvements on south side ($1.1M). Project limits are Cooper St to Mesa Ave.	Local
	Woodland Park Express Service	Colorado Springs	$2,800	Provide transit bus service between Colorado Springs and Woodland Park.	CMAQ
299	Woodmen Rd: I-25 to Powers Blvd	Colorado Springs	$60,548	Design, right-of-way acquisition and construction of a 6-lane parkway (principal arterial), including interchanges at Academy/Woodmen and Union/Woodmen, bike lanes, noise walls, and landscaping in accordance with Woodmen Corridor EA.	Metro/ Local
300	Woodmen Rd: Powers Blvd to US 24	El Paso County	$16,511	Expand 2-lane major arterial to a 4-lane, then 6-lane expressway.	Metro/ Local/ Private

Recommended Maintenance and Preservation Strategies

- Continue resurfacing and reconstruction programs, with priority assigned to higher volume routes.
- Standardize design and use of pavements that better absorb noise and drain water, such as the rubberized pavements currently being investigated by the City of Colorado Springs.

SYSTEM MANAGEMENT AND OPERATIONS

System management refers to programs and some infrastructure that are used to operate roadways. The goal is to make the transportation system as effective and efficient as possible. Some of the most common features include signal synchronization, traffic monitoring, variable message signs, incident management, public information programs, and marked detours.

Recommended Management and Operations Strategies

- Implement the Regional Intelligent Transportation Systems (ITS) Strategic Plan and regional ITS architecture to enhance incident management program effectiveness.

RUBBERIZED ASPHALT

Milled and Overlayed Asphalt traditionally lasts 15 – 20 years in Milder Climates. The average lifespan in our climate is 8 - 10 years! This is due to: Ultraviolet Light/Elevation; Daily Temperature Swings/High Number of Freeze - Thaw Cycles; Expansive Soils and Ground Water Issues; and Hardness of Available Aggregate. Advantages of Terminal Blend Tire Rubber Asphalt over Traditional Dense Graded Asphalt Pavement:

- Smoother; Extremely smooth surface finish due to the mix used.
- Quieter; External noise typically reduced by 3 - 4 dBA over existing asphalt.
- Safety; Better Traction and Skid Resistance, Improved Drainage, Less Ponding of Water and Faster Drying Surface
- Durability?; Potential Life Cycle Cost Savings currently understudy.

Below shows wet rubberized asphalt in the background and wet regular in the foreground.

Traditional Asphalt

Rubberized Asphalt

- Continue development of coordinated traffic-responsive signal systems. Implement interconnected traffic adaptive (responsive) signal systems along all major transportation corridors. Install 'Un-interruptible Power Systems' and other fail-safe systems for all major traffic signal locations.
- Implement an Incident Management System which includes electronic signage and centralized traffic control along with camera monitoring equipment to direct traffic. Traffic camera information and diversion information should be communicated with the public.
- Support real-time traveler information systems, incident management and information/communication/monitoring systems, including live video feed or internet access to traffic cameras.
- Develop a congestion/incident diversion route signal and signing capability. Secure diversion route signs, barricades, and other support materials to deploy when incidents occur and diversions are necessary.
- Institute an Incident Management program, including an assistance patrol, traffic cameras, and other program measures.
- Develop and implement an interoperable interagency communications system for incident management and emergency response. Support multi-agency and multi-modal coordinated emergency preparedness response planning, training. Secure resources for effective programs.
- Install 'pedestrian timing signals' that count down time remaining for pedestrians to cross at major pedestrian intersections. Install audible pedestrian signal equipment at key locations as warranted. Utilize alternative pedestrian detection and pre-emption systems as appropriate.
- Implement automatic vehicle location systems (AVL) and related dispatching programs for emergency responders, transit and other partners in incident management.
- Expand travel demand management (TDM) programs to help reduce the number of peak-period single occupant automobile trips.
- Institute a 0.1 milepost reference system and maintain it.
- Include public rest areas in the traffic camera surveillance program.
- Plan for future installation of cameras for surveillance and security of rail lines and transit stops.
- Complete the regional concepts for transportation operations.
- Better link transportation planning and operations, which may include data or resource sharing, cooperative planning or operations activities.

ROAD AND HIGHWAY PROJECTS

This is the aspect of implementation that the Pikes Peak Region and most MPOs nationwide have focused on. The federal and state funded projects in this plan are primarily expansion projects, not construction of new roads. The construction of roads on new alignment is primarily paid for through private funding as part of development agreements. Due to financial constraints, some new routes may include tollways. The roadway projects recommended for implementation are shown in Table 7-1.

PUBLIC TRANSPORTATION

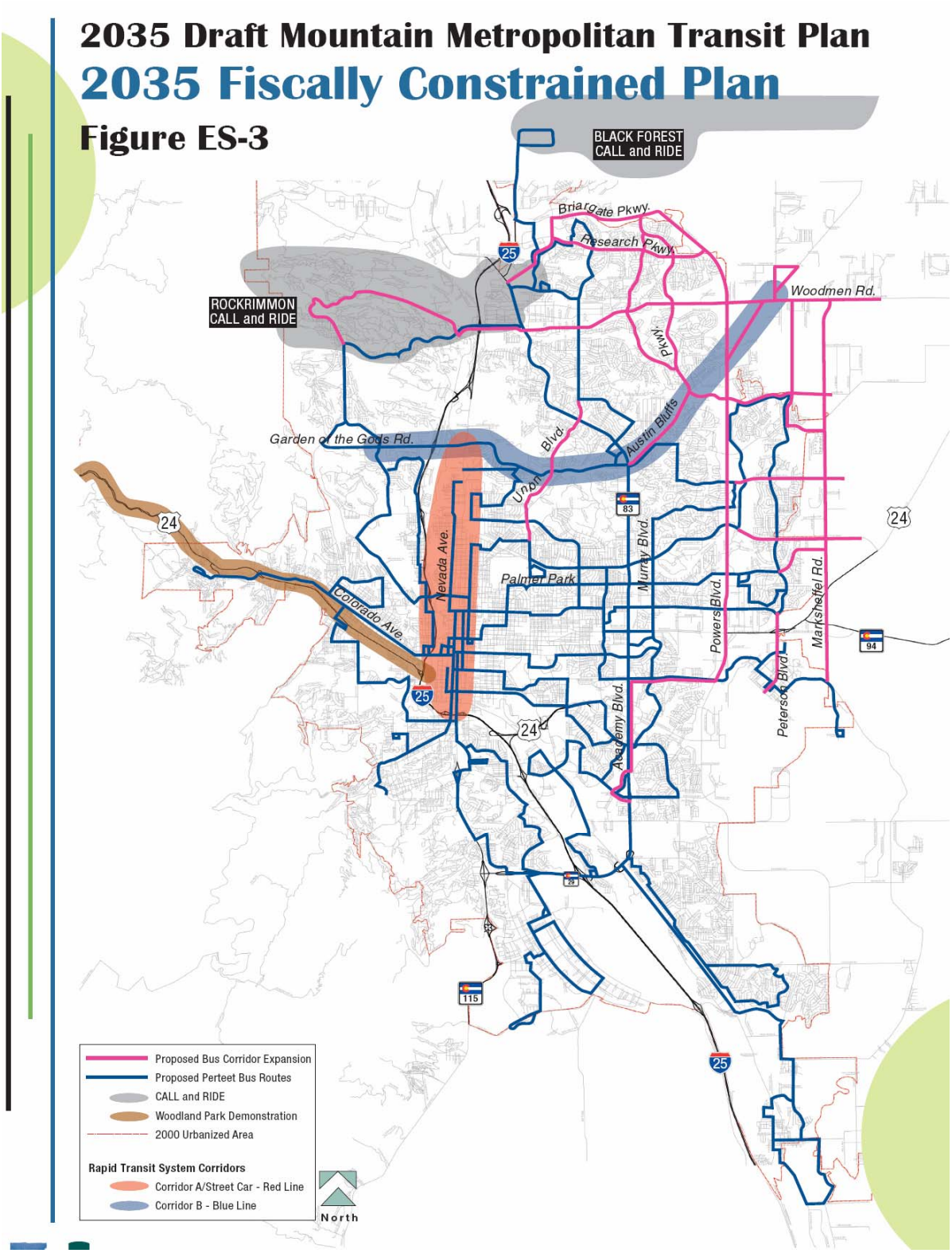
The public transportation projects described below and illustrated in Figure 7-2, on the following pages, assumes that funding of Mountain Metropolitan Transit remains similar to today, with the exception of Federal Transit Administration Small Starts and New Starts funding identified for a fixed-guideway/rapid transit project. Significant additional planning will be needed before such funding can be applied for. If the corridors are not competitive for this funding, local funding will need to replace these FTA funds or the projects cannot be constructed.

Transit Implementation Strategies

This plan provides guidance on a logical order for transit improvement implementation in a fiscally-constrained environment. The key steps of the implementation plan are described below:

- Adopt service standards and begin routine evaluation of service
- Support statewide commuter rail initiatives
- Implement service improvements to achieve 30-minute peak and 60-minutes off peak headways: 2008 – 2009
- Implement a regional decision-making structure and evaluate potential for possible dedicated funding source: 2008-2010
- Conduct Feasibility Study for Downtown fixed-guideway/rapid transit corridor: 2008 – 2010
- Serve northern and eastern areas through possible call and ride service and fixed-route expansion: 2009 – 2011
- Implement call and ride service in key areas: 2010 – 2011
- Conduct Alternatives Analysis for Downtown fixed-guideway/rapid transit corridor: 2010 – 2011
- Construct Phase 1 of fixed-guideway/rapid transit: 2016 – 2020
- Begin operation of Phase 1 fixed-guideway/rapid transit: 2021 – 2025
- Construct Phase 2 of fixed-guideway/rapid transit: 2021 – 2025
- Begin operation of Phase 2 fixed-guideway/rapid transit: 2026 – 2030

FIGURE 7-2: PUBLIC TRANSPORTATION PROJECTS



Non-Motorized Transportation Strategies

Non-motorized, bicycle and pedestrian, projects identified in the *Regional Non-Motorized Transportation Plan* (Appendix F) and recommended for implementation are listed in Table 7-1.

Human Service Transportation Implementation Strategies

Planned long-range specialized transportation improvements do not assume substantial changes over the existing level of service provided. Additional funding would be required for any notable increases in service provided.

Freight Implementation Strategies

The *2035 Long Range Transportation Plan* does not specifically include any planned improvement for facilitating the movement of freight. However, planned improvements to the roadway network and regional transportation corridors will benefit freight traffic.

Rail Implementation Strategies

The Colorado Department of Transportation (CDOT) and the two class one railroads operating in Colorado, the Burlington Northern Santa Fe Railway Company and the Union Pacific Railroad, have been holding discussions regarding the possible re-location of rail infrastructure east of El Paso County and away from the Front Range. These preliminary efforts between CDOT and the railroads have been known either as the "Colorado Railroad Partnership Project" or as "Colorado's Safety and Mobility Partnership Project." This study is intended to be preliminary in nature and broad in terms of detail, since it may be an initial phase of what may become a more comprehensive analysis of the infrastructure. The specific impacts to rail operations in the Colorado Springs Metropolitan Area have not been finalized. Any actions resulting from these discussions will be incorporated into future long-range plan updates.

Aviation Implementation Strategies

Improvements to aviation facilities are not included in the 2035 Long Range Transportation Plan. However, ground access improvements, either roadway or public transportation, to aviation facilities is included.

Other Transportation Services

The Metro Rides program (carpools, vanpools, and schoolpools) is included in the 2008-2013 Transportation Improvement Program. Potential expansion of Travel Demand Management (TDM) programs are also included as funding becomes available.

SAFETY STRATEGIES

- Establish effective programs to monitor and evaluate the highway system to make it possible to identify locations where improvements are needed.
- Conduct necessary studies and improve deficient locations.
- Support CDOT's efforts to implement the strategies and achieve the goals set forth in the Strategic Highway Safety Plan.
- Continue to participate in Colorado's Strategic Highway Safety Plan and provide direct input to its working groups.
- Install continuous traffic count stations on strategic regional roadways
- Support education and training programs and regulations for truck safety, bicycles and pedestrians, older drivers, and driving under the influence.
- Support the Safe Routes to School Program.
- Work cooperatively with CDOT and local governments to develop Safe Routes plans and obtain grant funding from the CDOT's Safe Routes to School Grant Program.

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CHAPTER 8: TRANSPORTATION SYSTEM MANAGEMENT AND OPERATIONS

OVERVIEW

Rapidly increasing congestion, constraints on capacity expansion and limited financial resources nationally and locally, are causing concern for transportation agencies and their customers. The Pikes Peak Region metropolitan transportation planning process has traditionally focused on constructing new roadways and widening existing highways; however, current challenges associated with transportation system reliability, safety, and security now require developing new methodical strategies to improve operations of the existing system.

Commuters and freight shippers are increasingly sensitive to delays affecting tightly scheduled personal activities and/or manufacturing distribution procedures. Regional growth in traffic volumes often means that even small disruptions can have a significant ripple effect on transportation system performance. There is also an increasing recognition locally of the significance of road construction, weather conditions, traffic incidents, special events, and emergency situations on the reliability of the transportation system. It is estimated that about half of regional traffic congestion is caused by temporary disruptions that take away part of the roadway from use ("non-recurring" congestion).

What is Transportation System Management and Operations?

Transportation System Management & Operations (TSMO) is an integrated approach to optimize the performance of existing infrastructure by implementing multimodal, intermodal, and often cross-jurisdictional systems, services and projects. This includes regional operations collaboration and coordination activities among transportation and public safety agencies. TSMO is not routine road maintenance like resurfacing or guardrail replacement. TSMO strategies improve system efficiency, enhance public safety and security, reduce traveler delays, and improve access to information for travelers. The emphasis of TSMO is an outcome-driven, performance -based system. It is critical that regional operations objectives can be measured and that they have importance on a regional level. TSMO strategies include, but are not limited to the following:

- Traffic incident management,
- Travel information services,
- Roadway weather information,
- Freeway management,
- Automatic vehicle location,
- Traffic signal coordination,
- Work zone management,
- Electronic payment/toll collection,
- Transit priority/integration,
- Emergency response and homeland security,
- Freight management,
- Transportation demand management, and
- Transit fleet management and dispatching.

Linkages to NEPA, the Metropolitan Transportation Plan and TIP

While Moving Forward must include TSMO strategies, the TSMO planning factor is not intended to be viewed in isolation. In fact, a focus on improving transportation system management and operations can support the other planning factors. For instance, TSMO strategies can:

- Support economic vitality by improving system reliability, which is valued by the freight and business communities;

- Increase safety by focusing attention to operational strategies, such as driver education, speed enforcement, and technologies to improve pedestrian safety;

- Increase security by improving communication and coordination between transportation agencies and law enforcement;

- Increase accessibility and mobility by implementing strategies that reduce recurrent and non-recurrent congestion, and improve the efficiency of operations, such as transit bus priority, signal timing, and pricing;

- Enhance the environment, energy conservation, quality of life, and consistency with planned growth by implementing programs to reduce travel demand, providing traveler information to help avoid and reduce time stuck in traffic delay, and avoiding the need to develop new transportation infrastructure with negative impacts to the environment and communities;

- Enhance integration and connectivity by implementing strategies to allow seamless travel between transit service providers and modes; and

- Emphasize preservation of the existing transportation system by focusing resources toward optimizing existing capacity rather than building new capacity.

Operations Objectives

Regional operations objectives are specific, measurable statements of performance objectives describing the desired operations of the regional transportation system. They are specific, agreed-upon measures of system performance that are time-sensitive and can be tracked on a regional level over time. These objectives should relate to at least recurring and non-recurring congestion, access to traveler information, emergency response, and ease of movement across modes and jurisdictions. These measurable regional operations objectives focus attention on the operational performance of the transportation system and ensure that TSMO is integrated into the long range transportation planning process, along with helping address both short-term and long-term system performance. An increased focus on TSMO within *Moving Forward* will not only fulfill SAFETEA-LU requirements, but also address pressing issues facing the Pikes Peak area, such as congestion, air quality, and safety and security.

Regional Collaboration

Developing effective operations objectives requires regional collaboration among the Colorado Department of Transportation, the City of Colorado Springs, Mountain Metro Transit Agency, public safety officials, and the Pikes Peak Area Council of Governments metropolitan transportation planners. A framework that can facilitate different entities working together is needed.

Congestion Management Process

A major component of the TSMO is the Congestion Management Process (CMP). The CMP is a systematic process to identify the causes of congestion and develop solutions to address congestion problems.

A Congestion Management Process is required in metropolitan areas with populations exceeding 200,000, known as Transportation Management Areas (TMAs). Federal planning requirements stipulate that in all TMAs, a CMP must be utilized as part of the metropolitan planning process. Specifically, the Federal requirements (23 CFR Part 500 Sec. 109) state that a CMP must include:

1) Methods to monitor and evaluate the performance of the multimodal transportation system, identify the causes of congestion, identify and evaluate alternative actions, provide information supporting the implementation of actions, and evaluate the efficiency and effectiveness of implemented actions;

2) Definitions of the parameters for measuring the extent of congestion and for supporting the evaluation of the effectiveness of congestion reduction strategies for the movement of people and goods;

3) Establishment of a program for data collection and system performance monitoring to define the extent and duration of congestion, to help determine the causes of congestion, and to evaluate the efficiency and effectiveness of implemented actions;

4) Identification and evaluation of the anticipated performance and expected benefits of appropriate traditional and nontraditional congestion management strategies;

5) Identification of an implementation schedule, implementation responsibilities, and possible funding sources for each strategy; and

6) Implementation of a process for periodic assessment of the efficiency and effectiveness of implemented strategies, in terms of the area's established performance measures.

7) Further monitoring efforts are found in Chapter 13, Mitigation and Monitoring.

In TMAs like PPACG, which are designated as ozone or carbon monoxide non-attainment areas, the CMP takes on greater significance. Federal guidelines prohibit projects that increase capacity for single occupant vehicles (SOVs) unless the project comes from a CMP. Moreover, the CMPs shall provide an appropriate analysis of all reasonable (including multimodal) travel demand reduction and operational management strategies for the corridor in which a project that will result in a significant increase in capacity for SOVs is proposed. If the analysis demonstrates that travel demand reduction and operational management strategies cannot fully satisfy the need for additional capacity in the corridor, the CMP shall identify all reasonable strategies to manage the SOV facility effectively.

At the core, a CMP should include a system for data collection and performance monitoring, performance measures or criteria for identifying when action is needed, a range of strategies for addressing congestion, and a system for prioritizing which congestion management strategies would be most effective.

The purpose of implementing CMP is to achieve maximum efficiency of the transportation system by improving its performance. Emphasis is placed on managing demand and reducing the number of trips. The intent is to maximize the use of existing facilities and to improve regional mobility through the implementation of relevant cost-effective strategies.

Because of its focus as a management tool, an implied goal of a CMP is to respond rapidly to avoid and/or correct identified problems. To address this goal, a broad grouping of prospective management strategies have been identified which can be accomplished within a relatively short period of time. These strategies involve short-range actions and normally require a low level of capital investment. These types of actions are similar to measures classified as traditional Transportation System Management (TSM) strategies.

The CMP will help the Pikes Peak Area Council of Governments:

- Develop a definition of congestion;
- Identify congested locations;
- Determine the causes of recurring and nonrecurring congestion;
- Develop a menu of choices of strategies to mitigate congestion;
- Evaluate the potential of different strategies;
- Propose alternative strategies to address specific occurrences of congestion;
- Develop performance measures to assess the effectiveness of implemented actions and evaluate the level of congestion of the system;
- Establish a program for data collection to measure system performance; and
- Set priorities among projects for incorporation into the Transportation Improvement Program.

Background of the CMP In the Pikes Peak Area

For previous planning processes PPACG developed a Congestion Management System (CMS). The 2030 CMS will serve as the backbone of the Congestion Management Process. The framework of the CMP includes the definition of congestion, identifying congested corridors, development of performance measures, a menu of potential solutions and identifying facility specific strategies, data needs and collection methods and evaluation of specific corridors. The current CMS accomplished the following:

- Selection of Congestion Management System corridors;
- Determination of corridor congestion levels;
- Identification of potential performance measures;
- Recommendation of performance measures for specific corridors; and
- Development of data collection responsibilities.

Definition of Congestion

One of the first tasks of the CMP is to identify congestion by determining the appropriate method of measurement. Congestion is a relative rather than an absolute condition, and a uniform measurement cannot be used for all facilities and cities. In the Pikes Peak Region roadway congestion is defined by a V/C ratio of 0.85 or greater. This corresponds to a LOS D for all regional roadways, although the V/C ratio range for LOS D varies by functional classification. For example, for freeway and expressway facilities a LOS D corresponds to the range of V/C ratios between 0.71 and 0.87, while for arterial facilities a LOS D corresponds to the range of V/C ratios between 0.79 and 0.90.

Levels of Service (Road Capacity)

The actual capacity of a given road cannot realistically be expressed in an absolute number such as 2,400 vehicles per lane per hour. This is because the traffic stream is not uniform, with regard to either weather conditions or driver behavior. The presence of friction from traffic entering or leaving a highway can also impact the through-put of traffic, as do operating speed, number of lanes, width of lanes, shoulder width, sight distance, horizontal (left or right) curvature, and vertical curvature (up and down, or grade) of the road.

What can be used instead is the assignment of Level-of-Service (LOS) to traffic facilities under various traffic flow conditions.[8] The concept of Level-of-Service is defined as "…A qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers." [9] Traffic speed and flow on urban streets are determined primarily by intersection capacity, which is affected by traffic volumes on cross streets and left turn signal phases.

Level-of-Service measures the restrictive relationship between traffic speed/volume/density and provides an index to the quality of traffic flow in terms of travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety. Six Levels-of-Service are defined for each type of facility. They are given letter designations from A to F, with LOS A representing the best operating conditions and LOS F the worst. Since the Level-of-Service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of Levels-of-Service, depending on the time of day, day of week, or period of a year. See Photographs 1-5 below and Table 8-1.

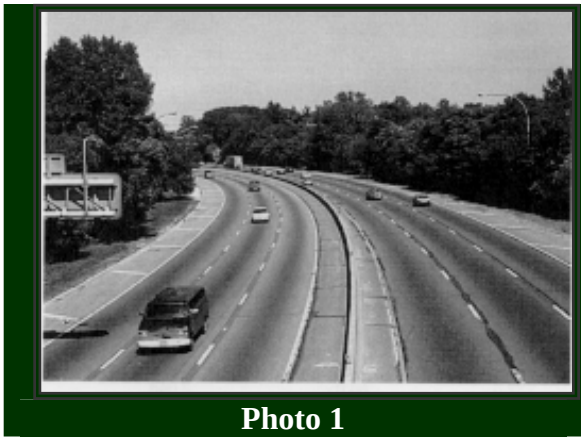

Photo 1

LOS "A"

Optimal vehicle operating conditions. This is a free-flow condition with little or no restrictions on speed or maneuverability caused by other vehicles.

[8]The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual 2000 (HCM2000)*, Special Report 209; Transportation Research Board; Washington, DC; 2000.

[9] Ibid

Photo 2

LOS "B"

This designation has a stable vehicle flow, where operating speeds may be restricted by other traffic. However, restrictions on maneuverability are negligible. There is little probability of a major reduction in vehicle speed or flow rate.

Photo 3

LOS "C"

This designation still maintains a stable vehicle flow, but at this volume and density most vehicles are restricted in their freedom to select speed, change lanes, or pass. Operating speeds are between 66% and 75% of maximum.

Photo 4

LOS "D"

This designation has unstable vehicle flow. Tolerable operating speeds are maintained, but are subject to considerable and sudden variation. Freedom to maneuver and driver comfort are low.

Photo 5

LOS "E"

This LOS reflects upper capacity limit of the facility. Operations on facilities with this LOS are unstable and speed will fluctuate wildly from point to point. There is little independence in speed selection and maneuverability.

Photo 6

LOS "F"

This is a 'forced-flow' condition. Travel speed and vehicle flow will drop to zero for short-time periods. Vehicle densities will continue to increase as long as the arrival rate exceeds the discharge rate.

TABLE 8-1: TYPICAL ROADWAY SPEED, FLOW AND DENSITY RELATIONSHIPS

LOS	Speed Range (mph)	Flow Range (veh./hour/lane)	Density Range (veh./mile)
A	Over 60	Under 700	Under 12
B	57-60	700-1,100	12-20
C	54-57	1,100-1,550	20-30
D	46-54	1,550-1,850	30-42
E	30-46	1,850-2,000	42-67
F	Under 30	Unstable	67-Maximum

This table shows the speed, flow and density of traffic under each Level of Service (LOS) rating, a standard measure of traffic congestion.

Levels of Service (Intersections)

Levels of Service (Intersection Capacity)

Intersection Levels of Service can measure congestion for signalized intersections in terms of both control delay, which is a measure of driver discomfort or frustration, and increased travel time. The delay experienced by the motorist is made up of a number of factors that relate to control, geometrics, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions in the absence of traffic control, geometric delay, any incidents and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-min. analysis period. Delay is a complex measure and depends on a number of variables, including the quality of the progression, the cycle length, the green ratio and the v/c ratio for the lane group.

LOS A describes operations with low delay, which is described as 10 sec/veh or less. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all.

LOS B describes operations with delay greater than 10 and up to 20 sec/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with delay greater than 20 and up to 35 sec/ veh. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersections without stopping.

LOS D describes operations with delay greater than 35 sec/veh and up to 55 sec/veh. Congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths and high v/c ratios. Many vehicles stop and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes conditions with delay greater than 55 sec/ veh and up to 80 sec/veh. These higher delays indicate poor progression, long cycle lengths and high V/C ratios. Individual cycle failures are frequent.

LOS F describes operations with a control delay in excess of 80 sec/veh. This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the lane groups. It may also occur at high V/C ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

Traditionally, the concept of LOS has only been applied to motor vehicles related to traffic congestion. This leads to ongoing pressure for traffic engineers to add lanes at intersections in

order to reduce delays for motor vehicles traveling during peak travel periods. However, the decisions made about enhancing LOS conditions for vehicles during peak traffic periods changes the cross-section of the intersection during all hours of every day and night. Changing stakeholders' expectations about the physical and operational design of intersections and how a signalized intersection should perform for all travelers (bicycle and pedestrian) is leading to increasing the threshold V/C ratio for motor vehicles.

Careful consideration of the likely impacts of potential improvements on pedestrians, cyclists, and the adjacent land uses, prior to finalizing design decisions helps meet mobility and accessibility goals for all modes of transportation. Once the threshold of congestion is met and an intersection is listed as "saturated," the intersection should be evaluated as to the appropriate types of improvements that might be implemented and the potential impacts of those options (Table 8-2).

TABLE 8-2: TYPICAL DAILY INTERSECTION CAPACITY VALUES

Uninterrupted Flow Capacity Green/Cycle	40%	50%	60%
20,000/lane/day LOS = E	8,000	10,000	12,000
16,000/lane/day LOS = C-D	6,400	8,000	9,600

PPACG Congestion Management Corridors

The current PPACG Congestion Management System evaluated individual facilities. The principal arterials selected for inclusion in the Congestion Management System roadway are listed in Table 8-3 and will become the network for the CMP. The routes have been grouped into three categories; strategic, regional and other. Strategic corridors provide interregional and interstate travel, while the regional routes are significant but mostly service the Pikes Peak region, while the "other" category serves local needs.

TABLE 8-3: CONGESTION MANAGEMENT SYSTEM ROADWAYS

Strategic Regional Corridors	Regionally Significant Corridors	Other Congested Corridors
I -25	Garden of the Gods / Austin Bluffs / Barnes	Union Boulevard: Research Parkway to Powers Boulevard
US 24	Marksheffel Road	Union Boulevard Extension: Research Parkway to South Circle Drive
SH-21 (Powers Blvd)	SH 115	US 24 Bypass/Fountain Boulevard: I-25 to Powers Boulevard
Woodmen Road	Nevada Avenue	

Performance Measures

Performance measures are used to assess the effectiveness and efficiency of the transportation system. Measures such as speed, travel time and delay are often used to describe mobility in a less technical way. Performance measures are derived from the vision, goals and objectives established for the plan. The CMP is designed to put into action the visions and goals relating to congestion of the planning process by transforming the goals into specific objectives, identifying where goals are not being met and coming up with strategies to achieve the goals. Table 8-4 shows the 2035 Projected VMT for CMP Network. The goals of the Pikes Peak area related to operations and their identified measurements are:

- Increase trip per hour through at grade intersections to fully utilize current infrastructure measured by trips per hour entering intersection.
- Improve Travel time index measured by travel time index.
- Reduce total congested vehicle miles/hours of travel in the region measured by regionwide congested VMT/VHT.
- Reduce per person congested vehicle miles of travel in the region measured by per person congested VMT/VHT.
- Optimize the function of existing facilities through Intelligent Transportation System and surface condition improvements measured by speed.

TABLE 8-4: 2035 PROJECT NETWORK

Route	Daily VMT	% of MPO traffic
I-25	5,161,605	25.4%
US-24	1,660,748	8.2%
Powers	1,413,520	7.0%
Woodmen	782,326	3.9%
Union	380,602	1.9%
Garden of the Gods/Austin Bluffs/Barnes	349,527	1.7%
Nevada	274,510	1.4%
SH 115	150,377	0.7%
Marksheffel	123,869	0.6%

Performance measures may be used either at a system-wide scale or at a corridor or transportation facility-level in order to determine where deficiencies exist and to prioritize strategies and funding to the most critical problems. For instance, by identifying locations with the greatest recurrent and non-recurrent traffic congestion using performance measures in the CMP, an MPO can help to direct funding toward facilities with the greatest scope, extent, or

duration of congestion. Definitions of performance measures relevant to management and operations include[10]:

- **TRAVEL TIME** – Travel time measures focus on the time needed to travel along a selected portion of the transportation system, and can be applied for specific roadways, corridors, transit lines, or at a regional level. Common travel time metrics include[11]:
    - Average travel time, which can be measured based on travel time surveys;
    - Average travel speeds, which can be calculated based on travel time divided by segment length or measured based on real-time information collection; and
    - Travel time index: the ratio of peak to non-peak travel time, which provides a measure of congestion.
- **CONGESTION EXTENT** – Congestion measures can address both the ***spatial*** and ***temporal*** extent (duration). Depending on how these measures are defined and the data that are collected, these measures may focus on recurring congestion or address both recurring and non-recurring congestion. Examples include:
    - Lane miles of congested conditions (defined based on volume to capacity (V/C) ratio, level of service (LOS) measures, or travel time index;
    - Number of intersections experiencing congestion (based on LOS);
    - Percent of roadways congested by type or roadway (e.g., freeway, arterial, collector);
    - Average hours of congestion per day; and
    - Share of peak period transit services experiencing overcrowding.
- **DELAY** – Delay measures take into account the amount of time that it takes to travel in excess of travel under unconstrained (ideal or freeflow) operating conditions, and the number of vehicles affected. These measures provide an indication of how problematic traffic congestion is, and can address both ***recurring*** and ***nonrecurring*** congestion-related delay. Examples of delay measures include:
    - Vehicle-hours of recurring delay associated with population and employment growth; and

[10] See NTOC "Performance Measurement Initiative – Final Report," http://www.ntoctalks.com/ntoc/ntoc_final_report.pdf
[11] See NTOC "Performance Measurement Initiative - Final Report," http://www.ntoctalks.com/ntoc/ntoc_final_report.pdf

  - Vehicle-hours of nonrecurring delay associated with incidents, work zones, weather conditions, special events, etc.

- **INCIDENT OCCURRENCE / DURATION** – Incident duration is a measure of the time elapse from the notification of an incident until the incident has been removed or response vehicles have left the incident scene, and can be used to assess the performance of service patrols and incident management systems. Incident occurrence can also be measures used to assess the performance and reliability of transit services. Examples of this measure include:

  - Median minutes from time of incident until incident has been removed from scene;
  - Number of transit bus breakdowns; and
  - Average number of transit rail system delays in excess of X minutes.

- **TRAVEL TIME RELIABILITY** – Travel time reliability measures take into account the variation in travel times that occur on roadways and across the system. Examples of measures include:

  - Buffer time, which describes the additional time that must be added to a trip to ensure that travelers will arrive at their destination at, or before, the intended time 95% of the time;

  - Buffer time index, which represents the percent of time that should be budgeted on top of average travel time to arrive on time 95% of the time (e.g., a buffer index of 40% means that for a trip that usually takes 20 minutes, a traveler should budget an additional 8 minutes to ensure on-time arrival most of the time); and

  - Percent of travel when travel time is X% [e.g., 20%] larger than average travel time.

- **PERSON THROUGHPUT** – Examines the number of people that are moved a roadway or transit system, which can account for efforts to improve the flow of traffic, encourage high occupancy vehicle movement, or increase seats occupied on transit. Example measures include:

  - Peak hour persons moved per lane; and
  - Peak hour persons moved on transit services.

- **CUSTOMER SATISFACTION** – Examines public perceptions about the quality of the travel experience, including the efficiency of system management and operations. Customer satisfaction is typically measured through surveys and may include measures such as:

  - Percent of the population reporting being satisfied or highly satisfied with travel conditions;

  - Percent of the population reporting being satisfied or highly satisfied with access to traveler information; and

  - Percent of the population reporting being satisfied or highly satisfied with the reliability of transit services.

- **AVAILABILITY OF OR AWARENESS OF INFORMATION** – These measures focus on public knowledge of travel alternatives or traveler information.

Data Needs and Collection Methods

Once performance measures are selected real world data is needed to establish a baseline and evaluate the impact that the chosen strategies are having on the system. The acquisition of this data can be challenging. Classified vehicle counts and transit ridership are examples of routinely collected data. However, travel times, and length of congested periods are more challenging, especially as they related to ITS or non-recurring congestion.

There are a limited number of tools available to quantify the benefits of operational strategies. PPACG has acquired several helpful tools to forecast the effects of operational strategies on system performance.

- The ITS Deployment Analysis System (IDAS) works with the output of traditional transportation planning models, and enables planners to evaluate the costs and benefits of ITS investments relative to traditional infrastructure investment.[12]

- *DYNASMART-P* is a dynamic network analysis and evaluation tool that uses travel demand forecasting model output to evaluate future traffic flows for operational improvements.

- The first two PPACG software tools were chosen in part because they can be applied iteratively with available micro-simulation tools that can be used to evaluate and address future operational needs.

Moving Forward, the PPACG 2035 Regional Transportation Plan, is built upon databases and a Regional Modeling System (RMS) that describe the Region, its socioeconomic/demographic patterns, its travel patterns, and its transportation system, both currently and in the future. Travel patterns in the PPACG Region are changing continually. While this usually means that vehicular volumes are growing, growth rates can vary by location and time of day. To monitor the performance of the system data, such as vehicular counts, must be collected for roadway links represented in the regional modeling system. Basic data that is needed include:

[12] For more information, see: http://idas.camsys.com/

- **TRAFFIC COUNTS** – Traffic counts are needed to monitor the changes in vehicular volume over time and to recalibrate the BPM traffic assignments. Counts are taken at locations around the PPACG and compared to the modeled vehicular volumes for all links on that same border to determine if the modeled volumes are reasonable. The collection of traffic data is organized and standardized. Counts are conducted for a minimum of 72 hours, to assure adequate statistical sampling.

- **VEHICLE OCCUPANCY RATES** – Vehicle Occupancy Rates are used to calculate Person Hours of Delay. This data will primarily be collected for major arterials and will include statistical sampling of vehicle occupancy rates during peak and off peak periods in addition to daily rates.

There is also a trend away from vehicle counts toward speed-based performance measures. Other information that is acquired is information that is updated includes:

- **VEHICLE SPEED** – Actual vehicular speeds are sampled along the major corridors. This data is used to calibrate the RMS speed estimates. Sampling is conducted by the City of Colorado Springs. In the future, PPACG will supplement these data using the TRANSMIT project on regular basis to calibrate and update the RMS every three years. PPACG and its member agencies may also utilize speed data collected by ITS equipments/sensors and also collect speed data using GPS based equipment on arterials not covered by ITS system to supplement ITS data. In general, travel time data are collected through two types of techniques:

  1) Roadside techniques, (radar/laser)utilizing detecting devices physically located along study routes that obtain travel time data from vehicles traversing the route at predefined checkpoints; and

  2) Vehicle techniques, utilizing detection devices carried inside the vehicle (these range from traditional stopwatch and clipboard techniques to use of distance measuring instruments (DMI) to use of global positioning system (GPS) techniques).

- **TRANSIT SERVICES** – Transit service data is needed to recalibrate the RMS making sure the model's multi-modal choice models are still adequate. This data is stored in GIS files attached to the RMS transit networks. A plan will be developed to collect the transit data from all private and public operators. Examples of data items include:

  - Routes or line changes,
  - Schedules,
  - Station and stop boarding/alighting counts,
  - Line ridership reports, and
  - Estimates of dwell time at high volume stations or bus stops.

- **COMMODITY FLOWS** - Data will be describing the flow of freight in the region. While the focus of the CMP will primarily be truck movements, the overall freight database will

also include commodity-flow data. The BPM also produces a truck and commercial vehicle trip table, which distributes trips from each origin to all the destinations in the Pikes Peak Region.

Considerable coordination and collaboration between transportation operators such as the City of Colorado Springs, Mountain Metro Transit, and CDOT and PPACG is required. This includes mechanisms for archiving data, sharing data, and addressing data confidentiality issues. The current CMS has identified data collection requirements and responsibilities. Those requirements and responsibilities will continue until such time as all stakeholders can reevaluate the data collection plan.

Strategies and Solutions

TSMO strategies will be considered and analyzed in connection with all investments in the Plan either as individual "stand alone" projects or as part of another transportation project. If the analysis demonstrates that travel demand reduction and operational management strategies cannot fully satisfy the need for additional capacity in the corridor, the CMP shall identify all reasonable strategies to manage the SOV facility effectively. Potential congestion management strategies for the Pikes Peak Area include:

Regional Signalization

The City of Colorado Springs has undertaken a regional traffic signalization project that will support computerized control of signals throughout the region. The traffic signal systems of six jurisdictions will be linked to a single master signal. Jurisdictions will then have on-line access to real-time data on signal operation. They will also be able to modify signal operation via a personal computer link. This can be done in the field from a laptop using cellular phone communication. State-of-the-art incident notification capabilities will also be incorporated in the system. Operations improvements for I-25 will be pursued, including the possibility of ramp metering if warranted. The City of Colorado Springs has also installed the initial phases of video signal detectors to replace the in-ground loops. The cameras allow a more responsive and easily maintained system to improve the efficiency of hundreds of intersections throughout the city

Intelligent Transportation Systems (ITS)

The vision for ITS is to: "Improve the mobility, safety, and comfort of the multi-modal transportation system and support economic development in the region while protecting the natural environment through real time management of the transportation system and providing reliable, timely and accurate traveler information to all users of the system."

ITS components can include:

- Computerized signal systems;
- Traffic control and surveillance equipment;
- Motorist information systems;
- Roadway channelization;

- Intersection improvements;
- State-of-the-art incident notification capabilities; and
- Operations improvement for I-25 (including potential ramp metering).

Incident Management

The City of Colorado Springs' Incident Management project has ITS capability on the I-25 corridor. Key components of the system include video cameras and variable message signs used in the corridor linked to real-time communication and signal monitoring and adjustment capabilities of the system-wide program. US 24, Powers Boulevard, and Academy Boulevard are also included in the master plan for future ITS applications.

ITS operations are managed through the Colorado Springs Transportation Management Center (TMC) which performs traffic management, incident management, and event management. The TMC monitors traffic sensors, CCTV images, radar detectors and other devices.

The City of Colorado Springs' traffic signalization project includes dealing with effective incident management through linked communications systems, state-of-the-art incident detection capability, and the development of an incident management plan to effectively coordinate and expedite the removal of accidents and other incidents on I-25. US-24, Powers Boulevard, Academy Boulevard, and other CMS facilities will also be included in this plan over the next three to five years. The project provides cutting edge incident management capabilities to the region.

Ramp Metering

The principal behind ramp metering is to limit the access to a freeway segment to maintain an optimum level of service while minimizing resulting delays for all motorists accessing or already using the freeway. Signals are installed at on-ramp entries to manage freeway access time from on-ramps, which occurs when traffic demand exceeds the level that can be accommodated by the freeway. Because some users will not tolerate the periodically increased wait time at the freeway entrance ramp, some traffic will tend to shift to alternate routes. Minor shifts to high occupancy vehicle (HOV) modes may also occur if these modes are provided preferential bypass of ramp controls. Success of ramp control is largely dependent on the extent to which the following conditions are met:

- The reduction in freeway delay and congestion with ramp metering must be noticeable to the user, that is, elimination of recurring congestion on the facility results.
- Additional capacity strategies, such as alternate routes, time periods, or modes of travel, to accommodate demand shifts must be available in the corridor.
- Adequate storage space must exist, or be created, at the entrance ramps.
- Ramp signals must be utilized and timed appropriately to balance peak traffic demand with supply.
- Ramp metering is currently not being implemented in the Pikes Peak Area.

Transportation Demand Management

There are two sides to any transfer of services; Supply and Demand. Traditional TSMO strategies increase transportation supply by more effectively operating the roadway system. In contrast, travel demand management (TDM) strategies indirectly change the demand for travel by spreading the timing of travel to less congested periods; shifting the routing of vehicles, including trucks and single-occupant vehicles, to less congested facilities; and reducing the need to travel at all.

Managing demand means providing all travelers, regardless of whether they drive alone, with choices of location, route, and time, not just mode of travel. TDM strategies include parking pricing, transit and vanpool benefits, flexible work schedules, compressed workweeks, telecommuting, satellite work centers, dynamic message signs, and decreased transit fares.

Real-time information systems can help travelers make better decisions about how they travel (mode), when they travel (time), where and whether they travel (location), and which route they travel (path). These information systems can be used at employment centers and to manage critical shifts in demand such as occurs for special events, tourist activity, incidents and emergencies, schools, shopping centers, recreation areas, medical facilities, weather problems, and reconstruction projects.

21st Century Enablers of TDM

Information in an accessible and timely format for:

- Construction updates
- Incidents
- Emergencies
- Weather
- Real-time conditions
- Real-time schedules
- Transit-carpool availability

Via technologies such as:

- Navigation
- Internet
- GPS
- Networks
- Wireless Communications
- E-Payment

FUTURE DIRECTION

The Federal Highway Administration's (FHWA) Office of Operations has a two-pronged action agenda of awareness and guidance to promote a 21st century perspective on TDM.

- **Awareness:** A new *Commuter Choice Primer* has been prepared to help employers give their employees a wider range of opportunities for "getting to work." This primer is part of an ongoing joint initiative with the Federal Transit Administration and the U.S. Environmental Protection Agency, called Commuter Choice–Best Workplaces. To address non-commute travel, FHWA will showcase best practices of travel demand management techniques that make use of real-time information.
- **Guidance:** A new TDM reference manual and better technical analysis tools will be delivered over the next three years. They will provide the details to enable operations-oriented agencies to make demand management a key strategy to meet their 21st century operations needs.

The Pikes Peak Region has not yet taken full advantage of the informational, technological, and financial mechanisms available to deploy robust TDM programs. However, a number of trends will facilitate innovative TDM practices. For example, the technologies used for transportation systems and services enable operators to gather, share, and deliver information to travelers through more timely and useful ways. Recent changes in the Federal tax code have made financial mechanisms a more compelling feature of TDM, especially for influencing commuting

behavior. Finally, as road-pricing strategies are implemented, TDM options will provide viable alternatives for those not willing or able to pay to travel on a priced facility.

- Carpooling
- Vanpooling
- Alternative Work Hours
- Encouraging Alternative Modes
- Telecommuting
- Parking Management
- Transportation Management Associations
- Public Outreach

Land Use Management

Land use management and activity center concepts should be advanced in local comprehensive planning documents with the respective local policy makers adopting them as goals and objectives.

Access Management and Corridor Preservation

Access Management makes more efficient use of the existing roadway system while considering the context in which the improvements are needed. Consolidating access points and using frontage roads can protect the capacity of the road well beyond that of a similar road lacking access control, reducing the need for expansion or replacement. Access management is best incorporated into the initial project planning and design. This avoids costly future expenditures for road expansion or even repurchase of access rights. More information concerning access management is located in Chapter 9, System Safety.

A related issue that has recently received attention is corridor preservation. This entails preserving rights-of-way for new or expanded roads in order to reduce amount of development near the property that is needed for construction. This can greatly reduce the cost of projects and shorten the time needed to construct the project. Federal legislation is specific in requiring that MPOs must, while developing transportation plans and programs, consider factors such as;

"preservation of rights-of-way for construction of future transportation projects, including identification of unused rights-of-way which may be needed for future transportation they affect identified corridors *for which action is most needed to prevent destruction or loss."* of regional significance.

Construction of New Lanes

The addition of general-purpose lanes in response to inadequate arterial roadway capacity has been a mainstay in dealing with congestion in this region. There are still needs in the region, which need to be addressed by the addition of general-purpose lanes. The number of lanes that should be provided to meet anticipated traffic demands along an arterial roadway is a discrete number; e.g. 4,

6, or 8 through lanes. The volume-to-capacity comparisons should be rounded upward to determine number of lanes that are needed. For example, when 2.3 lanes are needed in each travel direction, the total number of necessary through lanes becomes 6.0. Hence, whether the V/C ratio results in 4.3, 4.4, or 4.6 lanes, the same number lanes should be provided. Therefore, in many situations, the average daily capacity per lane provides a reasonable basis for making design decisions. These average daily capacities should be based on actual operating experience.

In establishing future lane requirements, it is desirable to provide some capacity reserve. Accordingly, a value of about 16,000 vehicles per lane per day per hour of green is suggested for design purposes. The anticipated future daily volume can be compared with this number to estimate future lane requirements for any green-per-cycle ratio. Table 8-2 indicates that additional lanes are needed when daily volumes exceed 8,000 to 12,000 vehicles per lane per day, (depending on the green/per cycle ratio). For design purposes, daily volumes that exceed 6,400 to 9,600 vehicles per lane per day will need additional lanes.

High-Occupancy Vehicle (HOV)

HOV lanes on freeways provide preferential service to buses, vanpools and carpools. The purpose of HOV lanes is to increase the person carrying capacity of freeways. HOV lanes can provide incentives for increased transit and carpooling if the user experiences reduced travel times and cost. In order for the HOV to be successful in achieving these goals, and therefore feasible, the following conditions should exist or be achievable:

- The existing corridor should be experiencing levels of service of E or F during the peak period. Level of service E or F denotes highly congested travel conditions.
- Average existing peak hour speeds on the existing corridor must be 25 mph or less.
- The corridor should be relatively long—a minimum ten miles is suggested.
- The HOV lane should be able to provide at least a five-minute travel time advantage, and preferably a ten-minute travel advantage. In general, the travel time advantage should be at least one minute per mile.
- The number of person trips projected on the HOV lane should at least equal the average number of person trips on a general-purpose lane.
- Person minutes of travel time saved by users of the HOV lane must exceed person minutes lost in the general-purpose lanes.
- For successful transit HOV implementation:
- Existing bus volumes should be at least 15 buses per hour in the current year peak period, and a minimum of 40 buses per hour in the design year peak period, with 750 and 2,000 passengers per hour, respectively. This compares to general purpose lane carrying capacities of 2,000 vehicles and 2,200 persons per hour.

- Commuter express bus service should be provided or expanded where it already exists.

- Park-and-ride lots should be provided at a distance of at least five, and preferably ten miles from the destination. Capacity of park-and-ride lots should total 1,000 spaces now and should be expanded to 2,500 spaces along the corridor. The *Regional Park-and-Ride Plan* prepared by the City of Colorado Springs determined optimum locations for park and ride facilities to serve transit, carpool, and vanpool users.

Implementation Program

PPACG, as the metropolitan planning organization (MPO) for the Colorado Springs metropolitan area, recognizes that implementation of the majority of congestion management strategies must rest with local operating agencies. In fact, most actions can be initiated and implemented without the involvement of the MPO. However, there is much to be gained from coordinating these efforts so that they reinforce one another and are aimed toward the resolution of regional problems.

Through the metropolitan transportation planning process, PPACG will continue refinement of congestion performance measures. Threshold levels of congestion will trigger implementation of selected strategies. Details of data collection geography and temporal frequency will also be refined.

PPACG and associated local governments in the metropolitan planning area will participate in the identification of activities to address congestion problems on individual facilities through established planning processes: the transportation improvement program (TIP), long range plan development, congested corridor feasibility studies, and the Congestion Mitigation Air Quality (CMAQ) program. Appropriate strategies will be selected and implemented. Selected strategies will be drawn from available strategies, which are specifically suited for the given level of geography. Potential strategy "action packages" are listed by geographic level in Table 8-5.

TABLE 8-5: CONGESTION MANAGEMENT ACTION PACKAGES

Location	Action Packages
Downtown Colorado Springs	• Traffic operations • Transit improvements • Ridesharing • Parking incentives for alternative modes • Auto restricted zones • Bike storage sites • Pedestrian facilities • Traffic signal improvements • Concrete pavement • Variable work hours

Location	Action Packages
Strategic Regional Corridors	• Ramp metering • Incident management • Provision of storage space for disabled vehicles • Provision of traffic condition information • Selective on-ramp closures • In-vehicle and highway system technology • Direct access to park and rides for transit • Bus/HOV bypasses at ramp meters • Completing gaps in the transportation system • Addition of general-purpose lanes
Regionally Significant Routes	• Trip reduction ordinance • Ridesharing • Parking policies to encourage use of HOV • Transit improvements • Telecommunications • Development consistent with transportation infrastructure
Regional Activity Centers	• Variable work hours • Traffic signal and operations improvements • Ridesharing • Parking management to encourage ridesharing • Access to park-and-ride lots • Provision of bike storage facilities • Longer-term land use policies to encourage multiple uses at employer concentrations and to provide nearby affordable housing
Other Congested Routes	• Traffic signal improvements • Turn prohibition using medians • Remove unnecessary multiple access points • Retrofit shopping center access to reduce delays on arterials • Provide continuous pedestrian facilities • Provide direct pedestrian pathways from subdivision to bus routes • Provide bike routes and/or crossings where accident potential may be high • Bus pullouts where feasible • Bus shelters • Concrete intersections and bus pads at stops to reduce pavement wear • Bicycle racks and storage facilities at suburban park-and-ride locations • Completing gaps in the transportation system • Addition of general-purpose lanes
Other Principal Arterials	• Traffic signal improvements to reduce delay • Provision of off-street parking • Reversible lanes • Turn prohibitions • Improve curb radii for bus movements • Bus shelters • Completing gaps in the transportation system • Addition of general-purpose lanes
Intersections	• Add lanes • Regional Timing

Proposed Actions

1) The Congestion Management Program should get 25% of the available CMAQ and 100% of the Congestion Relief funding annually.

2) An Incident Management Project should be developed and implemented on I-25 to succeed the COSMIX project.

Conclusion

The Pikes Peak Area can improve performance and reduce congestion using an objective driven and performance based transportation planning process that specifically considers TSMO strategies that address safety, security, mobility recurring and non recurring congestion and other issues. These TSMO strategies will result in a mix of infrastructure and operational strategies founded on measurable, performance based regional-operations objectives.

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CHAPTER 9: SYSTEM SAFETY

OVERVIEW

Automobile accident fatalities are the leading cause of death among Americans up to 34 years of age. In 2005, 43,443 people died in crashes on American roads (and nearly 3 million were injured). When the over four million property damage crashes are added to this, the USDOT estimates that the total cost of crashes to our society is over $230 billion every year.

SAFETEA-LU, which was signed into law in 2005, places a much greater emphasis on safety than its predecessor, TEA-21. SAFETEA-LU almost doubles on an annual basis the $3.97 billion allocated to safety under TEA-21. However, MPOs just recently developed well-defined safety goals and strategies as part of the recent national SAFETEA-LU compliance effort.

Safety is traditionally viewed as a concern to be addressed during project design or left to enforcement agencies. A traditional engineering approach might be to simply improve the geometric design of a road or to change the operation of an intersection. Under SAFETEA-LU, this approach is viewed as too narrow in scope. Safety should be more broadly defined as an issue to be addressed through a combination of engineering, enforcement, education, and emergency services, the four E's.

Traditionally, at the MPO level statutory limits on the use of funds, a focus on the programming of infrastructure projects, and an analytical framework focused on capacity analysis put limits on how safety could be addressed. This approach has proven to be inadequate. A recent report of the National Highway Cooperative Research Program points out why an MPO is an important forum for dealing with safety issues:

- Travel safety is affected by how the transportation system is designed, constructed, operated, and maintained.

- Crashes (non-recurring congestion) represent a major source of congestion. The time it takes police and/or emergency services to reach a site, clear vehicles from travel lanes, collect data, and remove disabled vehicles can lead to substantial traffic delays on

critically important roads. By some estimates, between 50 and 70% of urban congestion is due to crash-related incidents.

- A comprehensive safety program involves diverse groups and combined efforts. The transportation planning process presents an excellent opportunity to enhance collaboration where separate initiatives have failed.

- The dramatic public health and societal costs described above are intrinsic to the MPOs mission to support safety and prosperity, among other goals.

Federal Law and Funding

During the late 1970s and early 1980s, the Federal Highway Administration issued a series of regulations known as the Highway Safety Improvement Program (HSIP). Designed to ensure an organized approach to safety, this set of rules required that states develop and implement their own HSIPs with the objective of reducing the number and severity of crashes and decreasing the potential for crashes on all highways. Major requirements of the HSIP included the following:

- **PLANNING:** A process of collecting and maintaining a record of crash, traffic and highway data; analyzing data to identify hazardous locations; conducting engineering studies of those locations; conducting benefit-cost analysis.

- **IMPLEMENTATION:** A process for scheduling and implementing safety improvement projects and allocating funds according to the priorities developed in the planning phase.

- **EVALUATION:** A process for evaluating the effects of transportation improvements on safety, including the cost of the safety benefits derived from improvements and a comparison of the pre- and post-project crash numbers, rates, and severity.

The HSIP was formerly a separate set of regulations drawing from different funding categories, but has now become a core program within SAFETEA-Lu-LU. The new program includes funding increases, greater flexibility, new safety set-asides, and the requirement that each State develop a Strategic Highway Safety Plan (SHSP).

TEA-21 authorized $3.97 billion in safety spending over six years; SAFETEA-LU authorizes $5.06 billion over only four years, a dramatic increase. The amount authorized goes up during each of the four years (Table 9-1).

TABLE 9-1: SAFETEA-LU SAFETY SPENDING LEVELS

Fiscal Year	2006	2007	2008	2009
Authorization	$1,236 M	$1,256 M	$1,276M	$1,296 M

These dollars are apportioned to the states using a formula of three equally-weighted factors.

- 1/3: Total lane miles of federal aid highways
- 1/3: Total vehicle miles traveled on lanes on federal aid highways
- 1/3: Number of fatalities on federal aid system

The previous apportionment formula did not consider fatalities.

- Depending on the type of improvement, the federal share of a highway safety improvement project is 90 or 100%; it may be 80% for other types of funds.

- SAFETEA-LU also broadened the definition of a highway safety improvement project, taking into account safety innovations and planning initiatives that were previously ineligible. The best way to take advantage of this flexibility is to be aware of the alternatives available and to study the safety problems at particular locations in order to find the most appropriate solution.

- The new authorization also creates substantial set-asides for certain safety target areas including high risk rural roads (HRRR), Railway-Highway Crossing Safety, and Safe Routes to School. $90 million per fiscal year is set aside for HRRR; Railway-Highway Crossing Safety gets $220 million; Safe Routes to School gets an average of $120 million.

SAFETEA-LU defines a High Risk Rural Road as “any roadway functionally classified as a rural major or minor collector or a rural local road:

- on which the accident rate for fatalities and incapacitating injuries exceeds the statewide average for those functional classes of roadway; or

- that will likely have increases in traffic volume that are likely to create an accident rate for fatalities and incapacitating injuries that exceeds the statewide average for those functional classes of roadway.”

Two-thirds of all traffic fatalities occur on rural roads. Safe Routes to School is intended to accomplish the following:

- Enable and encourage children to walk and bicycle to school;

- Make walking and bicycling to school a safer and more appealing transportation alternative; and

- Facilitate planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption and air pollution in the vicinity of schools.

The amount authorized for Safe Routes increases over each year of SAFETEA-LU (Table 9-2) and is allotted based on states' total K-8 enrollment, with a minimum of $1 million.

TABLE 9-2: SAFE ROUTES TO SCHOOL FUNDING

Fiscal Year	2005	2006	2007	2008	2009
Authorization	$54 M	$100 M	$125 M	$150 M	$183 M

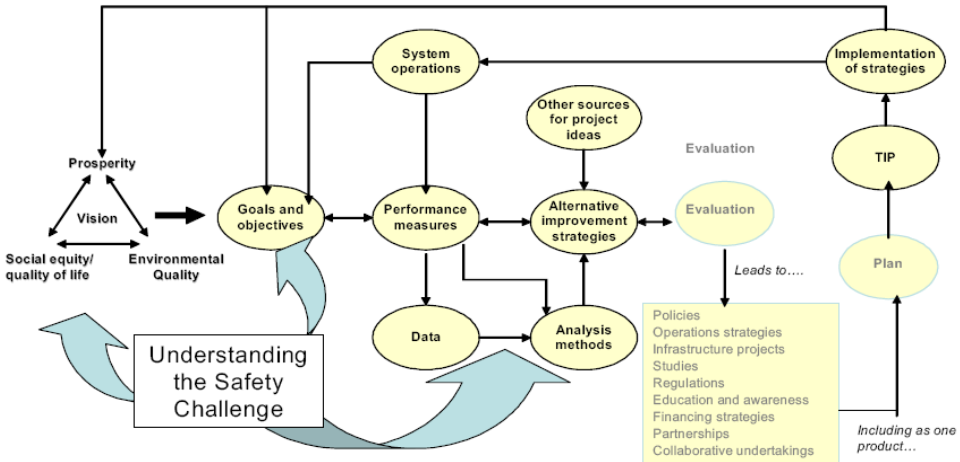
In Colorado, CDOT administers the Safe Routes program, allocating federal dollars to local jurisdictions.

Safety Conscious Planning

Finally, SAFETEA-LU also authorizes that funds be spent on safety improvements for older drivers and pedestrians, incentives for the use of seat belts, the prevention of drunk driving, work zone safety, and assisting non-profit organizations dedicated to improving public roadway safety.

As an approach to all of these opportunities, the Federal Highway Administration recommends a new framework called Safety Conscious Planning. This framework will ideally replace the fractured, narrow approach to safety as a purely engineering or enforcement concern by integrating safety concerns into planning at all levels. Safety Conscious Planning is:

- A comprehensive, system-wide, multimodal, proactive process;
- Comprehensive because it considers all aspects of transportation safety - engineering, education, enforcement, and emergency medical response;
- System-wide because it considers corridors and entire transportation networks at the local, regional and state levels as well as specific sites;
- Multimodal because it includes transit, bicycle, and pedestrian safety improvements; and
- Proactive, because it addresses current safety problems and prevents future hazards and problem behaviors.



PPACG supports the approach and framework of Safety Conscious Planning, and as the forum for cooperative decision-making in the Colorado Springs area, will strive to implement and support the process.

Colorado and CDOT

To ensure an organized approach to state-level safety planning, the new HSIP requires that states develop State Highway Safety Plans. The SHSP:

- Analyzes and makes effective use of state, regional or local crash data;
- Addresses engineering, management, operation, education, enforcement, EMS in evaluating highway projects;
- Considers safety needs and high fatality segments of, public roads in the state;
- Considers results of state, regional or local transportation and highway safety planning processes; and
- Describes a program of projects or strategies to reduce or eliminate hazards.

The Colorado Department of Transportation completed its Strategic Highway Safety Plan, called the Strategic Plan for Improving Highway Safety, or SPIRS, in October of 2006. SPIRS defines CDOT's safety mission, vision, and goals, as well as discussion of safety focus areas chosen during the collaborative planning process.

The mission and vision defined in SPIRS is below:

Mission: reduce the incidence and severity of motor vehicle crashes and the associated human and economic loss to fellow Coloradoans.

Vision: create and further develop a safe and efficient roadway system that will serve all users of Colorado's roadways.

These general statements are focused by the specific goals of the Plan:

- *Reduce the fatal crash rate per 100 million vehicle miles traveled to 1.00 by 2008 and maintain 1.00 through 2010.*

SPIRS Mission and Vision Defined

Mission

Reduce the incidence and severity of motor vehicle crashes and the associated human and economic loss to fellow Coloradoans.

Vision

Create and further develop a safe and efficient roadway system that will serve all users of Colorado's roadways.

These general statements are focused by the specific goals of the plan:

- Reduce the fatal crash rate per 100 million vehicle miles traveled to 1.00 by 2008 and maintain 1.00 through 2010.
- Reduce the injury crash rate per 100 million vehicle miles traveled to 67.5 by 2008 and 65.3 by 2010.
- Increase seat belt usage to 82.5% by 2008 and 85.0% by 2010.
- Reduce alcohol-related fatal crashes as a percentage of all fatal crashes to 29.5% by 2008 and 29.0% by 2010.

- *Reduce the injury crash rate per 100 million vehicle miles traveled to 67.5 by 2008 and 65.3 by 2010.*
- *Increase seat belt usage to 82.5% by 2008 and 85.0% by 2010.*
- *Reduce alcohol-related fatal crashes as a percentage of all fatal crashes to 29.5% by 2008 and 29.0% by 2010.*

How these goals compare to current conditions in the Pikes Peak Region and elsewhere will be discussed below.

The core strategies of SPIRS mirror the federal guidance on safety, focusing on the four E's: Education, Enforcement, Engineering, and Emergency Services. From these CDOT developed 18 focus areas:

- Locations with Potential For Crash Reduction
- Rockfall
- Railroad Crossings
- Access Management
- Roadway Engineering Safety
- Traffic Crash Data Systems
- Work Zones
- Wildlife
- Occupant Protection
- Impaired Drivers
- Young Drivers
- Aggressive Drivers (Distracted Drivers)
- Aging Drivers
- Motorcycles
- Bicycles and Pedestrians
- Safe Routes to School
- Large Trucks
- EMS Vehicles

Arguably, the best tool for combating transportation safety problems is collecting and maintaining good crash data. States collect this data in order to meet federal reporting requirements, but state DOTs, MPOs, and other jurisdictions may use the data for safety analysis. In Colorado, crashes are reported by local police and sheriff's departments and disseminated through the Department of Revenue. The main shortcoming of this system is that the data tends to be compiled slowly and are rarely available for the current year. Individual accident reports also vary in detail and accuracy from place to place, and location descriptions may be too general (e.g. "intersection of") to be suggestive of a specific safety problem or improvement. Establishing data collection standards and streamlining data processing could lead to major gains in safety.

Once a jurisdiction in Colorado has arrived at its own safety priorities, it has an opportunity to apply to CDOT for Hazard Elimination Projects. Applications are sent every third October to

public works directors, traffic engineers, street superintendents, mayors, and anyone else in a position responsible for roadway safety. CDOT then prioritizes these projects using benefit-cost ratios and statistical measures of crash frequency and severity. Urban jurisdictions are encouraged (but not required) to send a copy of their applications to their MPOs, which must program selected projects into their TIPs for them to receive funding. A requirement to notify MPOs of applications for Hazard Elimination Projects could benefit MPO safety planning. Applications were last sent out in 2005.

Traditionally, Region 2, the CDOT Engineering Region that contains PPACG's metropolitan area, has received 16.26% of statewide Hazard Elimination funding, an amount based on the number of accidents.

Projects on the State Highway System are eligible for 100% state funding, while off-system projects must provide 10% matching funds against the state's 90%. Hazard Elimination funds may be used on any road or any publicly owned bicycle and pedestrian pathway or trail.

Safety Topics

Speeding and Speed Limits

Education and Enforcement are two of the four E's that make up both the national and Colorado state core safety strategy. They specifically address human behavioral elements of safety including, but not limited to, occupant protection, impaired driving, speed enforcement, aggressive driving, pedestrian and bicycle safety, elderly mobility, drowsy driving, and distracted driving. Given the frequency and severity of crashes in which speeding is a major factor, this aspect of safety tends to be understated and often overlooked.

Speeding is involved in up to a third of all motor vehicle crashes in the United States. The National Highway Traffic Safety Administration (NHTSA) lists speeding as the third leading contributing factor in traffic fatalities, and state crash data for local and collector roads points to even more speeding-related injury and fatal crashes, carrying a national price tag of about $40 billion per year. As listed in a 2005 national report by the Governors Highway Safety Association, speeding:

- Reduces a driver's ability to negotiate curves or maneuver around obstacles in the roadway;
- Extends the distance necessary for a vehicle to stop;
- Increases the distance a vehicle travels while the driver reacts to a hazard;
- Compromises the integrity of the vehicle structure;
- Decreases the effectiveness of vehicle design features such as airbags and restraint systems;

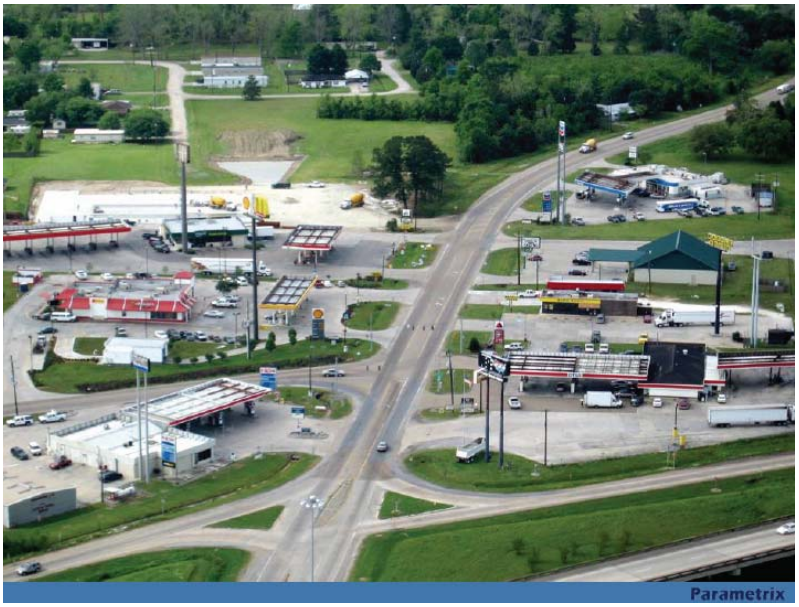
- Decreases the ability of roadway hardware such as guardrails, barriers and impact attenuators to protect occupants;
- Increases tread wear on tires and wear on braking systems; and
- Increases the risk of crashes because other vehicles and pedestrians may not be able to judge distance accurately.

Some of these effects, such as negotiating curves and sight distance, are especially noticeable because speed limits are set based upon the design of roads. The only exception to this is when legislative speed limit standards are enacted or repealed, as with the National Maximum Speed Limit (NMSL) policy during 1973-1994. This law set the national speed limit at 55 miles per hour (65 in rural areas) and was designed to conserve energy and reduce foreign oil dependency; however, it also had the effect of reducing crash and especially fatality rates, as shown in an Insurance Institute for Highway Safety special report released in 2003. The report examined the effects of the repeal of the NMSL in 1995, finding that injury and death rates increased in states that chose to increase speed limits. States that increased the speed limit to 75 experienced a 38% increase in speed-related deaths per million vehicle miles traveled, while states that increased the limit to 70 miles per hour experienced a 35% increase in deaths per million vehicle miles. This has left many concerned that the gains made in safety restraint usage and impaired driving is being offset by speed-related (not just speed*ing*-related) mortality. While speed and speeding are not directly the province of MPO safety planning, they are certainly worth noting.

Of the 33,611 crashes investigated by the Colorado State Patrol in 2003, fully 50% were caused by aggressive driving behavior. Seventeen percent of that aggressive behavior was reported as exceeding safe or legal speed; another 8% involved following too closely at speed. To put this in perspective, the actual number of these crashes was 8,557. Accordingly, the Colorado State Patrol defines aggressive driving (i.e. speeding, as a public threat).

Access Management

Access management is one of the cornerstones of traffic safety. Conflicts created by driveways, intersections, and other access points create the most complex challenges drivers face every day, sometimes unsuccessfully. Intersection crashes, for example, account for more than 45% of all reported crashes and 21% of all fatalities.

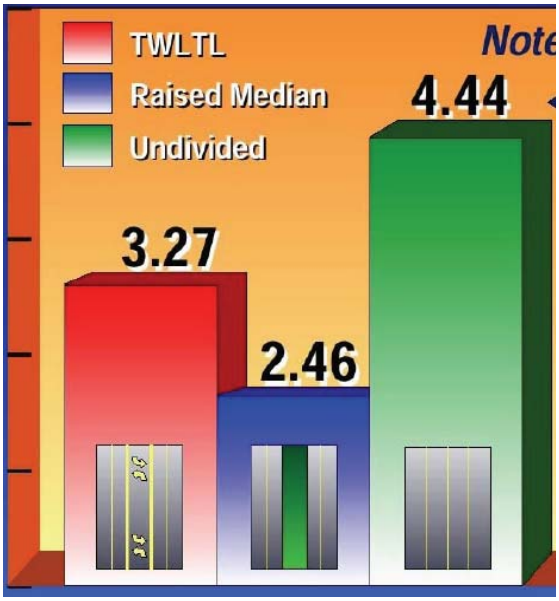


In general, as the number of access points per mile increases on a facility, the number of accidents increases geometrically. This situation becomes increasingly

dangerous on higher-speed, higher- volume roads that are sometimes accessible directly by residential driveways or choked by closely-spaced commercial drives.

The key to safety on arterial roads is local road networks. Having an appropriate hierarchy of facilities with local-to-major roadway connections leads to improved traffic safety as well as reduced congestion on major facilities. Although some businesses can be reluctant to participate in access management plans, studies show that appropriate access management increases traffic flow on major facilities, thus expanding business market areas.
Congestion due to crashes is also reduced.

Although the foundation of access management is having a good hierarchy of roads, other strategies include reducing signalized intersections (which experience more than four times more crashes than unsignalized intersections, on average), installing raised medians, increasing signal spacing, and installing roundabouts, among others.



Source: Florida DOT

Access management strategies for the roads in the Pikes Peak Region are determined by the responsible jurisdictions and are appropriate to the functional classification of the roadway. Dating back to approximately 1970, the local planning, public works, and transportation departments have vigorously sought to control access along new arterial corridors. Prominent among facilities subject to focused access control are the Powers Boulevard and Marksheffel Road corridors. A standing intergovernmental task force (Major Thoroughfares Task Force) was also formed with the sole mission of advising policy makers regarding access and transportation system capacity issues for new developments.

There are several different approaches that can be taken to balance property access and the need to move traffic through an area safely and efficiently. They are often utilized together to develop an area or corridor wide plan. Many of the approaches are physical changes that control the movement of vehicles. Several are standards or policy decisions that establish the conditions to make many of the physical improvements possible. The physical changes are typically related to managing how vehicles enter and exit driveways through appropriate numbers and locations of curb cuts, encouraging shared driveways, restricting turning movements, providing access roads connected to traffic signals, and turning lanes. When Access Management policies and techniques are combined, significant gains can be made in terms of improved traffic flow and reduced accident potential. There are six basic Access Management techniques that can be applied to roadways:

1) Limit the number of conflict points: This type of change looks to reduce the complexity of driving by limiting the information that drivers must process at any given time. Limiting the interaction between vehicles & between vehicles & pedestrians/bicyclists that are moving in different directions simplifies the driver's task which in turn reduces the potential for accidents and improves traffic flow.

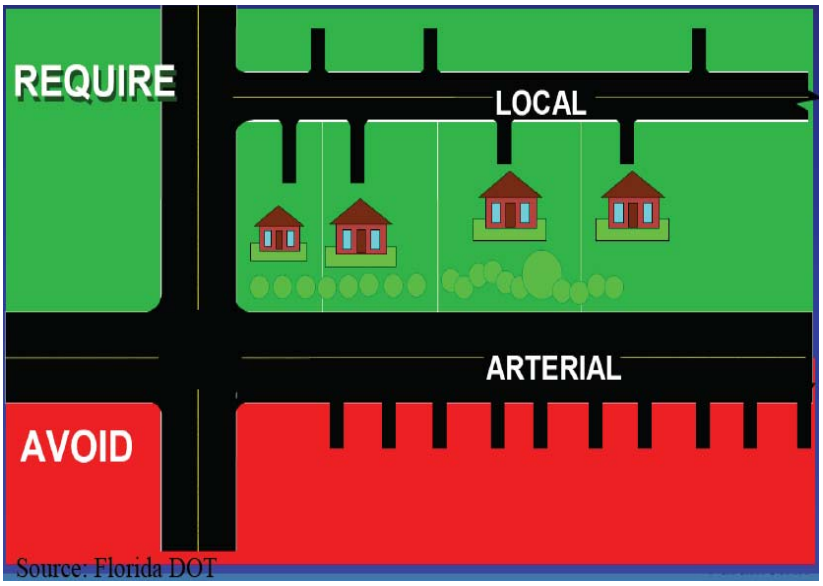
2) Separate conflict areas: This type of improvement attempts to increase the time or distance between decision points for drivers, allowing them to face potential conflicts one at a time, or at least in reduced numbers. This would include for example not allowing left turns from a driveway. In this case, the driver only has to focus on approaching traffic from one direction rather than two. As with #1, the intent is to simplify the driving task leading to reduced numbers of accidents and better flowing traffic.

3) Remove turning vehicles from through traffic lanes: The addition of turning lanes reduces the impact that vehicles slowing to make a turn have on traffic that is continuing in the same direction. In congested areas without turning lanes, all traffic stops behind vehicles waiting to turn. This leads to increased congestion and greater accident potential.

4) Reduce the number of turning movements: This technique focuses on the elimination of short distance, slow movement travel on the primary roadways. By interconnecting parking lots, providing access roads, and connections to side streets, vehicles can move between businesses without having to re-enter the roadway only to exit again shortly after. This results in less congestion and reduced accident potential.

5) Improve roadway operations: This technique uses a variety of methods to manage traffic operations on a corridor. This includes implementing long, uniform signal and intersection spacing,

6) Improve driveway operations: This type of improvement looks to improve the operation and safety of the roadway by making improvements to driveway intersections. Well defined driveways of appropriate width and adequate curve radii reduce the impact on through traffic by making the entering or exiting movement less difficult, and provision of adequate sight distance reduces accident potential.



Source: Florida DOT

Non-Motorized Safety

"Although walking is a legitimate mode of transportation, it needs to be improved in every community in the United States. It is no longer acceptable that close to 5,000 pedestrians are killed in traffic every year, that people with disabilities cannot travel without encountering barriers, and that a desirable and efficient mode of travel has been made difficult and uncomfortable." – Federal Highway Administration

Although detailed bicycle and pedestrian design guidelines are available in Appendix F, Regional Non-Motorized Plan, a few of the key statistics involving non-motorized transportation safety are noted below.

Nationally, nearly 5,000 pedestrians were killed in traffic in 2005, and about 64,000 were injured. This represents a 13% decrease in deaths over 1995, though the actual improvement in safety performance is uncertain because of the falling rate of pedestrian travel over the same period. The crash statistics paint a fairly clear picture of the conditions under which most of these fatal and injury accidents occurred. The majority of deaths happened in urban areas, at non-intersection locations, in normal weather conditions, and in the evening. Pedestrian crashes are more likely on Friday, Saturday, and Sunday than during the week (see Figures 9-1 through 9-3).

People 40-54 years of age suffered the most pedestrian deaths in 2005; however, the rate is highest for children under 10 years of age. One fifth of children 5-9 years old killed in traffic accidents were pedestrians. Older pedestrians are also disproportionately affected; pedestrians over 70 are killed at over twice the rate of those under 70.

One of the important areas for examining pedestrian safety is around schools. Schools become major attractions for pedestrian activity and should be a focus for pedestrian safety. Presented in Figure 9-3 are locations of elementary/junior high and high schools. Also included on this map are typical one-quarter mile walking areas around each school and child pedestrian crashes for the years 2002 to 2005. In the three plus years of available data, there have been 79 child pedestrian crashes within the PPACG area.

The rate of alcohol involvement in pedestrian crashes is abnormally high. In 2005 fatal pedestrian crashes, either the pedestrian or the motorist had a blood alcohol level in excess of the legal limit 32% of the time. The proportion of crashes in which any amount of alcohol was involved is 44%. The proportion is far lower for bicycle crashes.

Cyclist (bicycles and other types) crashes represent 13% of all non-motorized traffic fatalities. The 784 cyclist deaths in 2005 compares favorably to the 833 in 1995 (a non-linear trend), yet as with walking, the reason for this drop is unknown – it may be due to increased safety spending or countermeasure effectiveness, or to a decline in cycling or certain types of cycling.

Although the greatest numbers of cycling deaths occur among those 35-54 years of age, children are once again disproportionately affected, with the highest rate of cycling fatalities occurring in those between 10 and 15 years of age. About one fifth of cyclists killed in cycle crashes in 2005

were between 5 and 15 years old. About 2% of both yearly fatalities and yearly injuries are suffered by cyclists.

FIGURE 9-1: BICYCLE COLLISIONS

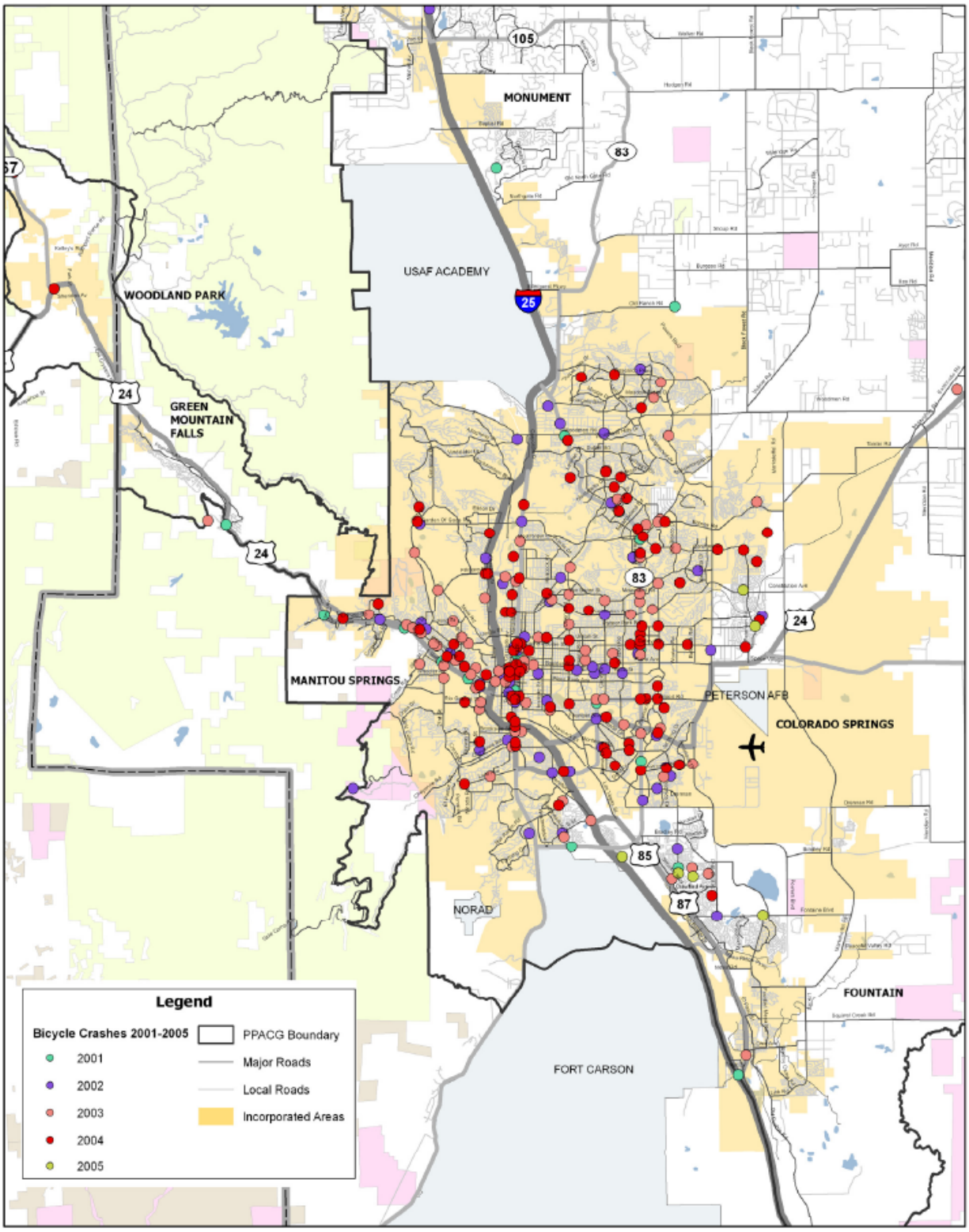


FIGURE 9-2: PEDESTRIAN COLLISIONS

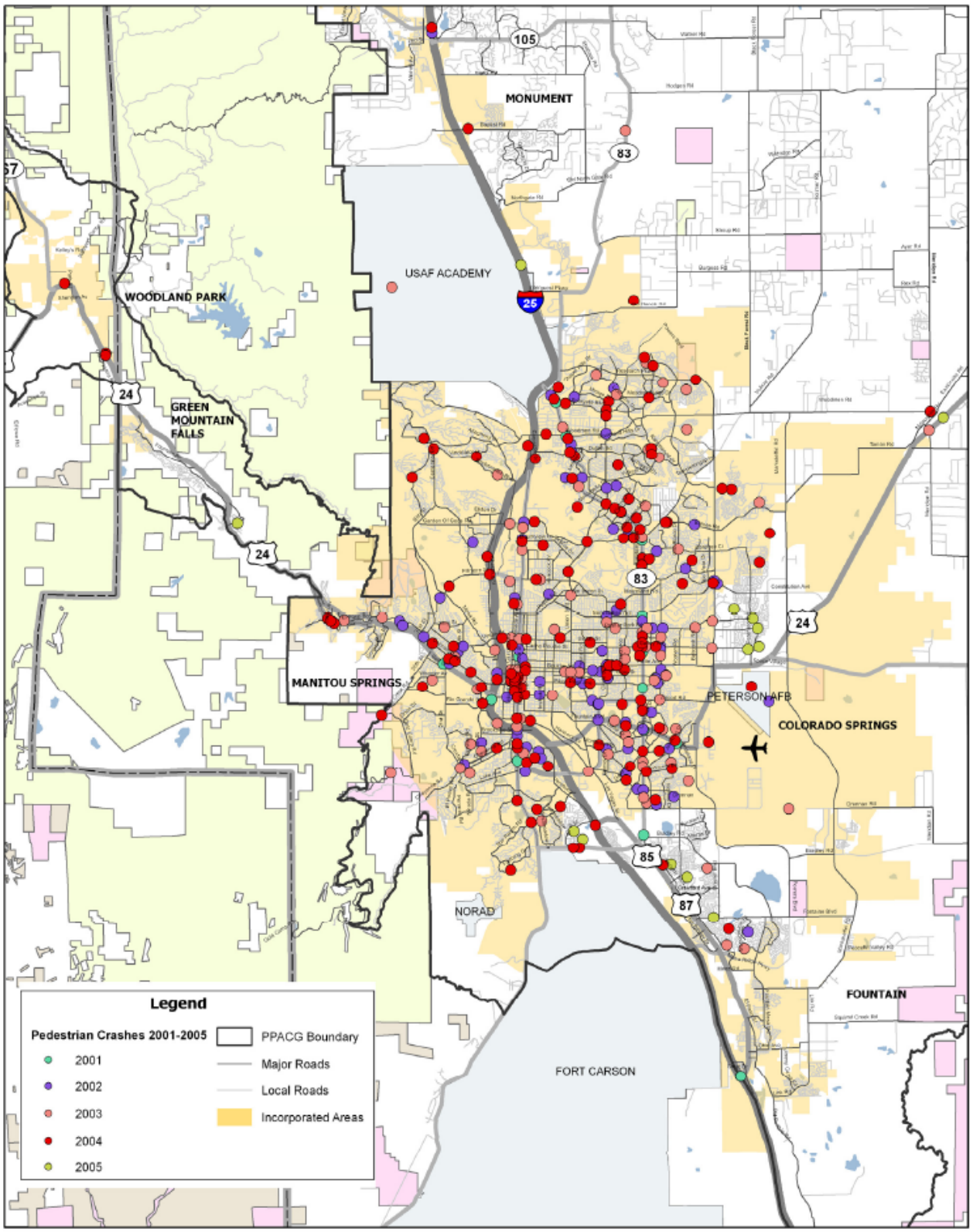
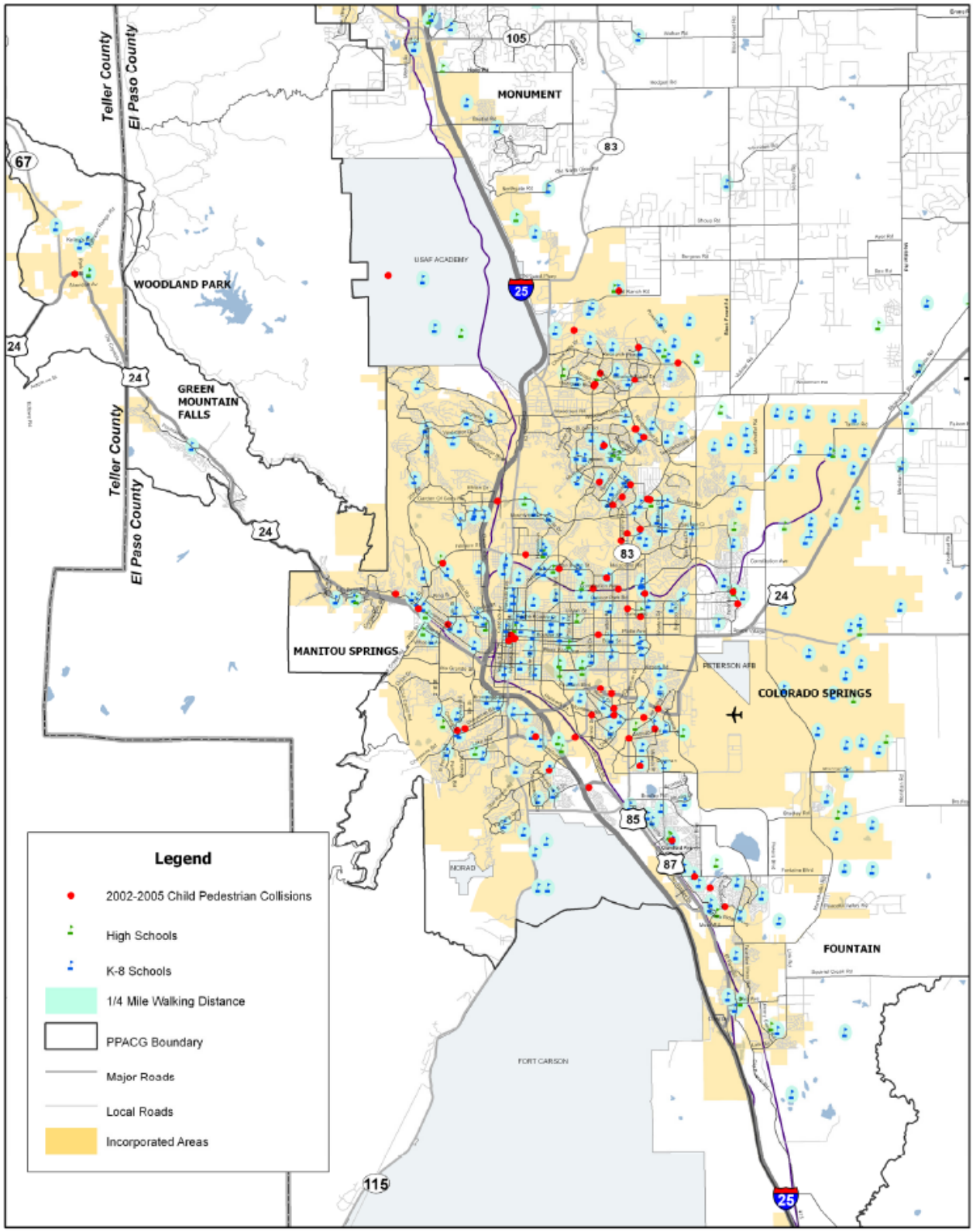


FIGURE 9-3: SCHOOL LOCATIONS AND CHILD PEDESTRIAN COLLISIONS



Alcohol plays a smaller role in cycling fatalities than in pedestrian fatalities but is still a factor. Some amount of alcohol in either the driver or the cyclist was involved in over one quarter of all cyclist deaths in 2005.

Exceptions to some of these general rules occur among older drivers and pedestrians. For the population over sixty-five, the rate of involvement of alcohol in fatal crashes is far lower than average, most notably in pedestrian crashes. Another exception is that older pedestrians are struck and killed at intersections 69% of the time, while younger pedestrians are overwhelmingly struck and killed at non-intersection locations. In general, the research and recommendations in FHWA's Highway Design Handbook for Older Drivers and Pedestrians should be taken into account during design and operational improvement projects.

One caveat to all of the data in this section is worth mentioning: the actual rates for all non-motorized crashes may be far higher than reported, since according to hospital data, only a small fraction of non-motorized crashes are reported to the police, some studies say less than 10%.

Large Truck Crashes

In 2006, the Federal Motor Carrier Safety Administrations (FMCSA) completed a major national study of large truck crashes. The study included a large sample of crashes with researchers on-site (rather than receiving data at second hand), and has received the endorsement of Congress and the National Highway Traffic Safety Association. In the report, a few clear trends emerge.

First, the study attempts to distinguish between the critical events and critical reasons for large truck crashes. The critical event can be thought of as the event after which a crash becomes inevitable. The critical reason is the main contributing factor to the critical event. To follow this logic, the study found that the most common critical event was the truck drifting over a lane line or off of the road (32% of all truck crashes), followed closely by loss of control of the vehicle (29%). Of the critical reasons leading to these critical events, "driver decision," or speeding/aggressive driving, is the clear leader (38%).

In truck crashes involving a passenger vehicle, the trends are even clearer. On the part of the truck, driver decision and inattention are the prevalent critical reasons, but driver performance issues are far less common. On the part of the passenger vehicle, the same trend is present but is much weaker—driver performance issues contribute to crashes almost as often as driver decision.

The FMCSA study also performed a large survey of all truck drivers to determine the relative risks posed by factors such as fatigue, break problems, and legal drug use. Of these, the greatest risk tends to be driving "too fast for conditions," followed by "inadequate surveillance," and fatigue.

Stakeholders and Political Support

According to a 2006 report of the Transportation Research Board (TRB), the key to safety-conscious planning is collaboration. The key to successful collaboration is, in turn ."..identifying for each participant what benefit each receives through participation."

Briefly, the TRB report included a survey of MPOs and State DOTs asking which entities have the most influence over their safety planning efforts (Table 9-3).

TABLE 9-3: RANKING SURVEY OF MPOS AND STATE DOTS

Agency	MPO Rank	DOT Rank
Governor's Office of Highway Safety	10	3
Metropolitan Planning Organization	2	4
State Department of Transportation	1	1
Local Department of Transportation	4	6
Departments of Public Health	8	11
Departments of Public Safety	6	8
Local Police Agencies	5	5
Department of Education/School Boards	9	9
Federal Highway Administration	3	2
Federal Transit Administration	7	7
Area Agency on Aging	11	12
American Automobile Association (AAA)	12	10

It also included an additional list of potential partners—the more the better (Table 9-4).

TABLE 9-4: LIST OF POTENTIAL PARTNERS

• Citizen's Transportation Advisory Committees	• Private Transit Providers
• Special Transportation Authorities	• Traffic Engineers
• Transit Agencies	• Engineering Design Consultants
• Insurance Companies	• Hospitals
• School Districts and Universities	• Emergency Service Responders
• Business Community	• Homeowners' Associations
• Civic Groups	• Parent's Groups
• Local Media	• Elderly Groups
• Contractors	• Local Lobby Groups
• Special Advocacy Groups, such as Motorcycle, Pedestrian and Bicycle Organizations	

It would be a worthwhile effort to identify stakeholders locally and to organize a focused safety planning effort. Again, PPACG, as the forum for local decision-making, would be happy to lead this effort. Ideally, the effort would be spearheaded by an elected official "champion" who would keep the safety issue at the forefront of planning discussions and encourage participation and analysis.

Safety Modeling

Safety models tend to be explanatory, micro-level tools used to establish crash causation and suggest location-specific safety improvements. Although a regional agency such as an MPO would not be the best user of such a tool, according to a 2006 TRB report, the use of an aggregate safety model as a practical planning tool is supported by research.

Safety research has shown that accidents have a large random component; they often cannot be explained or prevented by specific road segment or intersection characteristics. Much of this is due to poor driver decisions such as tuning a radio, talking on a cell phone, following too closely, or speeding, all of which may happen independently of road or intersection characteristics.

On the other hand, crashes are strongly related to certain aggregate predictors—different average safety characteristics between groups. In terms of demographics (at the TAZ level, specifically), certain "high risk" populations have been identified. Younger drivers suffer from inexperience and aggressiveness; older drivers experience reduced reaction and perception times as well as reduced vision and flexibility. In terms of facility types, while interstates have relatively low crash rates, high-speed rural roads are associated with high injury and fatality rates.

The list of useful aggregate predictors is quite extensive. For example, emergency response times tend to be better for urban than for rural areas; school zones are associated with elevated bicycle and pedestrian crash rates; complex intersections are prone to very high crash rates; traffic congestion lowers crash severity.

A mathematical model, PLANSAFE, has already been developed by the NCHRP to predict crash rates and types based upon these relationships at the TAZ level. If PLANSAFE is not used, PPACG should develop its own aggregate safety model based on TAZ-level data. Such a model could start simple and grow more sophisticated as time goes on. The more relationships that are included, the more useful the model's predictions will become. Best of all, much of the data needed for such safety analysis is already produced during PPACG's small area forecasting process.

CRASH ANALYSIS

Crash data collected by local police and sheriff's departments and maintained by the Department of Revenue is the cornerstone of PPACG's regional safety planning effort.

Of all the types of crashes – crashes in which there is property damage only, possible injury, evident injury, severe injury, or a fatality – fatal crashes are obviously the most important since human life is involved. Yet in many cases, the same critical event can lead to either an injury or a fatality, with little analyzable difference. Fatalities have been reported at speeds as low as 15 miles per hour, while some motorists have walked away from 70-mile-an-hour wrecks. This analysis therefore considers fatalities and injuries together, ignoring only property damage and possible (as opposed to evident) injury crashes.

Because the largest number of crashes tends to occur on roads with the greatest traffic, simply looking at raw crash numbers is not an efficient way to search for safety improvement opportunities. Looking at crash *rates* is a better approach because it provides a weighted view of crashes that can be used to compare information across different functional classes of roadway. Using crash rates also provides information about the more preventable crashes. That is, while more crashes occur on interstates than local roads, an individual is still far less likely to be involved in a crash on an interstate, and the opportunity for reducing crashes there by spending safety dollars is smaller. The crash rate will therefore be higher on the local road, and the prevention opportunity greater.

This analysis looks at crashes from two perspectives: the micro perspective, or crash rates on individual road segments (Figure 9-4); and the macro perspective, or crash rates on functional systems, or aggregate crash rates on different types of facilities (Table 9-5). The first approach can lead to suggested site improvements, while the second may lead to suggested refinements of design guidelines or other broad changes.

The unit of measure for crash rates is crashes per 100 million Vehicle Miles Traveled (VMT). VMT is typically given in millions or hundreds of million miles, so that a very small number of crashes per vehicle (e.g. 0.000001 crashes per vehicle mile traveled on a road segment) can be reported meaningfully, and refers to the distance times the number of vehicles using a road segment. The period that will be examined is a five-year aggregate from 2001-2005.

FIGURE 9-4: FATAL AND INJURY CRASHES PER AADT

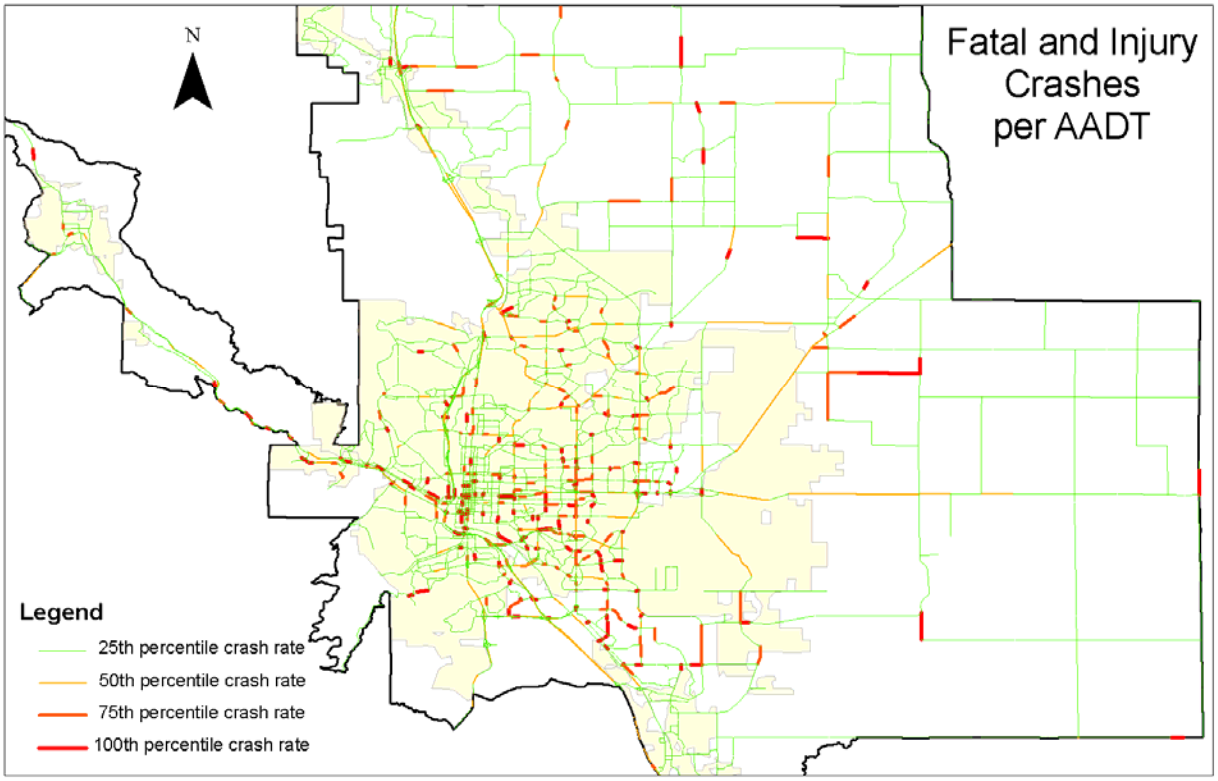


TABLE 9-5: CRASH RATES BY FACILITY TYPE

Facility Type	Lanes	Miles	AADT	Total Crashes	Per 100mil VMT
Collector	1	464.10	2,922,530	248	4.84
	2	11.22	227,226	21	5.27
Minor Arterial	1	574.28	3,810,183	310	4.64
	2	84.50	4,049,463	275	3.88
	3	1.06	70,587	5	4.04
Principal Arterial	1	125.77	2,002,510	77	2.19
	2	127.31	11,034,270	541	2.80
	3	41.05	5,722,387	263	2.62
Expressway	1	26.98	603,938	55	5.20
	2	48.56	3,020,171	120	2.27
	3	11.31	1,243,342	101	4.64
Interstate	2	53.11	2,607,222	174	3.81
	3	7.23	949,697	18	1.08
	4	0.75	78,583	1	0.73
	5	0.46	135,252	0	0.00
Ramp	1	24.30	898,972	21	1.33
	2	2.61	161,830	0	0.00

Regionally, crash rates seem to be higher in rural areas and in older areas of Colorado Springs. Since this analysis did not include a detailed examination of crash conditions, a high accident rate means simply that an area should be investigated further. It should be noted that higher crash rates in places like the Colorado Springs CBD and Academy Boulevard may be partially due to large numbers of bicycle and pedestrian crashes in those areas, since these types of crashes were not excluded from the analysis. Widening lanes to improve vehicle safety, for example, may therefore worsen an existing pedestrian safety problem.

Different functional classifications of road displayed widely varied safety characteristics. Two-lane collectors proved the most dangerous of all facility types, with 5.27 fatal or injury crashes per 100 million VMT, followed closely by one-lane sections of expressways and one-lane collectors. At the other end of the spectrum, interstates and interstate ramps are the safest roads. Principal arterials tend to be relatively safe, minor arterials less so (Table 9-6). Considering this alongside AADT traveled on the different facility types, it may be broadly stated that the least amount of travel occurs on the safest types of roads. These safety issues may be addressed through different design guidelines for the different functional classes of roads, or by slowly changing the character of the system to include more of the safer road types.

TABLE 9-6: ROAD SAFETY CHARACTERISTICS

Facility Type	Per 100mil VMT
2-Ln Collector	5.27
1-Ln Expressway	5.20
1-Ln Collector	4.84
1-Ln Minor Arterial	4.64
3-Ln Expressway	4.64
3-Ln Minor Arterial	4.04
2-Ln Minor Arterial	3.88
2-Ln Interstate	3.81
2-Ln Principal Arterial	2.80
3-Ln Principal Arterial	2.62
2-Ln Expressway	2.27
1-Ln Principal Arterial	2.19
1-Ln Ramp	1.33
3-Ln Interstate	1.08
4-Ln Interstate	0.73
2-Ln Ramp	0.00
5-Ln Interstate	0.00

RECOMMENDATIONS

1) PPACG should provide safety support for member jurisdictions, including geographic data and analysis; design standards and guidelines; and consolidated, easy-to-follow guidance for applying for safety projects. Writing a "Regional Safety Plan" that would be adopted by the policy Board should be strongly considered.

2) PPACG should develop an aggregate safety model that would be integrated with the Small Area Forecast and/or the travel demand model, and that would use demographics and travel patterns to create safety scenarios for future years.

CHAPTER 10: SYSTEM SECURITY

REGIONAL TRANSPORTATION SECURITY

In the years since the 9/11 attack there has been greater emphasis placed on emergency preparedness and homeland security issues. Title 23 in the Code of Federal Regulations, in Section 450.322(f), now states "The metropolitan transportation plan should include appropriate emergency relief and disaster preparedness plans and strategies and policies that support homeland security as appropriate and safeguard the personal security of all motorized and non-motorized users." Given the relative infancy of National Incident Management System (NIMS) implementation, the role of PPACG is currently limited to support of preparation through evacuation modeling.

From a transportation planning perspective, homeland security is still an emerging area of concern, and different areas will have different security priorities, so that a one size fits all approach is not appropriate. Expectations of the FHWA and FTA in regards to what the transportation plan should reflect in regards to security include:

- Defining the role of the Metropolitan Planning Organization (MPO) and public transportation operators in promoting security, which may in part be defined elsewhere in State or local legislation related to emergency management responsibilities.

- Identify critical facilities and transportation system elements and the risk to assets such as highways, transit systems or rail lines critical to national defense or economic security, and infrastructure intricately related to potential high value security targets.

- Identification of appropriate security goals and strategies.

- Reflection of projects and strategies that will increase the security of transportation system users in the long range transportation plan and the Transportation Improvement Program (TIP).

The foci of the combined local, state, and federal security planning efforts are to minimize the direct or indirect disruptions caused either by natural or human actions. These can occur in any

season of the year and may cover a limited or wide-ranging geographic area that impact the Pikes Peak region or its neighboring areas and result in a rapid and large influx or exodus of persons. Examples of the types of events that create situations where security issues arise are shown in Table 10-1, Security Events.

TABLE 10-1: SECURITY EVENTS

Natural Events	Human Events
Tornado	Hazardous Material Incident
Blizzard	Power Outages
Flood	Act of Terrorism (bombing)
Wildfire	Civil Disturbance (riots, etc.)

Whatever the cause, disasters have several key characteristics, which include:

1) The event is unexpected, with little or no prior warning or opportunity to prepare;

2) Lives, health, or the environment are endangered, and

3) Personnel and emergency services may not be available during the initial stages of a disaster due to demands for their services.

When one element in the system breaks down it may cause a series of sequential reactions that amplify the severity of the original impact from compounding secondary impacts to transportation, utilities, communications systems, fuel supplies, and/or water supplies. This disaster cascade could damage transportation infrastructure which could severely restrict the abilities of police, fire, and paramedic services to provide services during or after a disaster. For example, damage to roads may cause the following:

- Ambulances prevented from reaching victims and/or victims prevented from reaching emergency medical services.
- Police and fire departments prevented from reaching areas of concern.
- Flow of needed supplies is interrupted.
- Ability to assess damage is compromised.

The U.S. Department of Transportation has adopted the following Security, Preparedness and Response goal as part of its Strategic Plan:

> *Balance transportation security requirements with the safety, mobility and economic needs of the Nation and be prepared to respond to emergencies that affect the viability of the transportation sector.*

Key federal objectives of this goal are:

1. Expert transportation sector intelligence;
2. Preparedness for emergencies affecting the transportation sector; and
3. Effective response to emergencies affecting the transportation sector.

The following passages excerpted from USDOT's Strategic Plan Security Section highlights its strategic objectives

> *Our security strategies recognize that the transportation network must not only move millions of people and tons of cargo daily but also must remain a vital link for Department of Defense mobilization requirements*
>
> *Natural disasters such as hurricanes, tornados, earthquakes and floods demonstrate that the government needs to be ready to collaborate and cooperate in new and innovative ways to cope with such events effectively. Similarly, terrorist and criminal attacks on transportation systems can disrupt passenger transportation and the flow of cargo, particularly vital commodities such as food, medicines and petroleum products.*
>
> *Disruptions, could sharply affect the operation of certain transport sectors, particularly aviation, rail, and transit, critical to response and recovery. Damage to large segments of roadway, tunnels, or bridges, as well as to waterway transport, rail freight movement, and transit services are all plausible risks.*

Important elements of PPACG's initial response to the new security planning requirements include cataloging available emergency management resources and documenting actions that the area has already undertaken, especially at the state level.

Planning for Security

In 2004, the U.S. Department of Homeland Security introduced the National Response Plan and the National Incident Management System (NIMS). The National Response Plan establishes a comprehensive, national, all-hazards approach to domestic incident management across a spectrum of activities. NIMS provides a nationwide template enabling government and nongovernmental responders to respond to all domestic incidents using a coordinated and modular approach based on the Incident Command System . As of October 1, 2006, federal preparedness funding is conditioned upon full compliance with NIMS, which means:

- Local jurisdictions have adopted NIMS through resolution or legislation as the local jurisdiction's all-hazard, incident response system without "sunset" provisions;
- Have appropriate personnel complete NIMS training courses;
- Complete a self-assessment to establish a NIMS baseline as to where the jurisdiction stands in regards to NIMS implementation;
- Institutionalize the use of the Incident Command System; and

- Establish a strategy for implementing NIMS. NIMS requirements are phased in over a period of years.

The all-hazards planning approach to community preparedness includes four phases, listed below. The four stages represent a mix of long term and short term preparedness. The first priority is Preparedness, which encompasses establishing an emergency operations center,, coordinating available resources, and putting the infrastructure such as communication systems needed to respond in place. Response, establishing Incident Command protocols, assigning responsibilities, and conducting training exercises, is the next prioity. Recovery, and to a larger extent Mitigation, are areas where PPACG may defer initial efforts because the immediate pay-off of such steps are not as great.

A. Mitigation

1. Identify threats to systems and resources.

2. Develop plans, procedures and organizational structure needed to ensure the safe and timely movement of the public and emergency service resources continue during an incident.

3. Maintain sufficiency ratings and other data such as built plans for primary bridges and critical transportation infrastructure.

B. Preparedness

1. Identify and maintain a network of available local, county, and state resources to aid safe and timely movement of the public and emergency service resources.

2. Participate in training sessions and exercises.

3. Evaluate agency Emergency Operations Plans..

4. Ensure that administrative and accounting procedures are in place to document actions taken and all costs incurred during incident operations.

5. Ensure that on-call contracts with engineering companies and construction contractors include provisions for emergency services.

C. Response

1. Select and contact appropriate personnel.

2. Designate personnel authorized to enter affected area and provide this information to the Office of Emergency Management.

3. Provide a representative to the Office of Emergency Management, as requested.

4. Confirm and report the level, severity and extent of involvement.

5. Provide and coordinate public information through the Emergency Operations Center and Joint Information Center, if activated.

6. Coordinate with law enforcement personnel for maintaining security of facilities and supplies.

D. Recovery

1. Coordinate and organize long-term plans for the safe movement of the public and emergency service resources.

2. Provide documentation on injuries and/or deaths of persons resulting from the incident.

Security Concept of Operations

Activation of an Emergency Operations Center (EOC) may be required during an incident. The EOC may consist of one person, such as the Emergency Manager (in small events) or a full activation of the organizational structure for a large incident. All agencies will coordinate activity, maintain communication with and support the Office of Emergency Management (OEM) and EOC, if activated. An Incident Command System in compliance with the National Incident Management System (NIMS) will be established. This system will be utilized to coordinate on-scene incident response activity.

There are a locally developed and approved plans to provide for coordination, control and allocation of transportation assets in support of the movement of emergency resources including the evacuation of people and the redistribution of food and fuel supplies. Key participants in this endeavor are: Local municipality public works departments, Offices of Emergency Management Colorado Springs Internal Support Services, local law enforcement, Colorado State Patrol, County Emergency Services Divisions, state agencies, federal agencies and military installations.

It is assumed that all agencies have emergency operations plans and will enact those plans in support of the emergency response, if necessary, and that all entities have established continuity of operations plans.

It is further assumed that all supporting agencies will ensure continual operational readiness. Agencies will develop inter-agency and inter-jurisdictional agreements with similar agencies to expedite resource mobilization when additional assistance is needed. Mobilization centers, staging areas, receiving and distribution sites, key operational support facilities and necessary staffing will be identified.

All agencies and organizations with transportation or emergency response responsibilities are responsible for developing internal procedures and standard operating procedures for carrying out the following functions:

1. Identify, train and assign personnel to maintain contact with and prepare to execute missions during periods of activation.

2. Coordinate activities and maintain communication with the Emergency Operations Center, if activated, during all emergency operations.

3. Provide an agency representative to the Emergency Operations Center, as requested.

4. Provide information and coordinate any public announcement, statement or press release through the Office of Emergency Management or the Emergency Operations Center and Joint Information Center, if activated.

5. Provide program assistance and expertise as appropriate and in coordination with other agencies.

6. Activate continuity of operations and recovery plans, as needed. Establish emergency supplies including food, water, blankets, electrical generators, communications, etc. to provide continued operations and shelter employees as necessary.

7. Provide all requested information prior to, during and following any incident to the Office of Emergency Management.

State of Colorado Emergency Operations Plan

The purpose of the State of Colorado Emergency Operations Plan (SEOP) is to identify the roles, responsibilities and actions of State government in disasters. Emergency operations plans address the ability to direct, control, coordinate and manage emergency operations. Each level of government should respond to an incident using its available resources, to include the use of mutual aid, and may request assistance from the next higher level of government, if required.). When local government capabilities are taxed, state government has resources and expertise available to provide emergency or disaster assistance. The State will modify normal operations and redirect resources to assist and support local governments in saving lives, relieving human suffering, sustaining survivors, protecting property, and reestablishing essential services. Federal government resources and expertise can be mobilized to augment emergency or disaster efforts beyond the capabilities of state government.

The SEOP identifies fifteen Emergency Support Functions (ESF) that spell out the types of assistance activities that local government may need regardless of the nature of the disaster or emergency. Emergency Support Function 1 is Transportation. Colorado Department of Transportation Activities include:

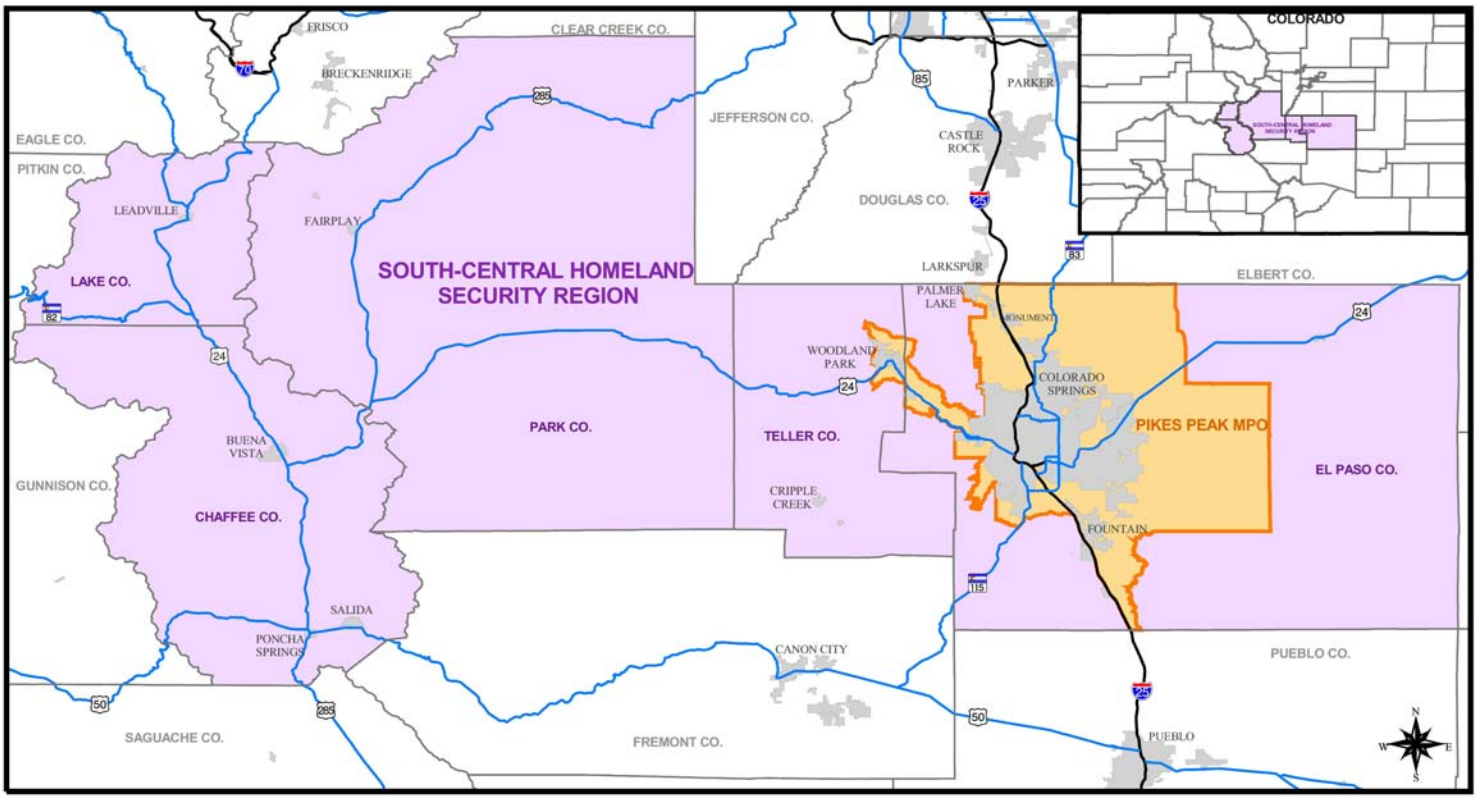
1) Processing and coordinating requests for state, local, and civil transportation support as directed under the State Emergency Operations Plan (SEOP);
2) Reporting damage to transportation infrastructure as a result of the incident;
3) Coordinating alternate transportation services;
4) Coordinating the restoration and recovery of the transportation infrastructure; and
5) Coordinating and supporting prevention, preparedness, mitigation among transportation infrastructure stakeholders at the state and local levels.

The Colorado Division of Emergency Management (CDEM) provides financial and technical support to local governments throughout the state with both out-stationed and in-house staff. The Pikes Peak Area is in the South-Central Region of this Division.

State of Colorado Homeland Security Strategy

The State of Colorado Homeland Security Strategy was prepared by the Colorado Department of Local Affairs with extensive cooperation and input from the Governor's Office, the Colorado Department of Public Safety, the state's county emergency managers, the regional Homeland Security coordinators, and the Center for the Study and Prevention of Violence at the University of Colorado-Boulder. This report reflects the data collected by all local jurisdictions during the 2003 Homeland Security Assessment and input from state agencies. In 2002, legislation was enacted to create the Office of Preparedness, Security, and Fire Safety within the Colorado Department of Public Safety to coordinate Colorado's response to the threat of terrorism. House Bill 02-1315 includes a number of specific duties for the office, including the creation and implementation of terrorism preparedness plans.

FIGURE 10-1: PPACG WITHIN THE HOMELAND SECURITY REGION



Colorado's Homeland Security Strategy provides a framework for enhancing the state's ability to prevent, respond to, and recover from an act of terrorism. The plan furnishes state and local officials with the means to develop interlocking and mutually supporting emergency preparedness programs. The plan focuses on preparedness for acts of terrorism and addresses disaster planning that is supplemented by local strategic and operations plans. This coordinated effort by federal, state, and local governments identified needed resources, developed strategies, and created partnerships throughout the public and private sector that serve as a foundation for homeland security efforts now and in the future.

State Homeland Security / Emergency Management

Colorado's Multi-agency Coordination Center (MACC) offers the ability for state, federal, and local agencies to come together in a central location to coordinate the response to emergencies and disasters throughout the state. The Multi-Agency Coordination Center is a state-of-the-art center developed specifically to help Colorado respond to any type of disaster or emergency it may face in today's world. The Center is housed with South Metro Fire and Rescue in Centennial, Colorado. The Colorado Information Analysis Center was added to the Center with the disaster prevention focus and strong links to federal and local agencies. The Multi-Agency Coordination Center is linked to the CDOT's Transportation Operations Center (TOC) which

provides highway surveillance camera displays to monitor state roadways and weather throughout Colorado. The center also provides general intelligence on all transportation systems including railroads and airports. The Transportation Operations Center has command and control over all state road systems, bridges, and underpasses, provides avalanche analysis and control, and acts as the command and control center in the event of an emergency.

Colorado Department of Transportation

The Colorado Department of Transportation's (CDOT) role in emergency management consists primarily of safeguarding and maintaining the state transportation system in the affected area and facilitating and coordinating evacuation routes that utilize the state transportation system. CDOT maintenance staff are the primary responders for both damage to CDOT infrastructure and assistance to others, but staff from other areas may be utilized as needed.

Colorado State Patrol

The Colorado Information Analysis Center (CIAC) is designed to be a cross-jurisdictional partnership between local, state, and federal agencies - including private sector participation when appropriate. This center provides for one central point in Colorado for the collection, analysis, and timely dissemination of terrorism-related information. Information is distributed from the CIAC in the form of daily reports, special reports, and bulletins to numerous agencies representing a multitude of disciplines.

PPACG Involvement in Security and Emergency Management

The role of any MPO in security and emergency management efforts varies based upon the political and institutional context of its region. Clearly, emergency management, public safety and transportation operating agencies have the primary responsibility for responding to such incidents. However, outside of the immediate urgency of response, the opportunity to converse about coordinating responses to potential incidents and how to handle the subsequent demands on the transportation system is an area where the MPO can assist in multiple ways. The MPO can serve as a forum for cooperative decision making, as an advocate for funding of regional transportation strategies, and by providing technical analysis on the transportation network regarding the impacts of and needs related to security and emergency management efforts.

Given the relative infancy of National Incident Management System implementation, the role of PPACG is limited to support of preparation through evacuation modeling.

KEY PARTNERS

Public Works Departments

The Public Works Departments of Colorado Springs and El Paso and Teller Counties are key partners in the PPACG planning process. They are also managers of key portions of the existing roadway network in the area and so have key emergency management responsibilities during the response and recovery phase of any incident. These responsibilities include:

- Inspect bridges, roads, signs, lighting, airports, and sidewalks for damage.
- Coordinate and repair damaged transportation structures, including roads, traffic control systems and signage.
- Maintain rights-of-way for emergency vehicles.
- Assist in traffic management during incidents.
- Help secure geographic areas with roadblocks or other physical measures.
- Establish short term and long term detours and signage
- Remove debris and clean streets and roadways.
- Set priorities for restoration of transportation systems.

Mountain Metropolitan Transit System

Mountain Metropolitan Transit should work with the Colorado Springs Police Department and Emergency Management Director to coordinate issues including controlling and dispatching buses as needed in emergency management response activities. By law, an emergency management director has the authority within 72 hours of an incident to commandeer local transit vehicles to aid in response and recovery operations. In emergencies, Mountain Metropolitan Transit is a provider of resources for emergency use and is available and ready when requested by whomever the Emergency Management Director is coordinating the situation. When the request for buses is made by the EOC, Mountain Metropolitan Transit dispatchers and managers are trained to provide the transportation equipment and drivers as requested. When arriving on scene, Mountain Metropolitan Transit reports to the command center and waits for further instructions. MMT dispatchers and managers have experience and are practiced at working with both the City of Colorado Springs Police Department and the Fire Department officials and MMT has been involved with many life and safety emergency situations over recent years.

PPACG POLICY

The Moving Forward 2035 Regional Transportation Plan includes limited policy language related to the issue of the security of the transportation system. Policy directions in the plan focus on the need to consider improvements that facilitate the timely provision of emergency response services.

Planning Principle *6:*
Increase the security of the multi-modal transportation system.

Goal:
Minimize infrastructure and organizational barriers that hinder the timely response to and/or from emergency services during and after a natural or human caused disaster.

Measurements:
1. Quantitative: Average response time using isochrones of fire station locations.
2. Qualitative: The extent to which an alternative integrates the operations of and communications between traffic control systems and first responders.

Actions: P*erform vulnerability and threat assessments to determine what, when and how to protect transportation infrastructure.*

Develop and implement operational tools and technologies, including data collection, to enable secure interoperable communications, and to enhance existing traffic management and traveler information capabilities. This includes exploring how to deliver both emergency traveler information coordinating with regional traffic management centers

KEY TRANSPORTATION ASSETS

Key transportation system assets in the PPACG Planning Area include:

- Interstate Highway System
- National Highway System Routes (NHS)
- Strategic Highway Network Routes (STRAHNET) – the STRAHNET is the road system deemed necessary for emergency mobilization and peacetime movement of heavy armor, fuel, ammunition, repair parts, food, and other commodities to support U.S. military operations of the five installations in the region.
- Transit System – the transit system is particularly important relative to the issue of security relative to its potential important contribution to evacuation of areas.
- Colorado Springs Airport
- The BNSF Rail Line Corridor

Most of these facilities are linear in nature and while risks exist across these networks due to a potential incident, there is built-in redundancy from the supporting network of state, county and city roadways that can serve, if necessary, as alternative routes for the movement of vehicles in the case of incident. However, there are elements of these networks, such as key bridges, that if damaged would have a more significant effect on the operation of the system.

Using guidelines developed in the report, National Needs Assessment for Ensuring Infrastructure Security, (SAIC/Parsons Brinkerhoff, October 2002), an assessment to identify potentially important bridge facilities should be carried out. The key criteria for this analysis include:

- Casualty Risk
- Economic Disruption
- Military Support, and
- Emergency Relief.

Responsible Agencies for Highway Security

Agencies primarily responsible for major highway security in the Colorado Springs metropolitan area include the Colorado State Patrol and local law enforcement. Effective coordination and communication among these agencies is crucial during emergency situations. Security is provided through the following techniques: Routine road patrols, traffic management/operations center, flight patrols, and crash and criminal investigations.

The joint City of Colorado Springs and CDOT Traffic Operations Center is located near downtown Colorado Springs. The Traffic Operations Center uses intelligent transportation systems (ITS) technology including electronic message signs, traveler information hotline, and video surveillance cameras. Traffic management information is streamed directly to the CDOT district office for real-time monitoring.

INTERMODAL SECURITY

Intermodal transportation security is developed and implemented by the Transportation Security Administration. The TSA's management strategy focuses first on identifying areas of high risk and then establishing baseline security standards to address those risks. Once baseline standards are established, TSA assesses the actual status of security in the transportation industries. In close coordination with stakeholders, the TSA devises strategies for bringing actual practices up to the established standards.

The TSA is also developing advanced systems of security through a coordinated research and development program, to further enhance security beyond the baseline standards. They TSA is implementing this strategy through cooperation with stakeholders where appropriate, regulation and inspection where necessary, and through the distribution of grants to assist the industry to implement these objectives.

The TSA recognizes that in striving to improve the security of the intermodal network, it must not forget the principles that make the freight, rail and aviation systems viable and efficient. Many of these systems were designed with mobility and ease of access as a fundamental principle underlying their operational success. Security efforts must work within the framework of these systems and not hamper them. That inherent openness and mobility also presents the greatest security challenge.

Freight

The Colorado State Patrol and the county sheriff are primarily responsible for providing security on the PPACG area truck freight network. The Colorado Department of Transportation has a Statewide Plan that includes a discussion on safety and security. Many of the security measures found on highways coincide with freight security measures. Freight security initiatives include:

- State permitting for haulers;
- Mandatory roadside freight check-points;
- Commercial vehicle requirements;
- Restricted travel times;
- Specific restrictions for hazardous material haulers;
- Background checks;
- Carrier safety ratings and assessments;
- Preferred hazardous material routing;
- Safety audits and surveys; and
- Security training program.

Transportation Security Administration Highway (Trucking) Baseline Standards

The TSA has been working closely with a number of chemical shippers to develop a series of baseline security standards for both toxic inhalation hazard (TIH) and hazardous chemicals of concern. Those standards will address specific areas such as vehicle tracking, vehicle attendance, vehicle alarm systems, truck cab access controls, locking fifth wheel on tank trailers and security route and stop areas.

Aviation

The Colorado Springs Municipal Airport is owned and operated by the City of Colorado Springs as a unit of the City's Colorado Springs Companies Group. The FAA's National Plan of Integrated Airport Systems (NPIAS) classifies the Colorado Springs Airport as a primary commercial service airport.

The TSA utilizes a multi-layered, high-tech, industry-cooperative approach including canine teams, TSA and airline inspectors, and physical screening of a sizable portion of air cargo. TSA also is responsible for background checks, specifically on cargo employees. TSA is partnering with industry to increase security domain awareness so that individuals are empowered to detect, deter, and report potential or actual security threats.

Security measures installed at the Colorado Springs Airport include monitored surveillance of airport property by airport security, video surveillance cameras, fenced grounds, and luggage and passenger screening by TSA personnel. The airport authority invested $570,000 in 2006 to upgrade airport security. Also part of the airports safety and security measures is the Aircraft Rescue and Fire Fighting unit, charged with serving and protecting the aviation users at the facility 24 hours a day, 365 days a year.

Transportation Security Administration Air Cargo Strategic Plan

The Transportation Security Administration regulations to enhance and improve the security of air cargo transportation requires airport operators, aircraft operators, foreign air carriers, and indirect air carriers to implement security measures in the air cargo supply chain. These requirements are to:

1. Provide for screening of all property, cargo, carry-on and checked baggage, and other articles, that will be carried aboard a passenger aircraft operated by a domestic or foreign air carrier; and
2. Establish a system to screen, inspect, or otherwise ensure the security of freight that is to be transported in all cargo aircraft.

The objectives of these requirements are to address two critical risks in the air cargo environment:

1. The hostile takeover of an all-cargo aircraft leading to its use as a weapon; and
2. (The use of cargo to introduce an explosive device onboard a passenger aircraft.

The Air Cargo Strategic Plan sets forth TSA's commitment, as a component of the Department of Homeland Security's Border and Transportation Security Directorate, to working closely with our federal, state, local and industry partners to ensure that 100 percent of cargo that is deemed to be of elevated risk is inspected, and ensuring that the entire air cargo supply chain is secure. In so doing, this plan addresses the security and functionality of a critical element of the nation's aviation transportation system. Like other elements of the aviation system, air cargo presents a potential risk to air travel and simultaneously underpins the economic vibrancy not just of the aviation industry, but also of the nation's high-value, just-in-time supply chain that services countless industries.

The TSA has tailored the air cargo security program through the implementation of a layered solution that includes:

- Screening all cargo shipments in order to determine their level of relative risk,
- Working with our industry and federal partners to ensure that 100 percent of items that are determined to be of elevated risk are inspected,
- Developing and ensuring that new information and technology solutions are deployed, and,

- Implementing operational and regulatory programs that support enhanced security measures.

Rail

In the United States, a large percentage of hazardous materials is transported over rail. The rail line through the Pikes Peak Region is a potential route for many types of hazardous material from chemicals to radioactive waste.

Freight rail does not offer terrorists high densities of passenger targets, but it does provide terrorists with some opportunities that passenger rail does not afford. In particular, freight rail is used to transport hazardous materials and dangerous cargoes. An estimated 40 percent of inter-city freight occurs by rail, including half of the nation's hazardous materials.

In the aftermath of the September 11 attacks, the leadership of the freight rail industry generated more than 100 action items, a multi-stage alert system, and round-the-clock communications with homeland security and national defense officials. These action items were based on the results of a strategic review of the transportation of hazardous materials, the security of the industry's information infrastructure, freight rail operations and infrastructure, and military needs relating to the rail network. The critical action items included the need to:

- Integrate protective housings, valves and fittings into hazardous transport infrastructure to prevent tampering and facilitate emergency response.
- Increase surveillance of freight equipment through training of staff on observation and the installation of video surveillance equipment. Improve operations by monitoring for signal tampering; requiring crews and dispatchers to verify communications for train movements and dispatches; and locking locomotive doors to prevent hijackings.
- Secure the information infrastructure that terrorists could use to enhance attacks or cause systemic shutdowns. Collaborate with the Department of Defense (DoD) to ensure the viability of STRACNET (Strategic Rail Corridor Network)-designated rail lines that are capable of meeting unique DoD requirements, such as the ability to handle heavy, high or wide loads.

Improved security elements for rail facilities within the PPACG region could include:

- Repairing gaps in fencing to provide more control around the perimeter of rail facilities.
- Improving lighting, both to deter terrorists and to improve facility observation.
- Installing close-circuit television to provide stationmasters and security personnel with better visibility throughout the facilities.
- Training of personnel and passengers to have a role in security by reporting suspicious behavior, and improving readiness for evacuation and emergency actions.

- The use of public communication strategies to advise on threats, service disruptions and the availability of alternate routes and transportation methods.
- It is also important to prepare for hoaxes and false alarms, both of which can disrupt rail operations.
- Develop policies and procedures for dealing with hoaxes and false alarms so that these would not unduly burden rail operations.

It should be noted that it is not clear how much should be spent on rail security relative to security at other potential targets and that the cost effectiveness of the above rail measures has not been assessed. It should also be noted that the freight rail system is in the hands of the private sector. At the same time, freight rail competes with trucks and other transport modes for business.

The rail corridor which travels through the Pikes Peak Region is heavily used and suffers from a lack of alternative routes. Attacks on critical freight nodes or functions could, therefore, create substantial bottlenecks and throughput pressures.

Transportation Security Administration Freight Rail Baseline Standards

The potential risk posed by unattended toxic inhalation hazard rail cars in high threat urban areas was identified as the highest risk area in rail. To address this risk, TSA developed a goal of reducing the objectively-measured risk of toxic inhalation hazard cars in high threat urban areas by 25 percent per year, starting in 2007. That risk factor takes into account car hours, the population of urban areas and the proximity to residential and commercial structures.

The TSA has also identified 24 other focus areas (see sidebar) as security action items for the rail industry to begin to address. The actions items were released to the industry in June and November 2006. The action items focus on security awareness training, security focused inspections, suspicious activity reporting, control of sensitive information and employee identification. TSA is assessing conformity with the security action items to evaluate how implementation of the action items reduces objectively measured risk.

Hazardous Materials Response Program

There are five Chemical Response Teams in the Pikes Peak Region that provide support for each other. They are housed within the Colorado Springs Fire Department, the El Paso County Sheriff, in Teller County and at Peterson Air Force Base and Fort Carson.

US DEPARTMENT OF HOMELAND SECURITY

FREIGHT RAIL SECURITY ACTION ITEMS (FEBRUARY 12, 2007)

The following are recommended security action items for the rail transportation of materials poisonous by inhalation, commonly referred to as Toxic Inhalation Hazard (TIH) materials. Adoption of these measures is voluntary. Movement of large quantities of TIH materials by rail in proximity to population centers warrants special consideration and attention. These materials have the potential of causing significant numbers of fatalities and injuries if intentionally released in an urban environment.

1. Designate an individual with overall responsibility for hazardous materials transportation security planning, training, and implementation.
2. Conduct exercises, at least annually, to verify the effectiveness of security plan(s).
3. Develop and conduct an audit to independently verify that the security plan is being effectively implemented.
4. Identify and then annually review company-designated critical infrastructure.
5. Maintain a communications network to receive timely government notices of current threat conditions and available intelligence information.
6. Make use of opportunities to establish liaison and regular communication with federal, state, and local law enforcement, emergency responders, security agencies, and industry partners.
7. Establish liaison and collaboration with other railroad security offices to promote information sharing and security enhancements.
8. As with industry safety programs, regularly reinforce security awareness and operational security concepts to all employees at all levels of the organization.
9. Reinforce the need for employees to immediately report to the proper authorities all suspicious persons, activities, or objects encountered.
10. Have contingency plans in place to supplement company security personnel to protect company-designated critical infrastructure as threat conditions warrant.
11. Restrict access to information controlled by the railroad that it determines to be sensitive, in particular information about hazardous materials shipments and security measures.
12. Make available emergency response planning materials, and when requested, work with local communities to facilitate their training and preparation to deploy and respond to an emergency or security incident.
13. Cooperatively work with the federal, state, local, and tribal governments to identify through risk assessments those locations where security risks are the highest.
14. Focus proactive community safety and security outreach and trespasser abatement programs in areas adjacent to company-designated critical infrastructure to reduce the likelihood of unauthorized individuals on company property and to enhance public awareness of the importance of reporting suspicious activity.
15. To the extent feasible and practicable, utilize photo identification procedures for company-designated critical infrastructure.
16. To the extent feasible and practicable, and as threat conditions warrant, restrict the access of contractors and visitors at non-public areas of company-designated critical infrastructure and monitor the activities of visitors in or around such infrastructure.
17. Establish employee identification measures for all employees.
18. Implement measures to deter unauthorized entry.
19. Utilize interlocking signals and/or operating rules to prevent trains from occupying moveable bridges until they are locked in place.
20. Maintain systems to locate rail cars transporting TIH materials in a timely manner.
21. During required on-ground safety inspections of cars containing TIH materials, inspect for any apparent signs of tampering, sabotage, attached explosives, and other suggested items.
22. Provide local authorities with information on the hazardous materials transported through their communities consistent with AAR Circular OT-55.
23. Consider alternative routes when they are economically practicable and result in reduced overall safety and security risks.
24. In rail yards, to the extent feasible, place cars containing TIH materials where the most practical protection can be provided against tampering and outside interference.

Pikes Peak Area Communications Network

Communication resources are critical to any incident response effort. In an effort to improve emergency response communications in the region there is an 800 MHz trunked digital radio system deployed by all governments in El Paso and Teller Counties. Over the next few years the system may be expanded into the 900 MHz range in order to allow non-governmental entities access to emergency communications. Another important communication tool recently deployed by the City of Colorado Springs is the Geocaste Automatic notification system, which can send 2,800 one-minute messages per hour in standard mode and 11,000 in full evacuation mode.

Emergency Alert System

Emergency Alert System, or EAS, is an all-hazard warning tool used whenever an emergency event requires quick dissemination of emergency public information that affects a large percentage of the population in any given community. EAS is a voluntary service provided by local and regional broadcasters and cable television operators. Federal Communications Commission regulations only ***mandate*** the use of EAS for ***national emergencies***. Part of function for which the EAS can be utilized is the broadcasting of important follow-up information that needs to be disseminated to the general population through local broadcasters. These broadcasts take the form of an administrative message, which are an effective way of passing along information traditionally provided by press conferences, but in a more efficient and timely manner. Types of messages that can be distributed by an administrative message through the EAS can include:

- Location of displaced persons;
- Location of the evacuated elderly;
- Location of school children;
- Location of Health/Med Centers;
- Location of feeding centers;
- How to get debris clearance;
- Projected road openings; and
- How to get public assistance.

TRANSPORTATION RESOURCES AVAILABLE

1) More information is contained in Emergency Service Function (ESF) 1-Transportation Annex. The Contract Compliance supervisor for Mountain Metropolitan Transit maintains a list of local transportation resources.

2) The listed resources (Table 10-1) are available to transport citizens who are unable to transport themselves during an emergency. This may include:

   a) Elderly, infirm or disabled individuals;
   b) People who do not own vehicles;
   c) Out of town travelers;

d) Homeless;
e) People in assisted living centers;
f) Students in universities; and
g) Families separated during an event with no access to a vehicle.

3) You must request a driver for the vehicle.

4) Vehicle personnel capacity will be reduced approximately 50% due to luggage, pets etc.

TABLE 10-1: TRANSPORTATION RESOURCES

Ambulances	Phone Number	Resource	Capacity	On-Board Communications	Business Hours
American Medical Response	636-2333	1400 watt inverter on each veh; med staff on board	10 patients per hour	Radio	24/7
Wheelchair Lift Buses					
Mountain Metro Transit	ENL	100 buses	40 passengers + 2 wheelchairs per bus	Radio	5am-10pm
Mountain Metro Para-Transit	ENL	42 vans	10-14 passengers; 1-3 wheelchairs per van	Radio	5am-10pm
Amblicab Para-Transit Service	633-4677	1 van 6 mini-buses	3-5 wheelchairs each	Nextel	Mon-Fri 7am – 4:30 pm
American Medical Response	636-2333	6 vans No med staff on board	2 passenger + 1 wheelchair	Radio	24/7
Silver Key	884-2380	15 buses	10-32 passengers (all wheelchair accessible)	Radio	8am-5pm
Goodwill Industries	785-9226 332-7397	6 van	12 passenger + 2 wheelchairs	Cellphone	8am-4:30 pm Mon-Fri
		3 vans	7 passenger + 1 wheelchair	Cellphone	
		4 mini-vans	4 passenger + 1 wheelchair	Cellphone	
		3 mini-vans	3 passenger + 1 wheelchair	Cellphone	
The Resource Exchange	574-3370	4 buses	15 passenger + 2 wheelchairs	Cellphone	6am-5p Mon-Fri

Ambulances	Phone Number	Resource	Capacity	On-Board Communications	Business Hours
		5 vans	12 passengers + 2 wheelchairs	Cellphone	
		1 van	10 passenger + 2 wheelchairs	Cellphone	
City Buses					
Mountain Metropolitan Transit	ENL	100 buses	40 passengers (all have wheelchair lifts; can accommodate ~ 2 wheelchairs per bus	Radio	5am-10pm
		30 vans	12-16 passengers		
School District Buses					
Harrison Dist 2	ENL	31 buses	48 passengers	Radio	
		14 Special Needs Buses	1-5 wheelchairs ea		
Colorado Springs Dist 11	ENL	55 buses	66 passengers	Radio	
		55 buses	12/16/25 passenger (2 or 3 buses are wheelchair accessible)	Radio	
Cheyenne Mountain Dist 12	ENL	5 buses	71 passengers	Radio	
		1 bus	42 passenger	Radio	
		6 vans	14 passengers (1 or 2 vans are wheelchair accessible)	Radio	
Academy Dist 20	ENL	97 buses	65-78 passenger	Military & 800 MHz radios	
		39 buses	8-29 passenger; most accommodate ~2 wheelchairs	"Military & 800 MHz radios	
Falcon Dist 49	ENL	55 buses	48 passengers	Radio	
		19 Special Needs buses	1-3 wheelchairs ea		
Private Buses & Vehicles					
Brookdale Village at Skyline	339-7637			Cellphone	
Colorado College	ENL	3 buses	36-40 passengers	Cellphone	
		1 bus	25 passenger	"	
		7 vans	15 passenger	"	
UCCS	ENL	4 buses	24-33 passenger	UCCS has a few spare radios (must request)	
		1 vans	14 passenger		
		1 van	6 passenger		

Ambulances	Phone Number	Resource	Capacity	On-Board Communications	Business Hours
Broadmoor Hotel					
Cheyenne Mountain Conference Center					
US Air Force Academy	333-2633	18 buses	44 passenger		
Ft. Carson (Army)	ENL	12 buses	40 passenger	Must request common person	
Peterson Air Force Base	556-4555 or 4610	Not releasable	at this time pending legal	review	
Gray Line Tours	633-1181	11 buses	Fire buses only – they may charge for use	Cellphone	24/7
Ramblin Express	590-8687	Numerous vans, mini-buses, and large buses	See website for most up to date fleet info http://www.ramblin.com/fleetPhotos.html		
Yellow Cab	634-5000	150 cars & vans. None are wheelchair accessible (slide transfer only)		Radio	24/7

RECOMMENDED FUTURE ACTIVITIES

The following transportation tasks are included in this plan:

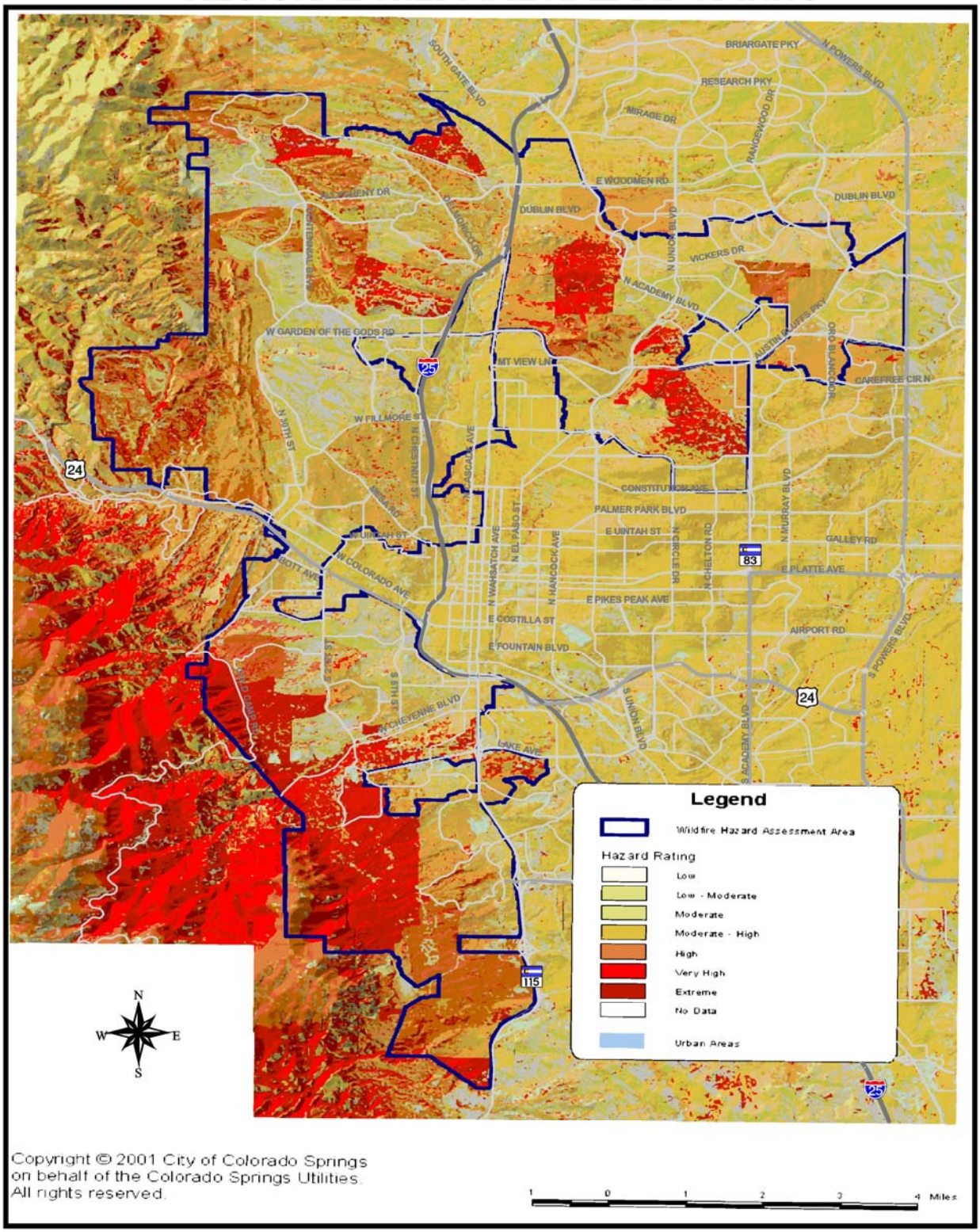
- **TASK #1:** Identify and collaborate with other state and local agency efforts and/or private sector efforts to enhance security planning for the transportation system.

- **TASK #2:** Work to provide safe and secure facilities and transportation infrastructure for residents, visitors and commerce in the PPACG planning area through efforts to reduce injuries, fatalities and property damage for all modes of transportation, and to minimize security risks at airports, rail stations, rest areas, on roadways and bikeways, and public transportation facilities

- **TASK #3:** Work with Emergency Management Officials and other agencies and organizations involved in emergency management and homeland security on the following transportation related issues based on priorities established in cooperation with the local emergency management / homeland security officials to:

- Complete a risk and vulnerability assessment of transportation assets;
- Assist in development of key evacuation routes from important activity areas, and include an assessment of improvement needs in future Long-Range Plan Updates;
- Assist in preparation of alternate route / detour planning to facilitate response to closing major transportation arteries;
- Provide assistance in analyzing the transportation network for redundancies in moving large numbers of people in response to events such as closure of major highway links through various means, including use of alternate routes, adaptive signal control strategies and dissemination of information through traveler information systems; and
- Assist in preparation of demographic profile information and a geographic inventory of transportation-disadvantaged populations that may need assistance during a disaster to facilitate evacuation and determine if current deployable assets will be available and are adequate. This could include assessment of the number of people who may not be able to self-evacuate, planning of staging areas for pickup and drop-off, and assisting in targeted community outreach on emergency preparedness to populations such as those with limited English proficiency.

REGIONAL WILDFIRE HAZARD RATING



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