CHAPTER III. GROWTH IN THE COUNTY

LAND USE FORECASTS

Household and employment growth will cause traffic increases in the future, and will drive a need for new roads and improvements to existing roads. The MTCP uses traffic modelling to forecast future traffic patterns, and a realistic understanding of possible future development patterns is important in ensuring that the future improvements suggested by the travel demand model are reasonable.

For this plan, future scenarios were developed for 2030, 2040, and 2060. These growth scenarios are based on the official Small Area Forecasts developed by the PPACG in 2013 for the *2040 Moving Forward Plan*, the regional transportation plan approved in 2015. These base forecasts, which were recently completed and involved an extensive input process from regional planning entities, were adjusted and refined through additional data gathering and review for the MTCP, while still maintaining 2010 (base year) and 2040 control totals at the regional level. Once the 2040 scenario was developed, the 2030 and 2060 scenarios were generated by developing and applying appropriate growth rates and patterns to the 2040 scenario.

Notably, these scenarios are lower than previous forecasts documented in the 2011-approved El Paso County MTCP. This is largely because previous forecasts were based on pre-recession growth rates. As such, the forecasts documented in this MTCP have more realistic growth rate assumptions. Specifically, the previous 2040 forecasts for unincorporated County households was 146,000 and the updated forecasts used in this plan are 114,000 – a 22 percent reduction in the 2040 forecast.

Household Growth

As shown in Table 2, household growth in unincorporated El Paso County is expected to occur at more than twice the pace of the incorporated portions of the County. The estimated growth is illustrated on Figure 1 and Map 2. As shown on the map, much of the anticipated growth before 2040 is focused around the Highway 24 corridor and the Transportation Analysis Zones (TAZs) that are nearest to Colorado Springs.

Table 2: Household Growth Summary

	2010	2030	2040	2060	Growth 2010-2040	Annual Growth Rate 2010-2040
Households - City	184,302	227,750	249,469	288,288	65,167	1.01%
Households – Unincorporated County	54,552	97,508	114,256	150,407	59,704	2.49%
Households - Total	**238,854**	**325,258**	**363,725**	**438,695**	**124,871**	**1.41%**

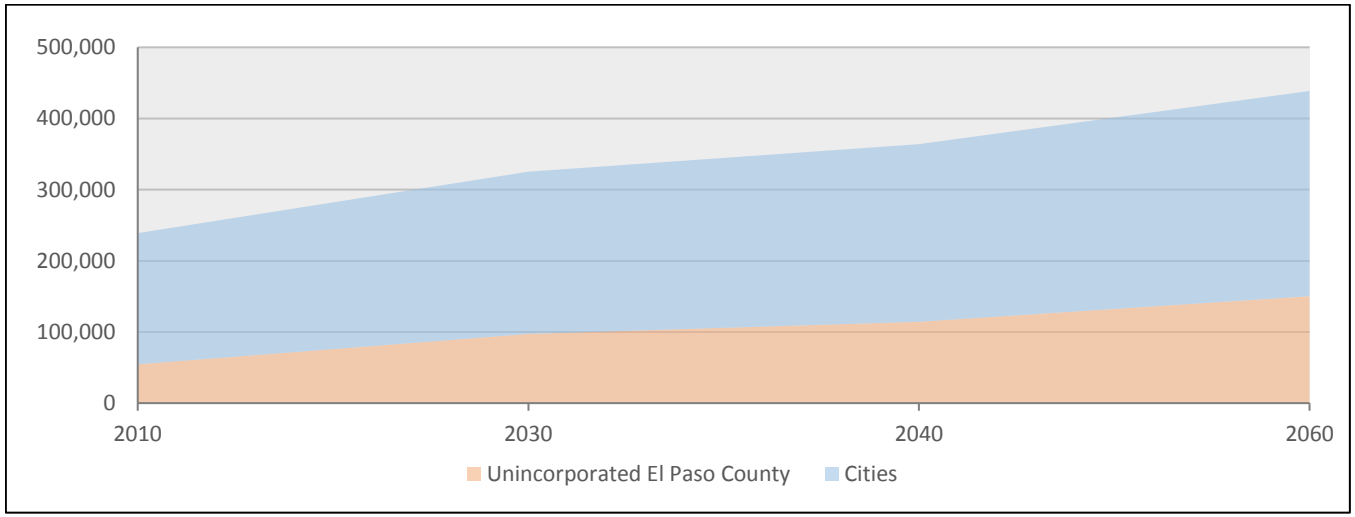
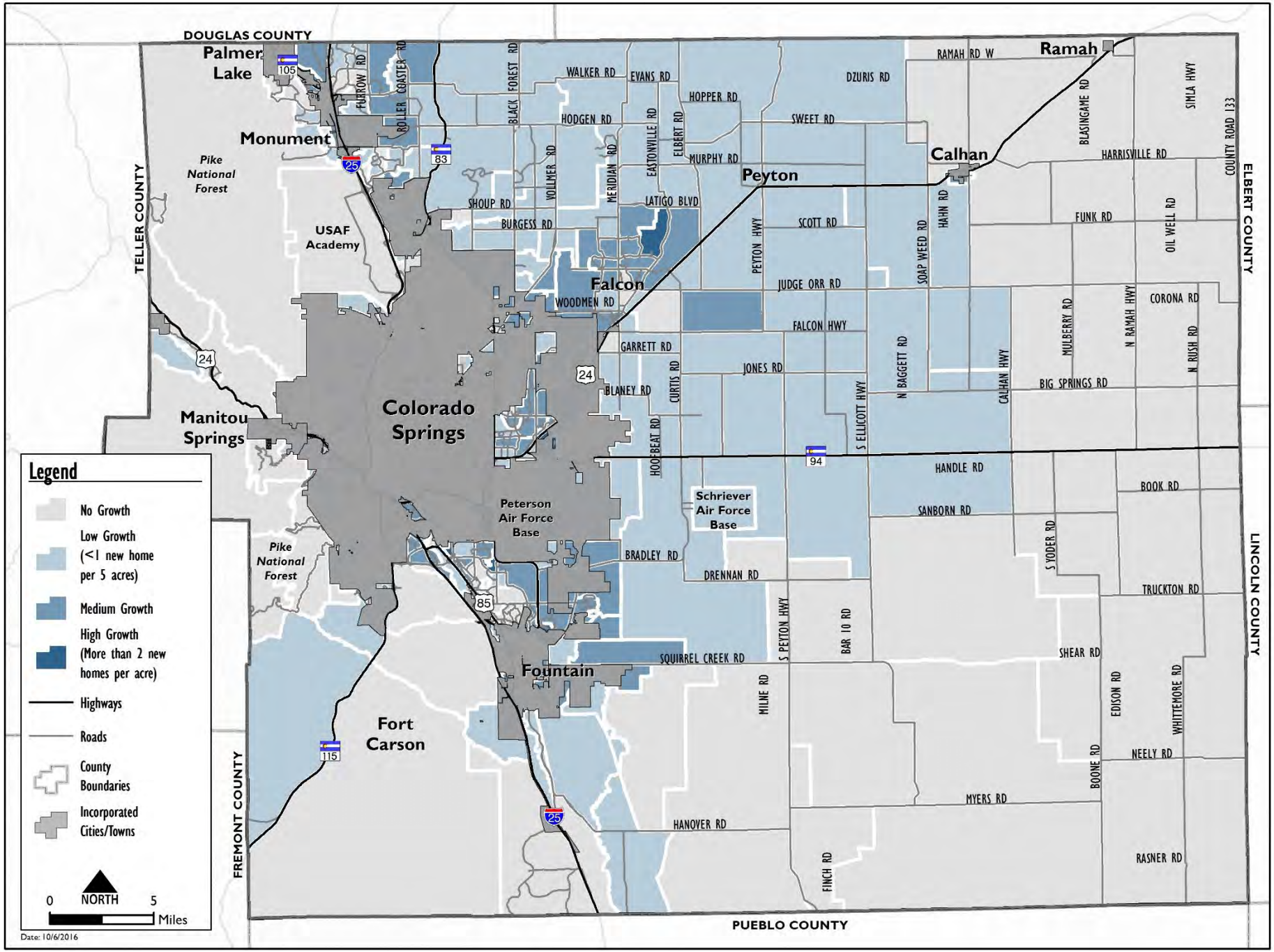


Figure 1: Household Growth in the County



Map 2: 2010-2040 Household Growth

Employment Growth

As shown in Table 3, employment in unincorporated El Paso County is expected to grow at a higher rate than the incorporated portions of the County. Figure 2 and Map 3 illustrate the estimated growth. As shown on the maps, much of the anticipated growth is focused around the Highway 24 and Highway 94 corridor, including Schriever Air Force Base (AFB). While Table 3 shows overall employment, the model incorporates different types of employment, including Basic Employment, Retail Employment, and Service Employment. Control totals of these categories of employment were maintained consistent with the PPACG model for the 2010 and 2040 forecasts, and the proportions were maintained for the 2030 and 2060 forecasts.

Table 3: Employment Growth Summary

	2010	2030	2040	2060	Growth 2010-2040	Annual Growth Rate 2010-2040
Employment - City	237,069	333,298	381,394	473,532	144,325	1.60%
Employment – Unincorporated County	46,709	86,346	102,241	130,200	55,532	2.65%
Employment - Total	**283,778**	**419,644**	**483,635**	**603,732**	**199,857**	**1.79%**

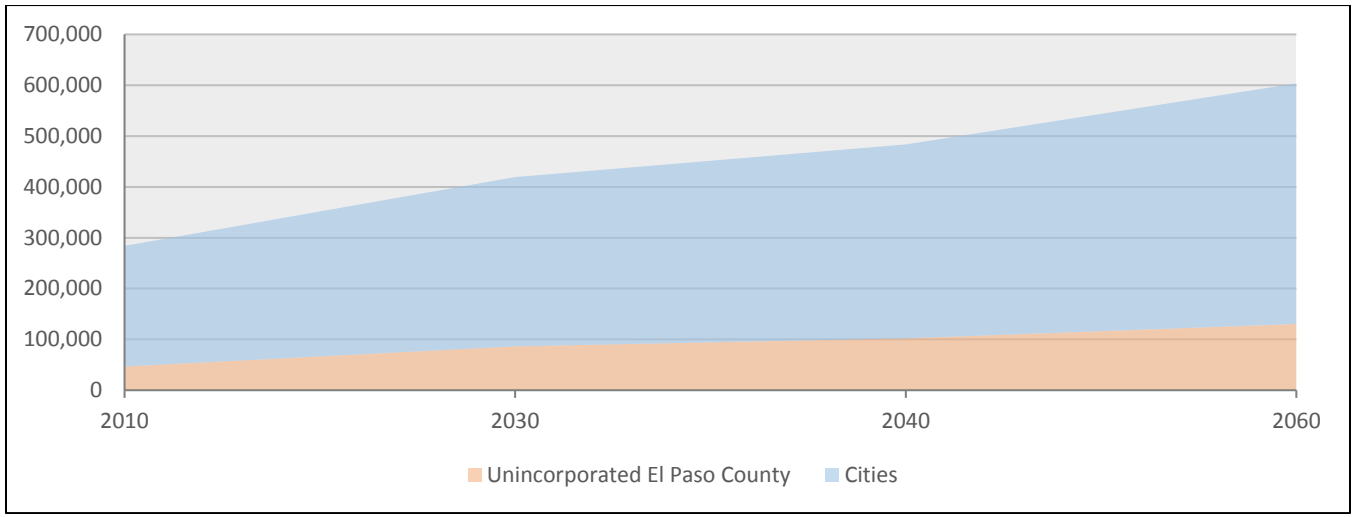
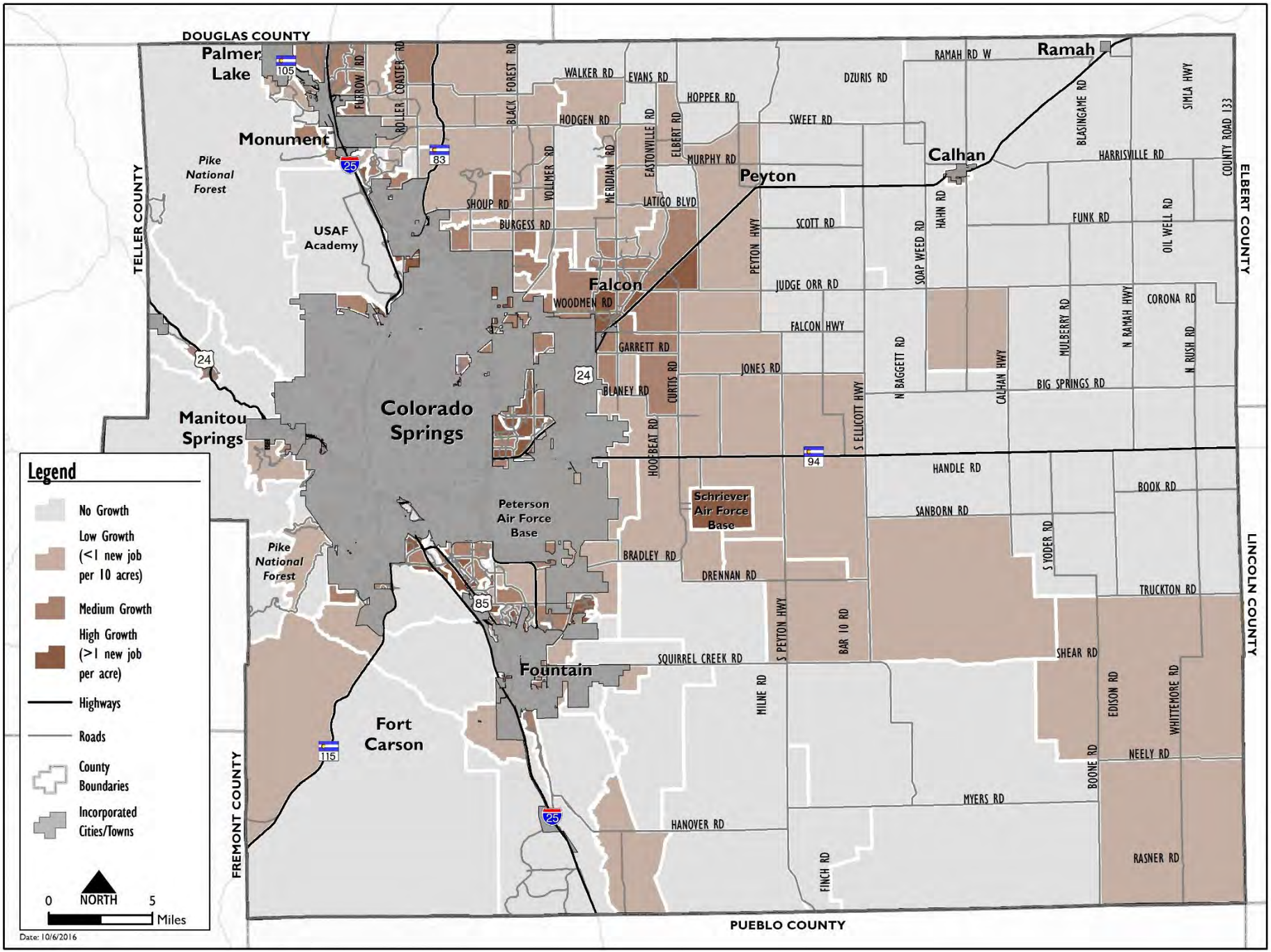


Figure 2: Employment Growth in the County



Map 3: 2010-2040 Job Growth

Areas of Uncertainty

Predicting the future allocation of households and jobs is very difficult to do with precision. While these scenarios have been developed based on reasonable assumptions that have been vetted by regional land use authorities, there are a number of sources of uncertainty in the forecasts. Any changes in these areas should be considered during the update process for future plans.

Banning-Lewis Ranch—This large ranch (21,000 acres) was annexed into Colorado Springs in 1988. While the original master plan called for 75,000 homes and 180,000 people, the original owner went bankrupt and the property was sold out of bankruptcy to an energy resources company, which was interested in exploring the property for energy resources. In 2014, most of the ranch was bought by Nor'wood Development Group. The area is still largely undeveloped, and the City is working with Nor'wood to re-evaluate the current annexation agreement for applicability to the current market and regional context. Future land use scenarios for this area are based on the current annexation agreement, so any changes will likely affect the County's roadway network along this edge of the City.

Mountain Metropolitan Transit (MMT) Service—The regional transit provider, MMT, is continually making changes to its service patterns to better serve residents. While service to unincorporated County areas is sparse right now, MMT could see expanded service if funding levels are increased in the future. Future changes to service routes or frequencies could affect both development patterns and reliance on personal vehicles in the County.

El Paso County Small Area Master Plan Updates—The County's Small Area Master Plans, which document growth forecasts and patterns at a more detailed level, are aging and in some cases, out of date. Four of the areas were last updated in the 1980s, one was updated in 1990, and the remaining three were updated since 2000, with the most recent being 2008. As these plans are systematically updated, the County will gather more detail from area residents and developers, and will be able to identify areas where developer interest and community preferences may drive future growth differently from this plan's assumptions.

City of Colorado Springs Comprehensive Plan Update—Likewise, an update to the City's Comprehensive Plan, which was last updated in 2001, is currently underway. The Comprehensive Plan update will include new projections about future density within the city, which could affect County infrastructure, especially at the edge of the City.

Military Base Expansion/Contraction—Significant changes at any of the five military installations in the County would likely affect future roadway needs. The County coordinates with representatives from the bases, but military planning can change with administrations, global factors, budgets, and other factors. If the military changes force structure at any of the installations as a part of a Base Realignment and Closure (BRAC) action or as an isolated decision, or if a base's mission expands substantially, it could significantly affect household and employment projections.

Water Availability—The recent completion of the Southern Delivery System ensures that the Colorado Springs area will have access to adequate water resources for several decades. Water availability is one of the key limiting factors for development in the County, so whether this water is available to communities in the unincorporated County could have a substantial impact on how development patterns progress into the future.

State and Federal Funding—State funding through CDOT and federal funding through CDOT, PPACG or direct funding to the County, may be a mechanism to help finance roadway and multimodal transportation improvement in the County, particularly on state highways. The availability of state and funding can vary significantly over time, as can the share of total funding that El Paso County can secure.

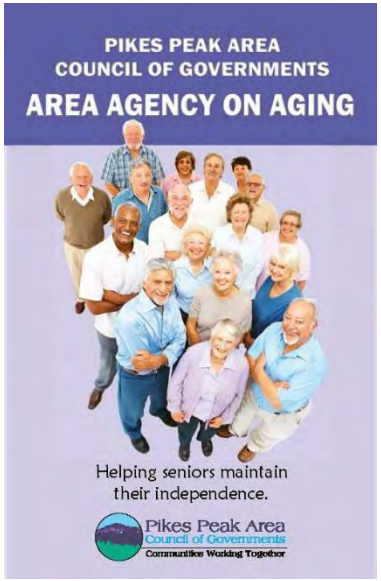
EMERGING TRENDS

In addition to the growth and development that the County is experiencing, there are key emerging trends that we need to be aware of to effectively plan for El Paso County transportation. This section focuses on two of these emerging trends: the aging population that requires targeted transportation services and emerging transportation technology that creates opportunities for the County's transportation future.

Aging Population

Per PPACG forecasts, the Pikes Peak region can expect an increase of 47 percent in the over-60 population between 2015 and 2030. The PPACG Area Agency on Aging focuses on initiatives to help the aging population to remain in their homes by removing barriers to independent living. Helping to provide suitable and safe transportation options plays a key role in fulfilling this goal. Examples of actions that El Paso County can take, in coordination with PPACG and other regional organizations to support this goal, include:

- Incorporate older drivers' capabilities and needs in roadway design including: clarity and size of regulatory signs, improved wayfinding and directional signing, and traffic signal visibility.
- Improved safety for older pedestrians including improved visibility and increased timing for street crossings and enhanced sidewalk facilities, particularly focused around retail, multifamily residential, medical and other land uses with high concentrations of older users.
- Continue coordinating with and providing referrals to transit service providers that offer mobility services to the aging population in the County, including Amblicab, El Paso Fountain Valley Senior Citizens Program, Goodwill Industries, Mountain Community Senior Services, and Rocky Mountain Health Care Services.

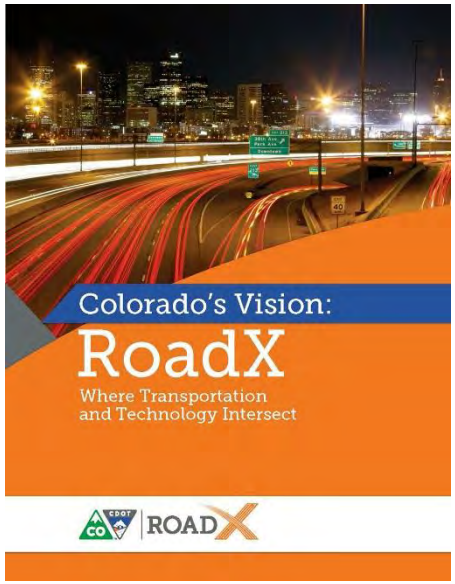


New Technology

Technology in transportation is moving quickly, with technological innovations in vehicles, the transportation network, and interactions between the two. Some new technologies are already seeing widespread implementation to improve safety and traffic flow in Colorado and elsewhere. Examples include:

- Variable message signs alerting drivers to real time weather and traffic conditions
- Ramp metering on freeways
- In-vehicle collision warning systems
- Variable traffic signal timing based on vehicle detection
- GPS navigation
- Real-time traffic condition smartphone applications

Other innovations with the potential to dramatically influence transportation in El Paso are certainly on the horizon, although the specific forms and timing of those innovations will evolve over time and cannot be predicted with certainty. Innovations will come in the form of vehicle connections to the roadway system, connections among vehicles and increasingly autonomous vehicles. Economic and technical innovations are combining the form of new vehicle sharing and ridesharing models.



CDOT has initiated the RoadX program focused to organize Colorado's effort to become a national leader in embracing technological advancements in transportation. By proactively coordinating with CDOT and other regional and local transportation agencies, El Paso County can incorporate technological innovations in its transportation planning process as the industry evolves.

SUMMARY

There are several areas of uncertainty and emerging trends that can significantly influence the extent and timing of roadway system and alternative transportation mode improvements. That is why it is important for the County to review and update plans on a regular basis.

CHAPTER IV. 2040 MAJOR TRANSPORTATION CORRIDORS PLAN

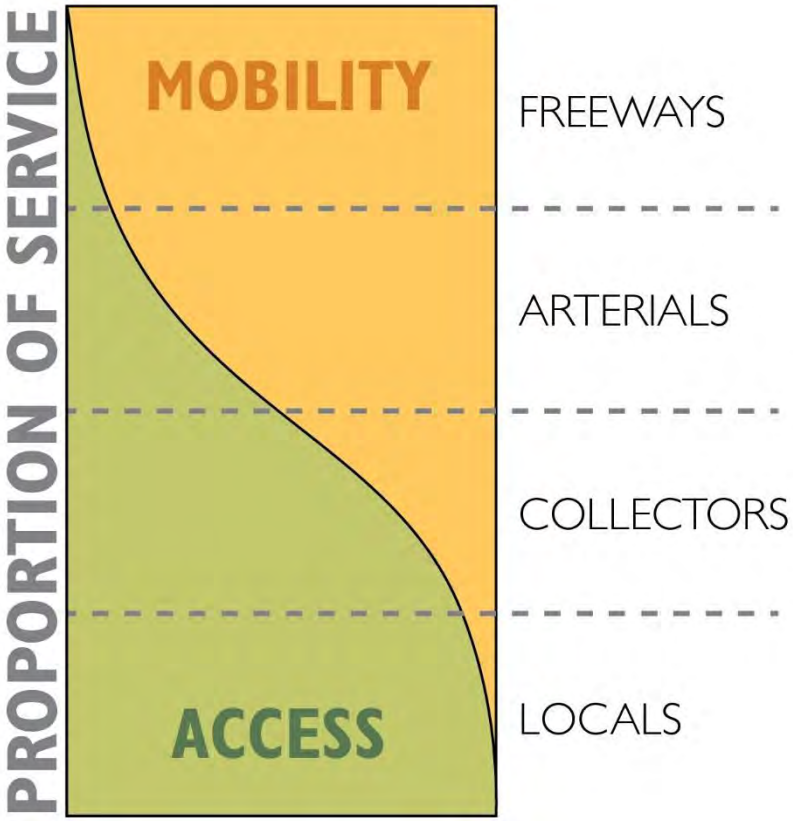
This chapter provides a description of the El Paso County roadway system, evaluates current and future demands on the roadway system, and identifies roadway improvement needs to accommodate future travel.

ROADWAY FUNCTIONAL CLASSIFICATIONS AND DESIGN STANDARDS

Roads generally provide two important functions: mobility and access. The County's roadway system consists of a hierarchy of road types ranging from freeways that solely provide a mobility function to local streets that solely provide an access function.

The classification of a roadway reflects its role in the County's street and highway system and forms the basis for street design guidelines and standards. The roadway functional classes in the 2016 MTCP represent a desired function based on the character of service they are intended to provide for the year 2040. The character of service includes attributes such as traffic volumes, trip lengths, speeds, and relationship to adjacent land use. Existing roadways may not meet all of the desired characteristics implied by their function, but strategic improvements can serve to fulfill the vision over time.

As proposed roadway improvements are planned and developed, the guidelines and standards associated with their classification and function should be considered to the degree practical and appropriate. The County's roadway design standards are provided in the Engineering Criteria Manual (ECM). Local jurisdictions and CDOT each have roadway design standards applicable to the streets under their jurisdiction.



Roadway Functional Class Descriptions

Roadway classifications are summarized below. These classifications reflect El Paso County definitions and are different from those identified by the Federal Highway Administration. Furthermore, a road's functional classification may be either current, future, or both, recognizing that roads can change function to some degree as improvements are made.

***Freeways*:** Roadways that serve high-speed and high volume regional traffic. Access to a Freeway is limited to grade separated interchanges with no mainline traffic signals.

***Expressways*:** Roadways that serve high-speed and high-volume traffic over long distances. Access to an Expressway will be highly controlled and may have both grade-separated interchanges and signalized intersections. Adjacent land uses, both existing and future, shall be served by other network roadways.

***Principal Arterials*:** Roadways that serve high-speed and high-volume traffic over long distances. Access is highly controlled with a limited number of intersections, medians with infrequent openings, and no direct parcel access. Adjacent land uses, both existing and future, shall be served by other network roadways, service roads and inter parcel connections.

***Minor Arterials*:** Roadways that currently serve high-speed and high-volume traffic over medium distances. Access is restricted through prescribed distances between intersections, use of medians, and no or limited direct parcel access.

***Collectors*:** Roadways that serve as links between local access facilities and arterial facilities over medium-to-long distances, outside of or adjacent to subdivision developments. Collectors are managed to maximize the safe operation of through-movements and to distribute traffic to local access.

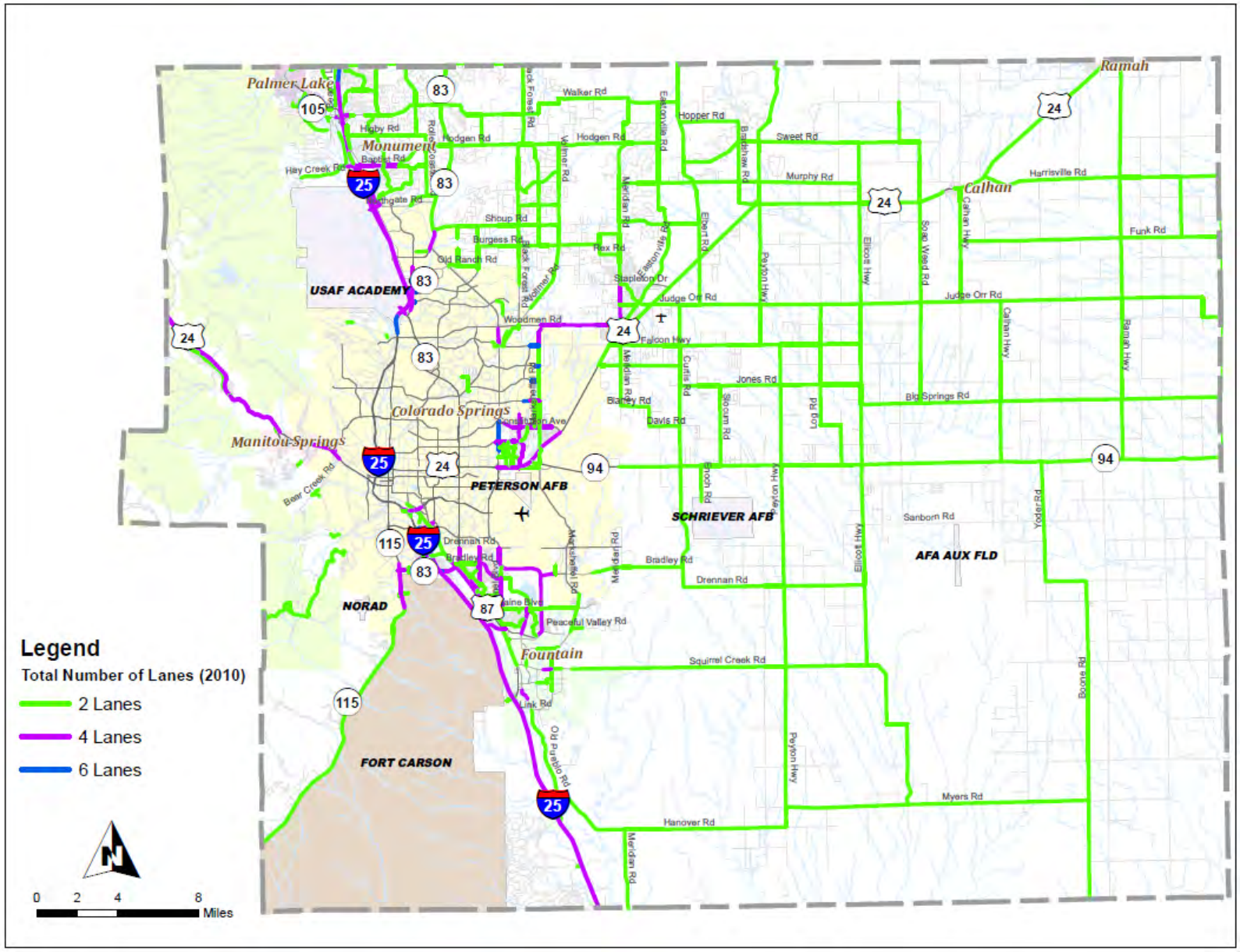
***Locals*:** Roadways that provide direct parcel access and deliver parcel generated trips to the collector network.

(Note: Local streets are not the focus of this plan. The MTCP focuses on freeway through collector classified streets, which comprise the "major street system." Local streets are typically built by developers as land is developed.)

EXISTING ROADWAY SYSTEM

Map 4 depicts the County's existing roadway system, indicating each road's current classification. In addition to the network of County roads, the map shows that several of the major roads are U.S. or state highways that are maintained by CDOT, including Interstate 25 (I-25), US 24, State Highway 83 (SH 83), SH 94, SH 105, SH 115 and SH 121 (Powers Boulevard).

Map 4 also shows the number of through lanes on each road. Many roads in the County have two through lanes (one in each direction), with four and six lanes provided on I-25 and four-lane sections provided on the busiest sections of state and County expressways and arterial streets.



Map 4: Existing Roadway System (Classification and Lanes)

ROAD LEVEL OF SERVICE

A commonly used measure of the performance of a roadway or intersection is level of service (LOS). Roadway LOS is measured on a scale from A to F, where "A" represents the best operations with essentially no congestion. LOS "F" represents poor LOS with severe congestion. LOS is generally reported for the peak hour of a roadway, often representing a morning or afternoon commuting rush hour. Although the exact level of traffic that can be accommodated at different LOS varies for individual roads depending on specific road and traffic characteristics, capacity thresholds can be developed to measure the LOS or level of congestion on different types of roads at a planning level. Planning-level daily traffic volume thresholds were developed for different LOS and different roadway classifications. The County's goal is to maintain LOS D or better on each roadway segment. Poorer LOS of E or F represent congested conditions and indicate the need to consider improvements, including additional travel lanes, improving the road to a higher classification, or implementing access management.

Planning-level traffic volume thresholds were also developed for Unimproved County Roads and Gravel Roads. Unimproved County Roads are collector or arterial roadways that have a paved surface but lack basic features such as turn lanes, shoulders, or adequate pavement surfaces or drainage. Unimproved County Roads are deemed to be "deficient" if they carry in excess of 6,000 vehicles per day (vpd). Many of the County's roads are Gravel Roads. Without a paved surface, Gravel Roads are not designed to carry substantial volumes of traffic, thus they are deemed to be "deficient" with more than 300 vpd.

Existing and forecasted traffic volumes were compared to these traffic volume thresholds to determine what improvements are expected to be needed. Specifically, paved roads characterized as congested with LOS E or F, and unimproved or gravel roads characterized as deficient were identified as needing improvement.

Existing Needs Assessment

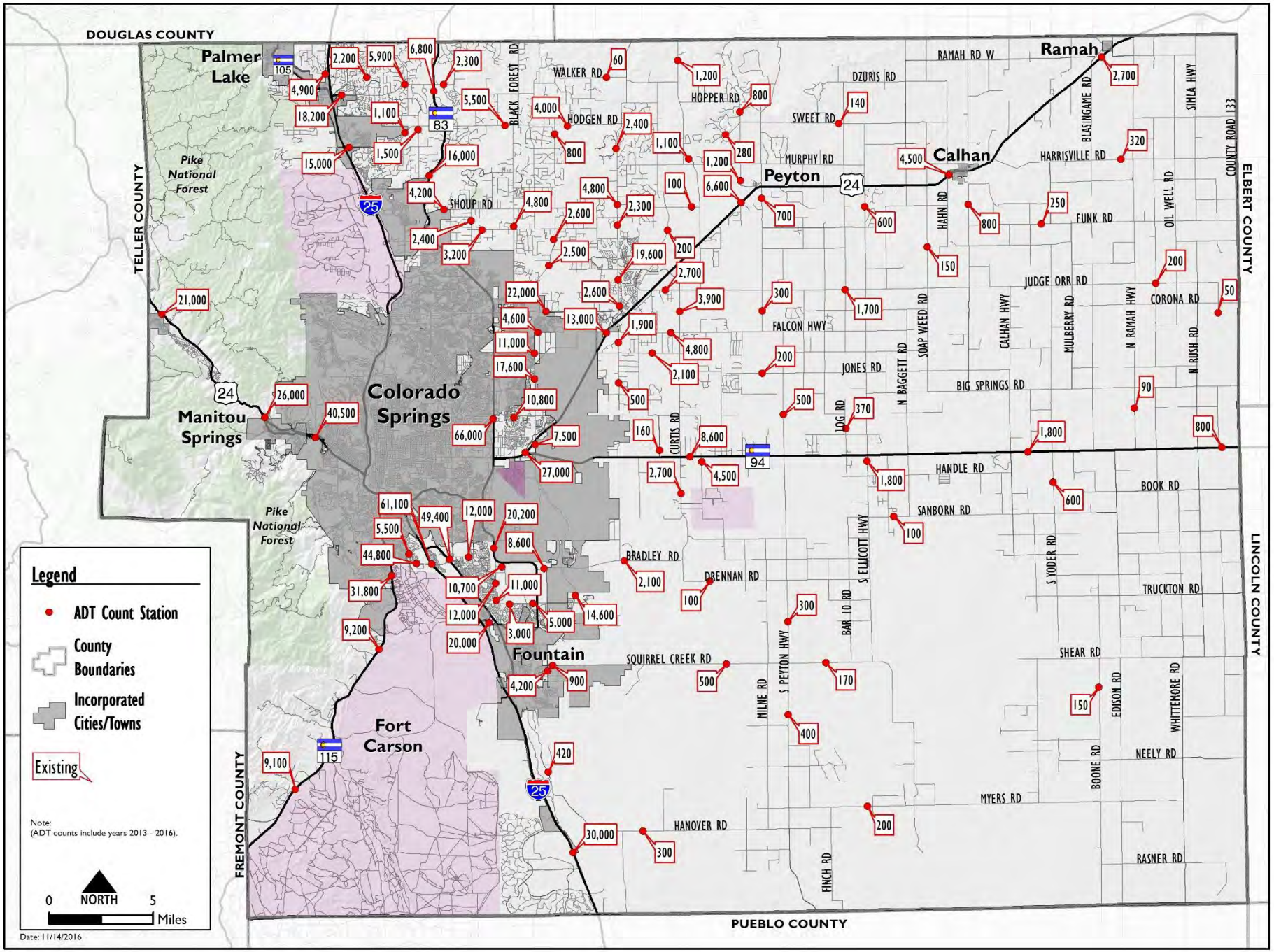
The County's extensive traffic count data, supplemented by CDOT and PPACG data, were assembled to understand the traffic volumes on the major road system.

Map 5 shows a sampling of existing daily traffic volumes on road segments throughout the County. Existing traffic volumes were compared with lanes, functional classification and the planning-level traffic capacity thresholds described in previous sections to assess existing congestion levels.

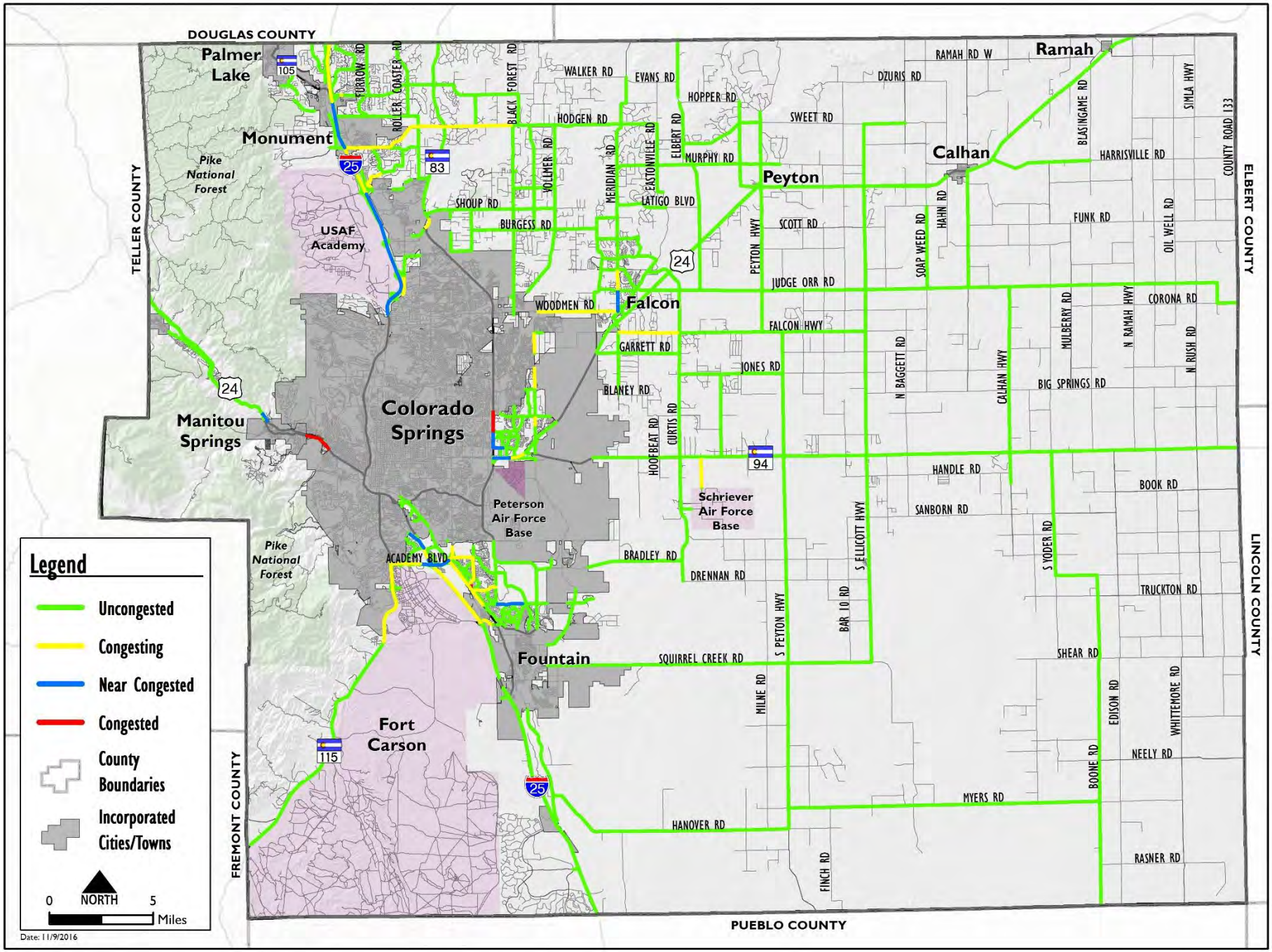
Map 6 identifies road segments that are Congested (LOS E or F), Near Congested (LOS D), Congesting (LOS C) or Uncongested (LOS A or B). The roads identified in red as Congested are ones that need short-range capacity upgrades. Roads identified as currently being Congested include relatively short segments of US 24 west, SH 21 (Powers Boulevard), Marksheffel Road and Meridian Road.

Map 7 highlights all gravel roads on the major county road system (arterials or collectors). Gravel roads that currently carry more than 300 vpd are shown in red as Deficient, including segments of Blaney Road, North Log Road and Harrisville Road.

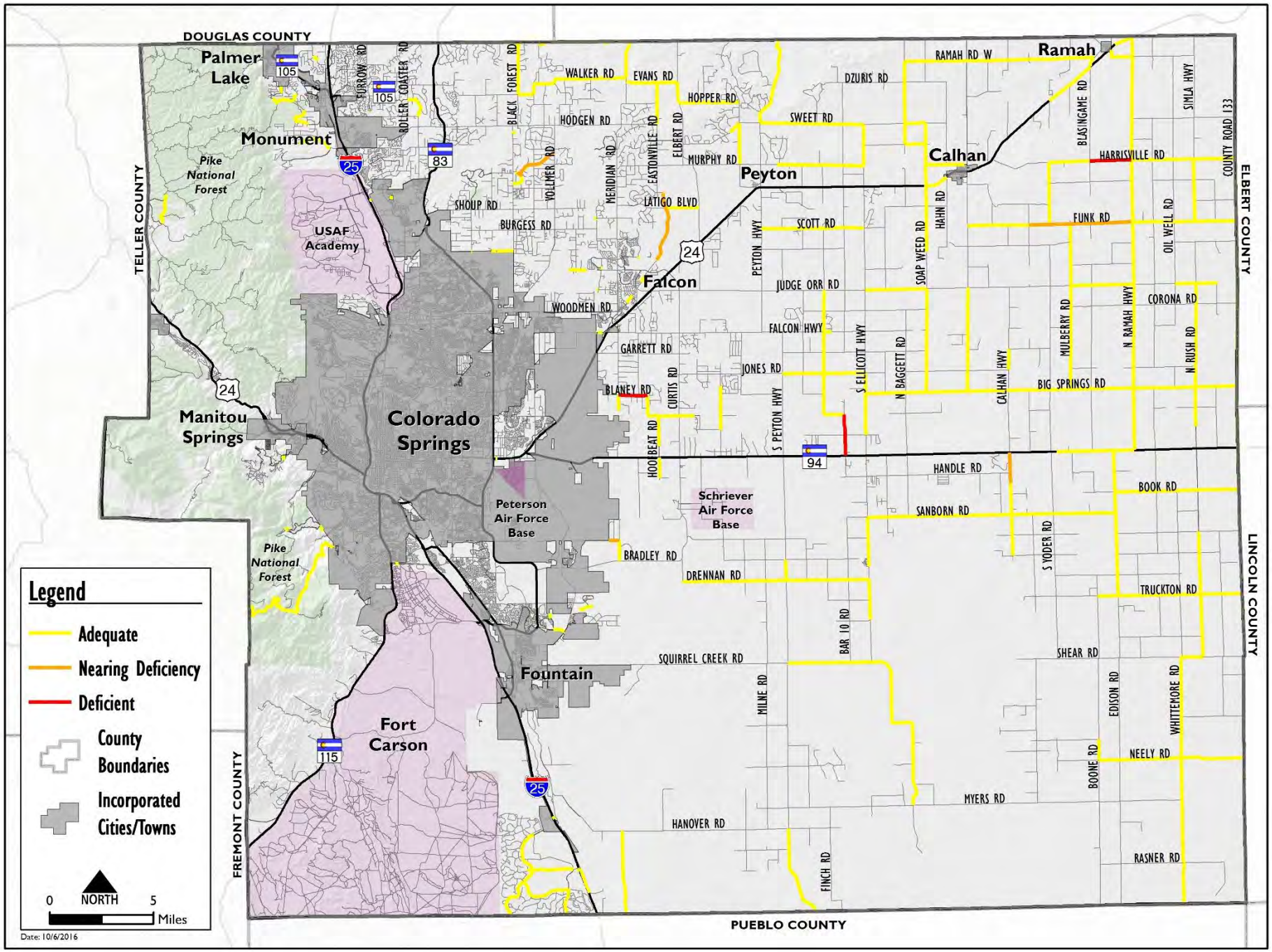
Map 8 highlights unimproved roads, which again are roads that are paved but are substandard due to lack of turn lanes, shoulders or adequate pavement surfaces or drainage.



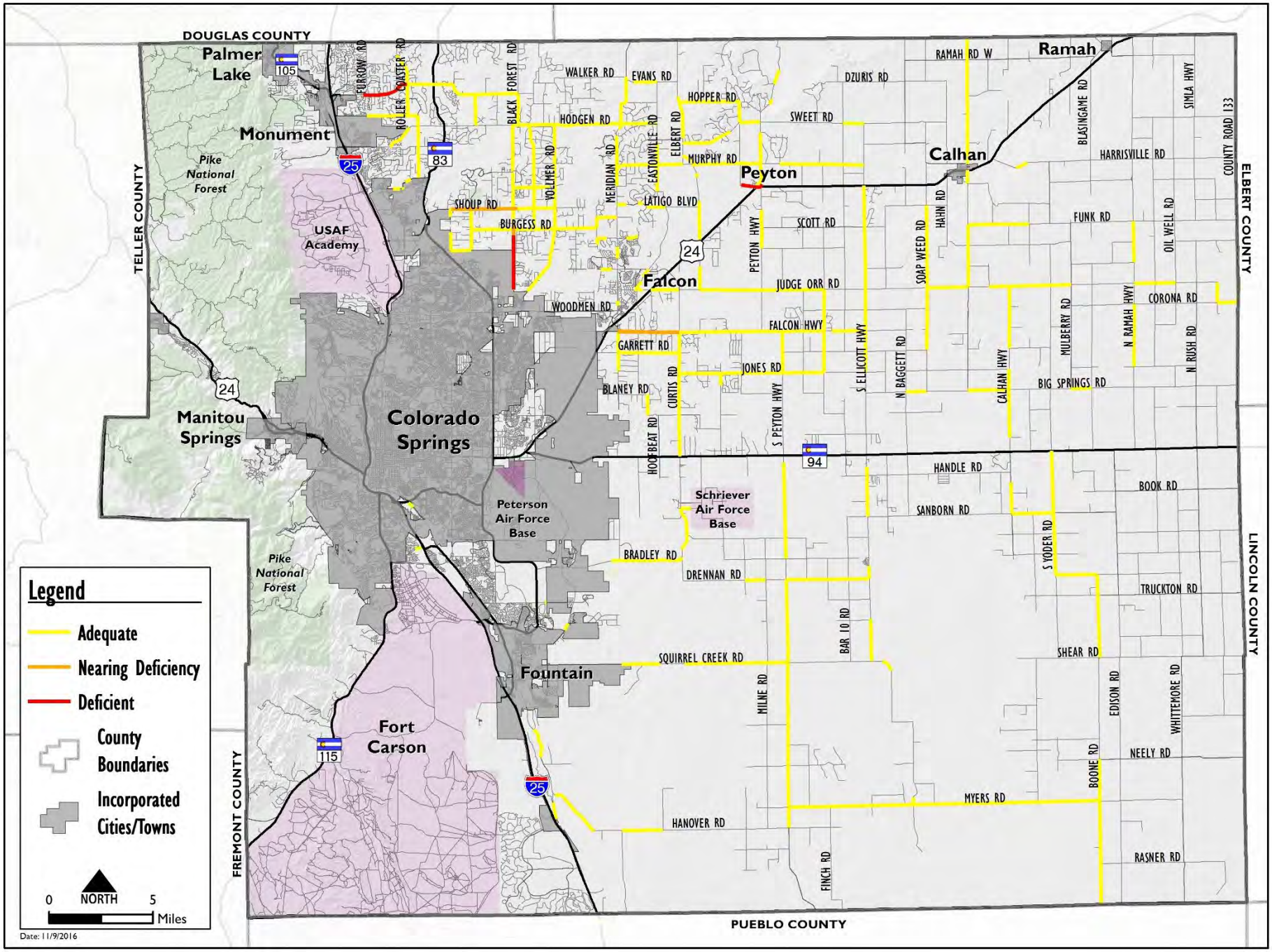
Map 5: Existing Traffic Volumes



Map 6: Existing Capacity Analysis



Map 7: Existing Gravel Roads – Analysis



Map 8: Existing Unimproved Roads – Analysis

2040 Forecasts

The PPACG regional travel model was used to develop traffic forecasts for the plan year 2040. As the metropolitan planning organization for the Pikes Peak Region, PPACG maintains a regional travel model as a tool for regional, county and city transportation planners to forecast travel demand in the region. 2040 is currently the PPACG long-range planning horizon matching the horizon year for this MTCP update. As described in Chapter III, PPACG household and employment forecasts were adjusted in some El Paso County locations based on current development patterns and stakeholder input.

Travel associated with projected 2040 household and employment was modeled using an "existing-plus-committed" roadway network. The PPACG base year roadway network was supplemented with a small number of projects which either have been recently completed (I-25 widening from Academy Boulevard to Monument), are funded and programmed to be constructed in the short-range future (SH 21 widening from US 24 East to Fountain Boulevard) or were needed to provide a viable route for travel demand that is included in the model (Banning Lewis Parkway and key east-west connectors in the Banning-Lewis Ranch).

Travel model results were adjusted based on calibration procedures prescribed by PPACG and resulting 2040 daily traffic forecasts are shown on Map 9. Comparisons between existing traffic volumes and 2040 forecasts show that growth percentages on most County roads is projected to be in the 50 to 100 percent range.

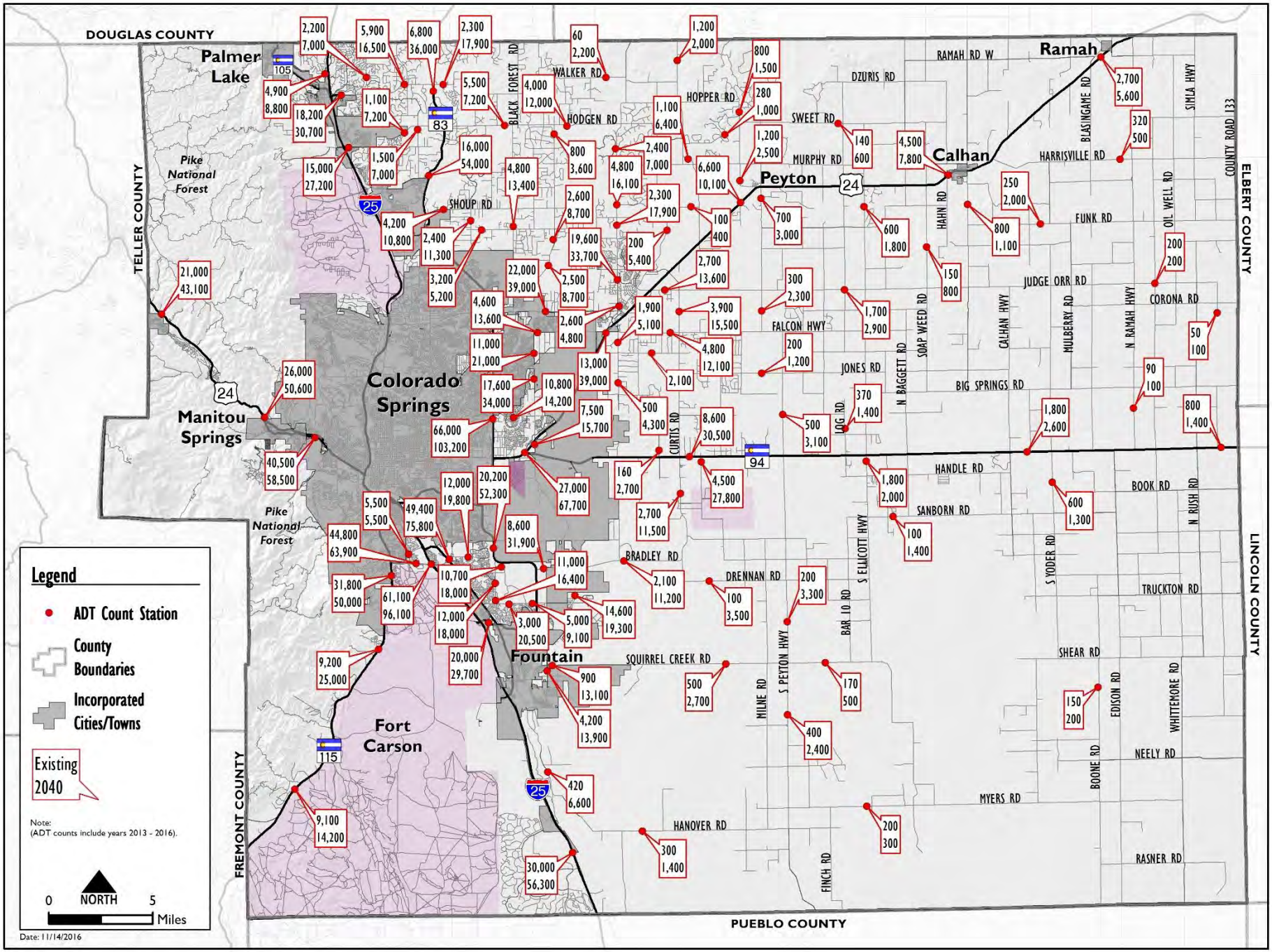
2040 Needs Assessment

Road improvement needs for 2040 were assessed using similar capacity and deficiency thresholds as described for existing conditions.

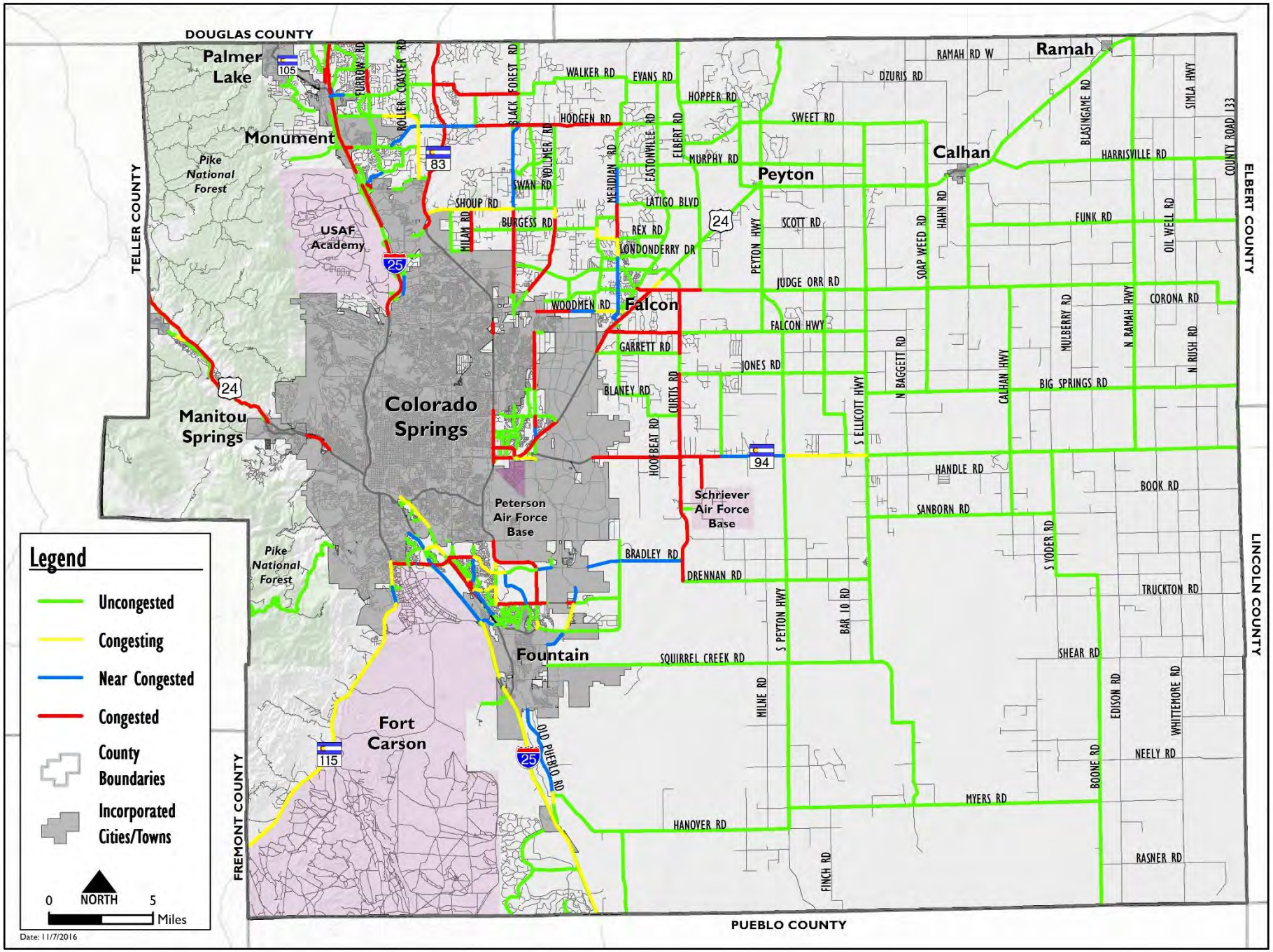
Map 10 shows the results of the capacity analysis based on 2040 forecasts and the existing plus committed roadway network. Congested conditions are projected on segments of approximately 20 roadways in the western and central parts of the County.

Map 11 shows the results of the gravel road analysis. The analysis shows approximately a dozen gravel roads projected to be in the deficient category based on projected traffic volumes.

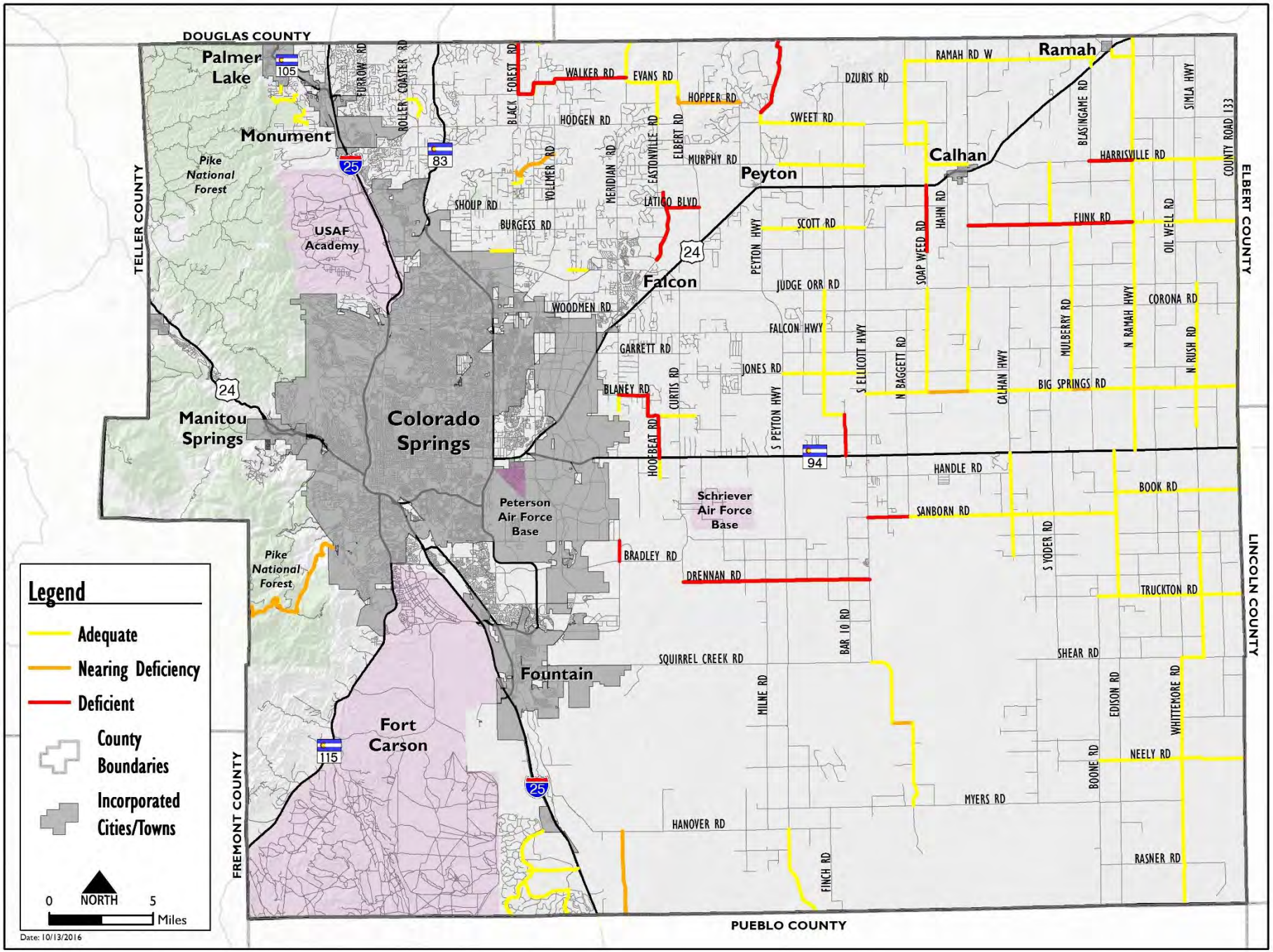
Map 12 shows the results of the unimproved road analysis. Many unimproved roads identified as deficient also showed up on Map 10 as being congested, but several additional roads are identified as deficient on Map 12 due to the lower volume threshold established for unimproved roads.



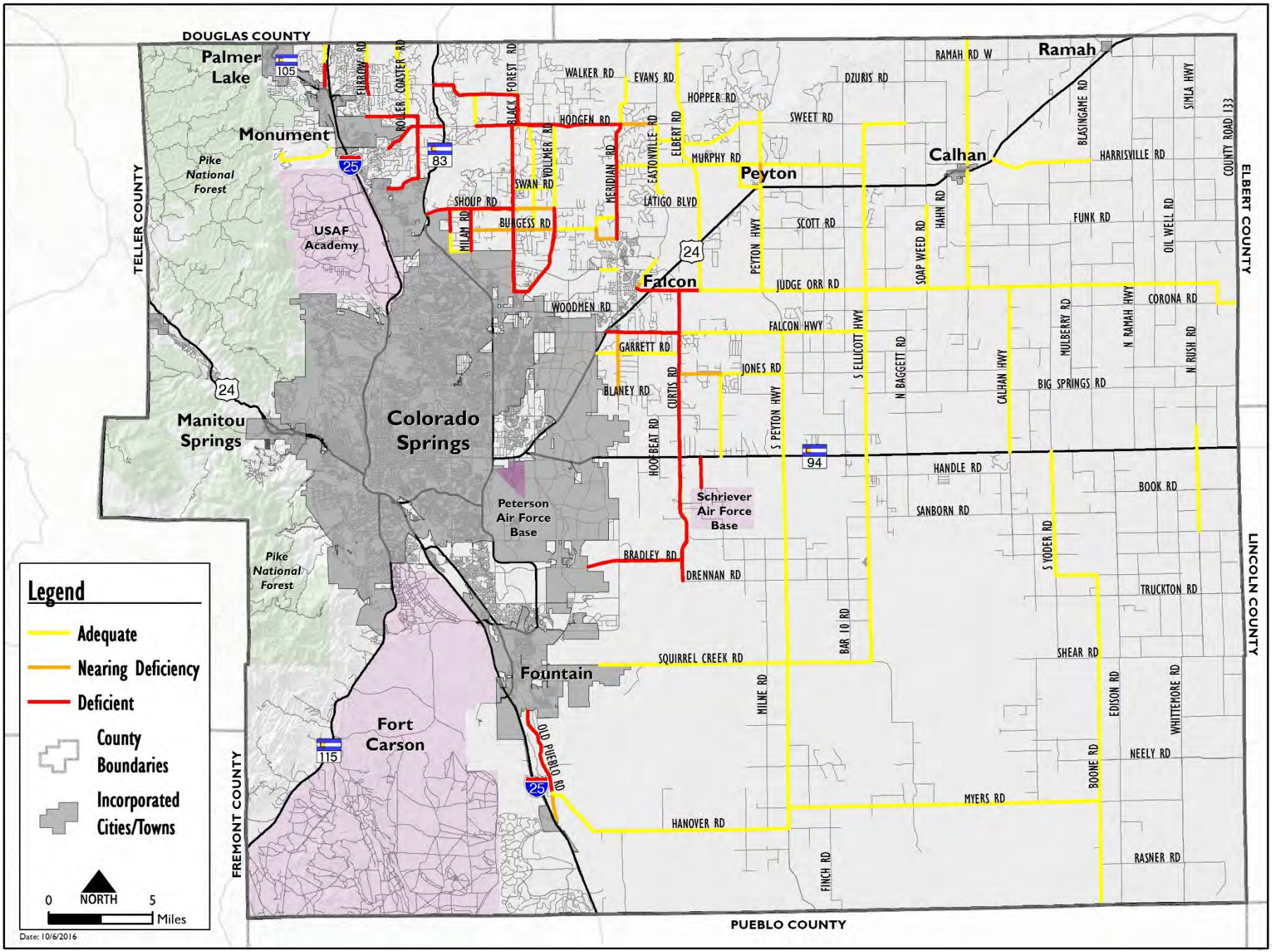
Map 9: Existing and 2040 Traffic Volumes



Map 10: 2040 Capacity Analysis – Existing Plus Committed Network



Map 11: 2040 Gravel Road Analysis



Map 12: 2040 Unimproved Road Analysis

2040 Roadway Plan

This section presents the 2040 roadway improvement plan to address the congestion and deficiencies identified in the needs assessment process.

Improvement Categories

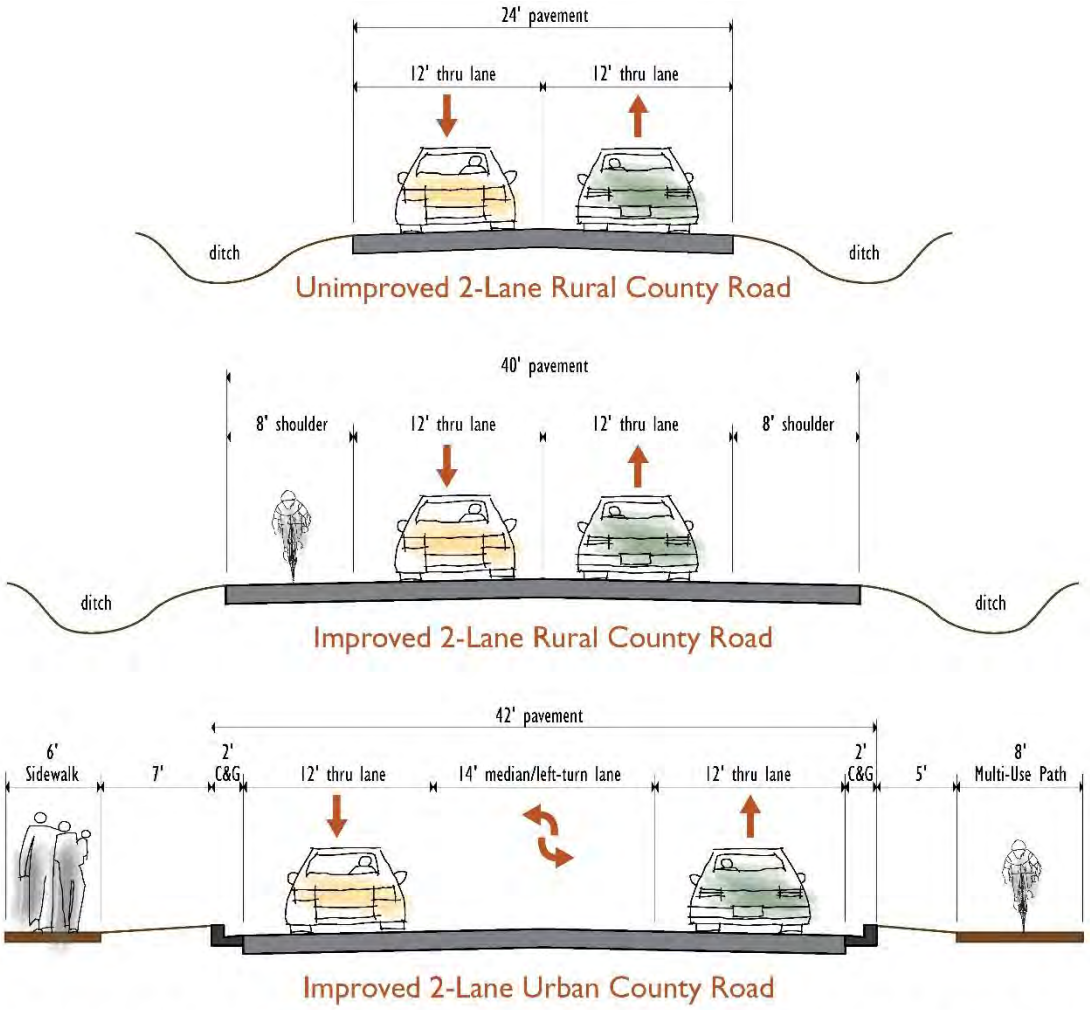
The plan identifies five categories of roadway improvements:

- ***Paving/Repaving Projects*:** These projects primarily include paving of gravel roads. In some cases, they involve repaving of currently paved roads but whose paving has been rated as poor.

***Rural County Road Upgrades*:** These are projects to improve unimproved two-lane paved rural county roads by adding needed turn lanes, shoulders and improved alignments to bring them up to County road standards, including Departments of Public Works, Planning & Community Development, and Parks standards.

Figure 3 illustrates typical road sections for an unimproved 2-lane rural road, followed by typical improved sections in a rural and an urban part of the County. For planning purposes, the parts of the unincorporated County with higher densities are considered urban and urban street sections may be appropriate; however, the County will determine specific boundaries for urban versus rural treatments based on the context of each road segment at the time of road construction or reconstruction.

- ***New Road Connections*:** Several new road connections have been identified to improve accessibility or safety or to relieve congestion on other routes. Connections were identified based on previous planning, 2016 needs assessment, and stakeholder input.
- ***State Highway Capacity Improvements*:** Capacity improvements typically involve widening to add through lanes. More focused design studies may identify additional turn lanes, improved access control, grade separations or other operational or physical improvements in addition to or as an alternative to adding through lanes.
- ***County Road Capacity Improvements***: These are the same types of capacity improvements as those described for State Highways. State Highway and County Road capacity improvements are distinguished on maps and in project lists because of different agency responsibilities for funding, design and implementation.



NOTE: These are representative road sections. Specific dimensions and design will be determined in coordination with Departments of Public Works, Planning & Community Development, and Parks, and their respective standards.

Figure 3: Typical 2-Lane Road Sections

Roadway Plan

A total of 67 different projects have been identified as being needed by the year 2040. These projects are shown on Map 13 and listed on Table 4, with each project numbered within each improvement category. Capacity improvement projects are concentrated in the developing urban/suburban western part of the County, while paving projects are spread throughout the County with several in the eastern part.

Map 14 shows the 2040 Roadway Plan that results from the implementation of the improvements described above. The map shows road laneage and classification envisioned in 2040 if all 67 projects are implemented.

Table 4: 2040 Roadway Improvement Projects

Project ID	Road Segment	Segment		PPRTA Project	Urban vs. Rural	Existing Conditions		Future Conditions		Total Cost
		Beginning	End			Lanes	Functional Class	Lanes	Functional Class	
Paving Improvement Projects										
P1	Black Forest Rd	Walker Rd	County Line Rd		Rural	2	Gravel Road	2	Unimproved County Rd	$1,954,000
P2	Walker Rd	Black Forest Rd	Meridian Rd		Rural	2	Gravel Road	2	Unimproved County Road	$4,899,000
P3	Sweet Rd	Peyton Hwy	Ellicott Hwy		Rural	2	Gravel Road	2	Unimproved County Road	$6,431,000
P4	Harrisville Rd	Blasingame Rd	Ramah Hwy		Rural	2	Gravel Road	2	Unimproved County Road	$1,601,000
P5	Funk Rd	Calhan Hwy	Ramah Hwy		Rural	2	Gravel Road	2	Unimproved County Road	$7,913,000
P6	Eastonville Rd	Eastonville Loop	Londonderry Dr		Rural	2	Gravel Road	2	Unimproved County Road	$1,284,000
P7	Blaney Rd S	Meridian Rd	Hoofbeat Rd		Rural	2	Gravel Road	2	Unimproved County Road	$1,125,000
P8	Drennan Rd	Curtis Rd	Ellicott Hwy		Rural	2	Gravel Road	2	Unimproved County Road	$7,148,000

Table 4: 2040 Roadway Improvement Projects

Project ID	Road Segment	Segment		PPRTA Project	Urban vs. Rural	Existing Conditions		Future Conditions		Total Cost
		Beginning	End			Lanes	Functional Class	Lanes	Functional Class	
P9	Sanborn Rd	Ellicott Hwy	Baggett Rd		Rural	2	Gravel Road	2	Unimproved County Road	$1,566,000
P10	Log Rd	90-degree bend	SH 94		Rural	2	Gravel Road	2	Unimproved County Road	$1,550,000
P11	Latigo Blvd	Eastonville Rd	Elbert Rd		Rural	2	Gravel Road	2	Unimproved County Road	$1,297,000
P12	Hoofbeat	Blaney Rd S	SH 94		Rural	2	Gravel Road	2	Unimproved County Road	$2,756,000
P13	Soap Weed Rd	South of US 24	Beg. of Paved section		Rural	2	Gravel Road	2	Unimproved County Road	$2,495,000
Paving Projects Total										**$42,019,000**
Resurfacing Projects										
R1	Boone Rd	Fossinger Rd	Myers Rd		Rural	2	Unimproved County Road	2	Unimproved County Road	$11,647,000
R2	Sweet Rd	Elbert Rd	Peyton Hwy		Rural	2	Unimproved County Road	2	Unimproved County Road	$1,633,000
R3	Murphy Rd	Eastonville Rd	Bradshaw Rd		Rural	2	Unimproved County Road	2	Unimproved County Road	$1,622,000
R4	Chamberlin South	B St	End of street	B	Rural	2	Unimproved County Road	2	Unimproved County Road	$112,000
R5	Fountain Mesa Rd	Caballero Ave	Fontaine Blvd	B	Rural	2	Unimproved County Road	2	Unimproved County Road	$355,000
Resurfacing Projects Total Cost										**$15,369,000**

Table 4: 2040 Roadway Improvement Projects

Project ID	Road Segment	Segment		PPRTA Project	Urban vs. Rural	Existing Conditions		Future Conditions		Total Cost
		Beginning	End			Lanes	Functional Class	Lanes	Functional Class	
County Road Upgrades										
U1	Curtis Rd	Judge Orr Rd.	SH 94		Rural	2	Unimproved County Road	2	Principal Arterial	$35,549,000
U2	Curtis Rd	SH 94	Drennan Rd		Rural	2	Unimproved County Road	2	Minor Arterial	$23,379,000
U3	Bradley Rd	COS City Limit	Curtis Rd		Rural	2	Unimproved County Road	2	Minor Arterial	$24,252,000
U4	Old Pueblo Rd	Fountain City Limits	I-25	B	Rural	2	Unimproved County Road	2	Collector	$16,722,000
U5	Falcon Hwy	US 24	1 mi east of Curtis Rd		Rural	2	Unimproved County Road	2	Minor Arterial	$16,509,000
U6	Hodgen Rd	Goshawk Rd	Meridian Rd.	B	Rural	2	Unimproved County Road	2	Minor Arterial	$7,698,000
U7	Baptist Rd	Desiree Dr	Roller Coaster Rd		Rural	2	Unimproved County Road	2	Collector	$5,286,000
U8	Hodgen Rd	Black Forest Rd	Bar X Rd	B	Rural	2	Unimproved County Road	2	Minor Arterial	$5,053,000
U9	Hodgen Rd	Roller Coaster Rd	SH 83		Rural	2	Unimproved County Road	2	Minor Arterial	$3,518,000
U10	Meridian Rd	Hodgen Rd	Murphy Rd	B	Rural	2	Unimproved County Road	2	Minor Arterial	$7,763,000
U11	Black Forest Rd	Hodgen Rd	Stapleton Dr	B	Rural	2	Unimproved County Road	2	Minor Arterial	$22,714,000
U12	Vollmer Rd	Stapleton Dr	Shoup Rd	B	Rural	2	Unimproved County Road	2	Minor Arterial	$11,691,000

Table 4: 2040 Roadway Improvement Projects

Project ID	Road Segment	Segment		PPRTA Project	Urban vs. Rural	Existing Conditions		Future Conditions		Total Cost
		Beginning	End			Lanes	Functional Class	Lanes	Functional Class	
U13	Shoup Rd	SH 83	Black Forest Rd		Rural	2	Unimproved County Road	2	Minor Arterial	$15,019,000
U14	Milam Rd	Shoup Rd	Old Ranch Rd		Rural	2	Unimproved County Road	2	Minor Arterial	$9,447,000
U15	Walker Rd	Steppler Rd	Black Forest Rd		Rural	2	Unimproved County Road	2	Minor Arterial	$6,783,000
U16	Roller Coaster Rd	Hodgen Rd	Old Northgate Rd		Rural	2	Unimproved County Road	2	Minor Arterial	$11,697,000
U17	Higby Rd	Cloverleaf Rd	Roller Coaster Rd		Urban	2	Unimproved County Road	2	Minor Arterial	$6,514,000
U18	Beacon Lite Rd	SH 105	County Line Rd	A	Rural	2	Unimproved County Road	2	Collector	$5,321,000
U19	Eastonville Rd	Mclaughlin Rd	Latigo Blvd	A	Rural	2	Unimproved County Road	2	Minor Arterial	$18,420,000
U20	Monument Hill	Woodmoor Dr	County Line Rd	A	Rural	2	Unimproved County Road	2	Collector	$5,224,000
U21	Deer Creek Rd	Monument Hill	Woodmen Dr	A	Rural	2	Unimproved County Road	2	Collector	$879,000
County Road Upgrade Projects Total Costs										**$259,437.000**

Table 4: 2040 Roadway Improvement Projects

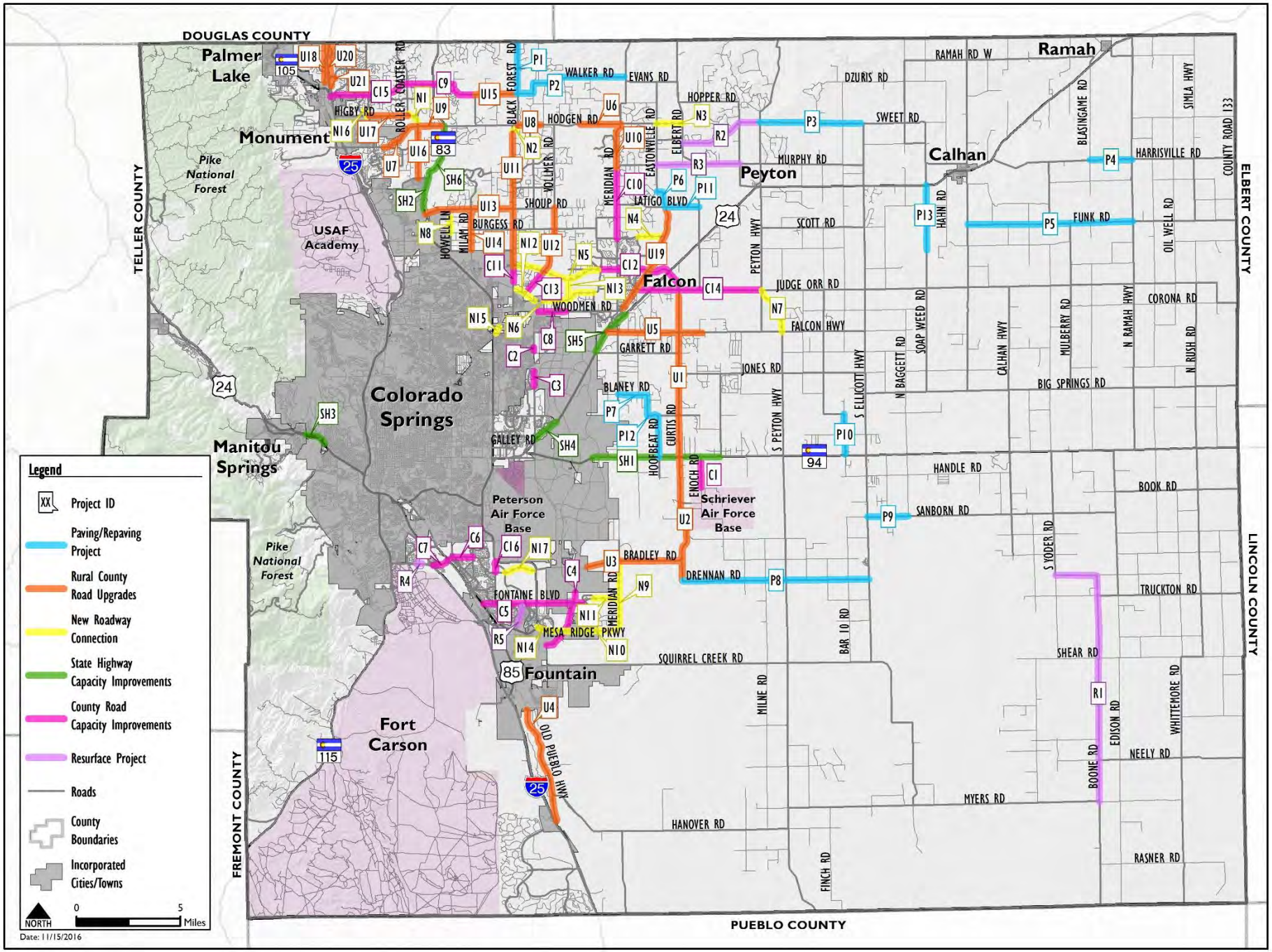
Project ID	Road Segment	Segment		PPRTA Project	Urban vs. Rural	Existing Conditions		Future Conditions		Total Cost
		Beginning	End			Lanes	Functional Class	Lanes	Functional Class	
State Highway Improvements										
SH1	SH94	City Limits	Slocum Rd		Rural	2	Principal Arterial	4	Principal Arterial	$31,129,000
SH2	US 83	Shoup Rd	Northgate Rd		Rural	4	Principal Arterial	6	Principal Arterial	$5,953,000
SH3	US 24 West	31st St	Manitou Interchange		Urban	4	Principal Arterial	4	Freeway	$9,045,000
SH4	US 24	Marksheffel Rd	Constitution		Urban	4	Principal Arterial	6	Expressway	$4,591,000
SH5	US 24	Garratt Rd	Woodmen Rd		Rural	4	Principal Arterial	6	Principal Arterial	$7,995,000
SH6	US 83	Northgate	Hodgen Rd		Rural	2	Principal Arterial	4	Principal Arterial	$10,742,000
State Highway Capacity Projects Total Costs										**$69,455,000**

Table 4: 2040 Roadway Improvement Projects

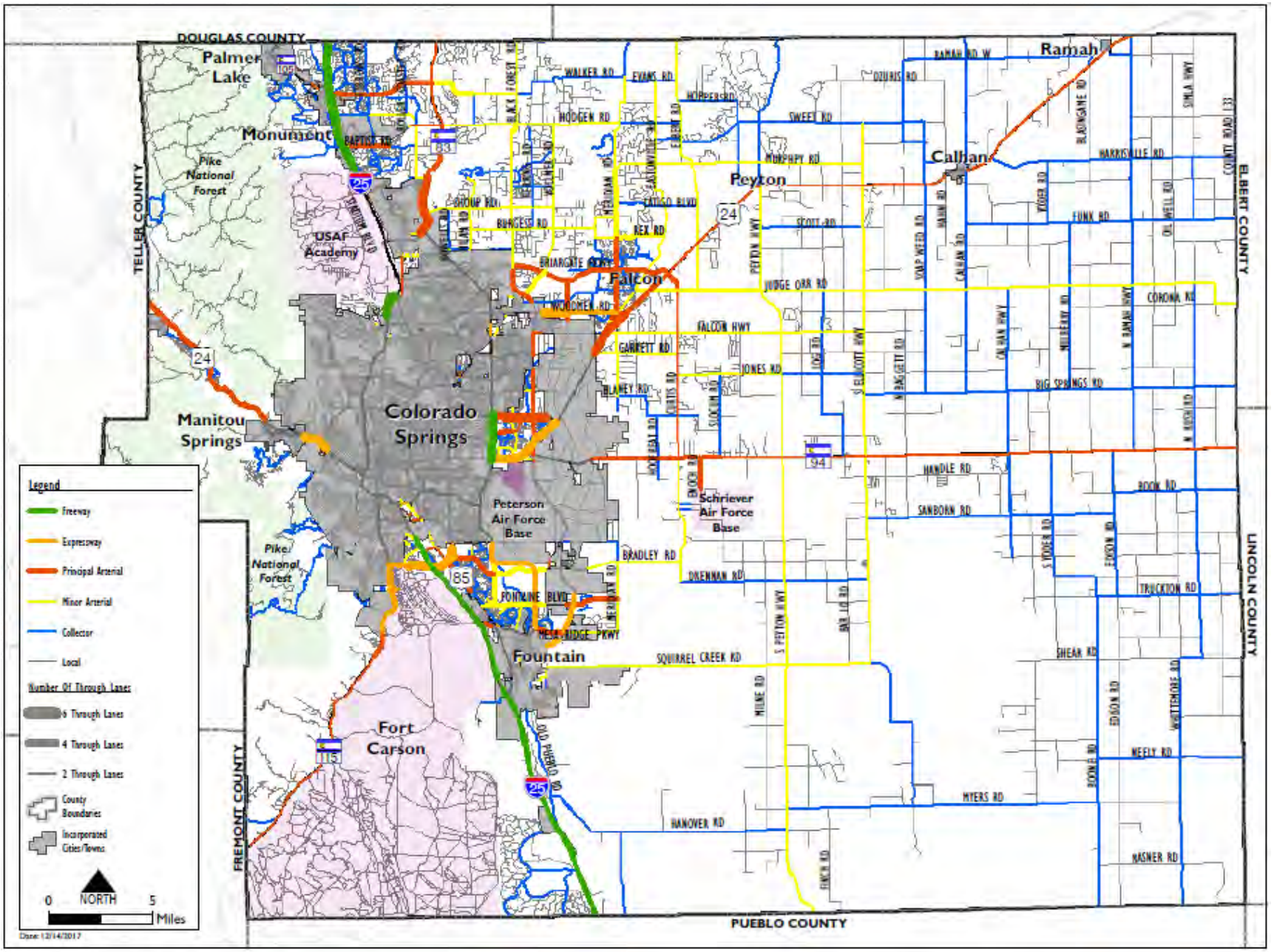
Project ID	Road Segment	Segment		PPRTA Project	Urban vs. Rural	Existing Conditions		Future Conditions		Total Cost
		Beginning	End			Lanes	Functional Class	Lanes	Functional Class	
County Road Capacity Improvements										
C1	Enoch Rd	SH 94	Schriever		Rural	2	Collector	4	Principal Arterial	$8,208,000
C2	Marksheffel Rd	Stetson Hills	2000 ft north		Urban	2	Principal Arterial	4	Principal Arterial	$3,526,000
C3	Marksheffel Rd	Barnes Rd	Carefree Cir. N		Urban	2	Principal Arterial	4	Principal Arterial	$8,864,000
C4	Marksheffel Rd	0.5 mi. north of Fontaine	Link Rd		Rural	2	Minor Arterial	4	Expressway	$20,816,000
C5	Fontaine	Marksheffel Rd	Easy St		Urban	2	Minor Arterial	4	Minor Arterial	$42,449,000
C6	Bradley Rd	Academy Blvd	Hancock Expy		Urban	2	Principal Arterial	4	Principal Arterial	$18,301,000
C7	Academy Blvd	I-25	Bradley Rd	A	Urban	4	Expressway	6	Expressway	$22,733,000
C8	Woodmen Rd	Marksheffel Rd	Banning Lewis		Urban	4	Principal Arterial	6	Expressway	$19,316,000
C9	Walker Rd	SH 83	Steppler Rd		Rural	2	Collector	4	Minor Arterial	$15,126,000
C10	Meridian Rd	Murphy Rd	Rex Rd	B	Rural	2	Collector	4	Minor Arterial	$21,081,000
C11	Black Forest Rd	Stapleton Dr	1300 ft south of Silver Pond Heights	B	Urban	2	Minor Arterial	4	Minor Arterial	$7,507,000
C12	Stapleton Dr	Towner	Judge Orr Rd.	B	Urban	2	Principal Arterial	4	Principal Arterial	$41,076,000
C13	Vollmer Rd	Marksheffel Rd	Stapleton Dr		Rural	2	Collector	4	Minor Arterial	$9,599,000
C14	Judge Orr Rd	Eastonville Rd	Peyton Hwy		Rural	2	Minor Arterial	4	Minor Arterial	$38,248,000
C15	Hwy 105	Knollwood Blvd	SH 83		Rural	2	Principal Arterial	4	Principal Arterial	$28,297,000
C16	Grinnell St	Powers Blvd	Bradley Rd	B	Rural	2	Minor Arterial	4	Minor Arterial	$3,807,000
County Road Capacity Projects Total Costs										**$319,856,000**

Table 4: 2040 Roadway Improvement Projects

Project ID	Road Segment	Segment		PPRTA Project	Urban vs. Rural	Existing Conditions		Future Conditions		Total Cost
		Beginning	End			Lanes	Functional Class	Lanes	Functional Class	
New Road Connections										
N1	Roller Coaster Rd	Eliminate jog in alignment			Rural			2	Minor Arterial	$4,118,000
N2	Black Forest Rd	Eliminate jog in alignment			Rural			2	Minor Arterial	$2,585,000
N3	Hodgen Rd	Eastonville Rd	Elbert Rd		Rural			2	Collector	$4,470,000
N4	Rex Rd	Rex Rd	Eastonville Rd		Urban			2	Collector	$6,359,000
N5	Stapleton Dr	Towner Rd	Black Forest Rd		Urban			4	Principal Arterial	$55,771,000
N6	Woodmen Hills Rd	Stapleton Dr	Raygor Rd		Urban			2	Collector	$12,296,000
N7	Peyton Hwy	Judge Orr Rd	Peyton Hwy		Rural			2	Collector	$8,365,000
N8	Howell Lane	Bridge over Kettle Creek			Rural			2	Collector	$8,130,000
N9	Meridian Rd	Bradley Rd	Mesa Ridge Pkwy		Rural			2	Minor Arterial	$11,312,000
N10	Mesa Ridge Pkwy	Marksheffel Rd	Meridian Rd		Rural			2	Minor Arterial	$5,216,000
N11	Fontaine Blvd	Fontaine Blvd	Meridian Rd		Urban			4	Principal Arterial	$11,217,000
N12	Marksheffel Rd	Woodmen Rd	Research Pkwy		Urban			4	Principal Arterial	$40,262,000
N13	Banning Lewis	Woodmen Rd	Stapleton		Urban			4	Principal Arterial	$11,131,000
N14	Mesa Ridge Pkwy	Powers Blvd	Marksheffel Rd	A	Rural			4	Principal Arterial	$14,170,000
N15	Tutt Blvd Extension	Dublin Blvd	Templeton Gap	A	Urban			4	Principal Arterial	$4,506,000
N16	Furrow Rd Ext	Lamplighter Dr	Higby Rd		Urban			2	Collector	$1,078,000
N17	Bradley Rd	Grinnell St.	Powers Blvd	B	Urban			2	Minor Arterial	$10,335,000
New Road Connections Total Project Costs										**$208,915,000**
Total Project Cost of County Improvements										**$845,596,000**
Total Cost for PPRTA A List Projects										**$68,847,000**
Total State Highway Improvements Cost										**$69,455,000**
Total Cost of All Projects										**$915,051,000**



Map 13: Roadway Improvement Projects



Map 14: 2040 Roadway Plan (Classification and Lanes)

Cost Estimates

Planning Level Cost Estimates—Table 4 summarizes the planning level cost estimates for implementing the improvements in the 2040 MTCP Roadway Plan. Costs are reported for 24 years of roadway improvements (2016 to 2040) in constant year 2015 dollars.

It should be noted that these cost estimates are based on planning level costs that typically include all roadway improvement cost components. These planning level costs are based on actual final roadway improvement costs. They generally include utility relocations, item cost contingencies, design, right-of-way purchase, and construction management. The unit costs were developed and refined over several years based on final bid prices for similar improvements in the County and across Colorado. They can be thought of as "top-down" unit costs.

Planning level costs are primarily used as a reference point and for comparison to other transportation plans. They are only realistic if all of the improvements in the 2040 MTCP roadway plan were constructed by the County through an open-bid process. In the County, this is not necessarily the case as there are many projects that are constructed directly by land developers through subdivision improvement agreements with the County. Furthermore, the fees paid by developers are based on a different set of unit costs (see next section).

Fee Program Cost Estimates—New development in El Paso County contributes to roadway system improvements proportional to the needs created through a Road Impact Fee Program. A Road Impact Fee Study update has been prepared in parallel with this MTCP update. The Fee Program cost estimates contained in the Road Impact Fee Study update correspond to the same roadway improvements as the Planning Level cost estimates. The two scenarios differ in the unit costs that are applied. For the Fee Program, the unit costs were developed based on a quantity takeoff method that could be described as "bottom up" calculated. These assume that a developer constructs the road improvement rather than letting through a County bid process.

The Fee Program unit costs include many roadway improvement cost components but exclude certain others. Issues with roadway construction (e.g., undulating/rolling terrain, utilities, drainage issues, poor soils, etc.) that can significantly raise costs are generally borne by the contractor/developer as part of subdivision improvement investments and not included in the Fee Program unit costs. This was done so that increased costs due to lower-cost land with higher-cost roadway improvements would be picked up by the benefitting land owner/developer and not spread to other developers or the public. This is a primary reason why the Fee Program unit costs are lower than the Planning Level unit costs.

The Fee Program cost scenario is generally realistic in that it provides ranges of funding exposure based on the Fee Program unit costs, but it assumes that all of the growth-related improvements are constructed by developers.

What This All Means—Two different cost estimates are provided above – Planning Level and Fee Program costs. The Planning Level costs assume that all improvements will be let through competitive bid by the County. The Fee Program costs assume that all of the growth-related improvements will be constructed by developers. In reality, improvements will likely be made through both methods. Therefore, the Planning Level costs could be considered the high end of the cost estimate and the Fee Program costs could be considered the low end.