Transportation Master Plan 2022

City of Fountain

City of Fountain Transportation Master Plan
Fountain, CO

Adopted
2/22/2022

RESOLUTION 22-008

RESOLUTION ADOPTING THE TRANSPORTATION MASTER PLAN 2022

WHEREAS, the current Transportation Master Plan dated 2002 necessitates new traffic volume forecasting as properties have developed, and to incorporate those properties that will develop in the future as well as those that have been annexed; and

WHEREAS, such development will cause a significant increase in traffic within and through the City of Fountain requiring the identification of roadway capacity needs and right-of-way preservation needs; and

WHEREAS, the City of Fountain Public Works Department conducted an extensive public involvement effort to develop the Transportation Master Plan 2022; and

WHEREAS, it is anticipated that a majority of the City of Fountain's growth and development over the next 25 years requires regional analysis and planning; and

WHEREAS, the City of Fountain City Council acknowledges the need for an updated Transportation Master Plan to provide long-range transportation planning; and

WHEREAS, the City of Fountain hereby finds that, the adoption of the Transportation Master Plan 2022 is in the best interest of the City of Fountain; and

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Fountain, Colorado:

Adopted this 22nd day of February 2022.

Sharon Thompson

Sharon Thompson, Mayor

ATTEST:

Silvia Huffman

Silvia Huffman, City Clerk

CITY OF FOUNTAIN EL PASO SEAL COUNTY COLORADO

Transportation Master Plan 2022

Prepared for

City of Fountain

FINAL

Revised January 25, 2022

Prepared by

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List of Abbreviations

Abbreviation	Term/Name/Definition
AASHTO	The American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic. The amount of vehicular traffic that crosses an imaginary line across a roadway in a 24-hour period. ADT information typically includes both directions of vehicle travel (if on a two-way street).
AM	Refers to the morning weekday peak traffic period, which includes primarily work and school trips.
AWSC	Refers to the morning weekday peak traffic period, which includes primarily work and school trips.
BNSF	Burlington Santa Fe, Refers to the Railway
CDOT	Colorado Department of Transportation
CDP	Comprehensive Development Plan
CIP	Capital Improvements Program
EPC	El Paso County
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FMT	Fountain Municipal Transit
FRFG	Fountain Roadway Focus Group
FTA	Federal Transit Administration
FY	Fiscal Year
HBA	Home Builders Association
LOS	Level of Service, Refers to the primary performance measure for traffic operations.
LRTP	Long Range Transportation Plan
MFF	Moving Fountain Forward
MMLOS	Multimodal Level of Service. Refers to criteria that includes both vehicular and non-motorized performance/serviceability
mph	Miles per hour, speed
MPO	Metropolitan Planning Organization
MTCP	Refers to El Paso County Major Transportation Corridors Plan.
MUTCD	Manual on Uniform Traffic Control Devices
ODP	Overall Development Plan.
PEL	Planning and Environmental Linkages
PM	Refers to the afternoon weekday peak traffic period, including primarily work trips.
PPACG	Pikes Peak Area Council of Governments
PPCC	Pikes Peak Community College
PPRTA	Pikes Peak Rural Transportation Authority
PRTMP	Refers to City of Fountain Parks, Recreation and Trails Master Plan.
PUC	Refers to Colorado Public Utilities Commission
ROW	Right-of-Way
RTP	Regional Transportation Plan.
SH	State Highway, refers to Colorado state highway system facilities.
TBC	Top-Back of Curb
TIP	Transportation Improvement Program

TMA	Transportation Management Agency
TMP	Refers to the City of Fountain Transportation Master Plan.
TAZ	Traffic Analysis Zone
UP	Union Pacific Railroad
US	United States. Refers to federal non-interstate class highways.
VMT	Vehicle Miles Traveled, typically distance in miles times ADT traffic volume in vehicles per day.
vpd	Vehicles per day. Refers to daily traffic flow.
WB	Wheelbase. Refers to the Design Vehicle size.

Executive Summary

Introduction

The City of Fountain (hereafter, the City) *Transportation Master Plan 2022* (TMP 2022) represents the first comprehensive update of the City's vision for transportation planning in 20 years. Its predecessor, the 2002 *Traffic Master Plan*, was developed to complement the City's 1999 Comprehensive Development Plan (CDP) and provided a major thoroughfare plan for the City and the extended surrounding areas.

Purpose of the Transportation Master Plan

TMP 2022 serves several purposes. Foremost among these, the plan establishes the vision for the long-term transportation system that will best meet the City's future needs. The plan also provides policy direction for the transportation system decision-making process and the financial framework to pay for transportation infrastructure improvements. The plan also prioritizes project implementation to meet short-term deficiencies while working towards the City's ultimate transportation system.

Goals, Principles, and Policies

Community Vision and Goals

The Comprehensive Development Plan identified goals to guide planning for the City's future transportation system. The following goals were used to guide the development of TMP 2022:

- Develop an adequate transportation system to provide for the safe and convenient circulation of motorists, cyclists, and pedestrians throughout the City of Fountain.
- Emphasize multiple transportation modes and improve traffic safety and circulation.
- Ensure that growth pays for itself and that developers contribute a fair share toward needed infrastructure improvements.
- Participate in cooperative transportation planning with other local, regional, and state agencies and develop effective partnerships with other planning agencies, most notably, the PPACG, CDOT, El Paso County, and the City of Colorado Springs.
- Implement consistent street standards to ensure that facilities that cross municipal boundary lines are compatible.
- Incorporate alternative transportation systems, including increased bus service, improved bus stops and transfer facilities, path and trail system connections between neighborhoods and destinations, and carpool programs to encourage the use of modes other than the single-occupant vehicle.
- Give priority to the maintenance and improvement of existing roads.
- Address identified critical needs, including: developing east-wes connectors; preserving right-of-way; improving access to and from I-25; creating safer truck routes; and signalization or grade-separation of existing at-grade railroad crossings.

Design Criteria and Standards

TMP 2022 establishes updated roadway functional classifications and design standards for city street. The functional classifications are designed to balance the function of the City's streets to carry traffic and to provide access to adjacent property and to provide the hierarchy that is needed to allow safe and continuous travel and access. Streets are divided into categories based on their function within the overall transportation network. Different design criteria, as detailed on the following page, are associated with each functional classification to maintain, and protect the roadway's primary purpose.

Summary of City of Fountain Street and Roadway Design Criteria and Standards

Roadway Classification	Expressway	Major Arterial	Arterial	Minor Arterial	Collector	Minor Collector	Residential Detached Sidewalk	Residential Attached Sidewalk	Industrial Commercial Collector	Public Alley
Design Speed/Posted Speed (mph)	70/55	50/45	50/45	45/40	40/35	40/35	30/25	30/25	30/25	NA
Suggested ADT	60,000-85,000	25,000-60,000	10,000-25,000	5,000-10,000	3,000-5,000	1,500-3,000	300-1,500	300-1,500	NA	NA
Clear Zone (Clear zone per AASHTO Roadside Design Guide Table 3.1 - 10' minimum)	30'	10'	10'	10'	10'	NA	NA	NA	10'	NA
Right of Way Width	300'	170'	130'	110'	80'	80'	60'	50'	70'	30'
Roadway Width (pavement mat)	2 - 40' to 60'	2 - 44'	2 - 31'	72'	48'	48'	32'	32'	48’	20'
Number of Lanes	4-6	6	4	5	3	2	2	2	2	2
Lane Widths	12'	12'	12'	12'	12'	12'	11'	11'	14'	10'
Shoulder Width (Ext., excluding C&G)	8' or 12'	2 - 6' Multi-Use Shoulders	2 - 5' Multi-Use Shoulders	2 - 5' Multi-Use Shoulders	2 - 5' Multi-Use Shoulders	NA	NA	NA	NA	NA
Shoulder Width (Int.., excluding C&G)	4' or 12'	2'	2'	NA	NA	NA	NA	NA	NA	NA
Median	Depressed (swale) 28'	28' TBC-TBC	16' TBC-TBC	Painted – 14’	Painted - 14'	NA	NA	NA	NA	NA
Curb & Gutter Type (required)	NA	Type 1 Type 3 (median)	Type 1 Type 3 (median)	Type 1	Type 1	Type 1	Type 1/Type 5	Type 1/Type 5	Type 1	4’ Inverted Concrete Pan
Sidewalk Requirement (placement)	NA	6' Detached (located on one side)	6' Detached (located on one side)	2 - 6' Detached	2 - 6' Detached	2 - 6' Detached	2 - 6' Detached	2 - 6' Attached	2 - 6' Attached	NA
Bicycle Accommodations	NA	10' Off-Street Trail (located on other side)	10' Off-Street Trail (located on other side)	Multi-Use Shoulder	Multi-Use Shoulder	6' Bike Lane between travel lane and parking	No	No	No	NA
Tree Lawn Width	NA	10'	10'	10'	6'	6'	5'	NA	NA	NA
10' Utility Corridor	NA	10' from buffer or back of Trail	10' from buffer or back of Trail	10' from back of sidewalk	10' from back of sidewalk	10' from back of sidewalk	10' from back of sidewalk	10' from back of sidewalk	NA	NA
Alley Driveway Setback	NA	NA	NA	NA	NA	NA	NA	NA	NA	18' from edge of asphalt
Parking	No	No	No	No	No	Yes; 2 - 6'	Yes; 2 - 5'	Yes; 2 - 5'	Yes; 2-10'	Allowed only on 18' driveways
Design Vehicle	WB 67	WB 67	WB 67	WB 67	WB 50	WB 50	SU 30	SU 30	WB 67	SU 30
Signalized Intersection Frequency	1 Mile	1/2 Mile	1/2 Mile	1/2 Mile	NA	NA	NA	NA	NA	NA
Unsignalized Intersection Frequency	NA	1/2 Mile	1/2 Mile	1/4 Mile	600'	600'	300' Max	300' Max	600'	1/2 Adjacent Street Length
Access Distance to Cross Street (minimum)	NA	115'	115'	115'	75'	75'	25'	25'	75'	NA
Vertical Alignment	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO
Horizontal Alignment Radius*	3,150' w/6% Super of 8% Max	930'	930'	750'	550'	550'	200'	200'	200'	85'
Grade (Min-Max)	1% - 4%	1% - 4%	1% - 4%	1% - 4%	1% - 8%	1% - 8%	1% - 8%	1% - 8%	1% - 6%	1% - 8%
Intersection Grade	1% - 2%	1% - 3%	1% - 3%	1% - 3%	1% - 3%	1% - 3%	1% - 4%	1% - 4%	1% - 3%	1% - 4%
Intersection Sight Distance	CDOT Desisgn-2018	555'	555'	445'	445'	445'	280'	280'	445'	170'
Stopping Site distance	CDOT Desisgn-2018	425’	425’	425’	200’	200’	155’	155’	200’	80’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

Mobility and Access

Alternatives Considered

Four network scenarios and two 2045 socioeconomic scenarios were developed for needs assessment and mobility analysis modeling.

The first two network scenarios, the PPACG 2020 and 2045 fiscally constrained networks, were used for baseline analysis and needs assessment. The PPACG networks for these scenarios were edited and enhanced within the Fountain area of the model to include recent network improvements and to improve the model resolution within the study area. An example of the edits was the addition of the Duckwood Road extension to SH 85/Santa Fe Drive project to the 2020 network. Two other 2045 networks were created for the 2045 mobility and access analysis. The first added the 2002 Traffic Master Plan's recommended improvements to the enhanced PPACG 2045 fiscally constrained network. The second included enhancements, additions, and deletions that were identified during planning charrettes or that were provided as part of Overall Development Plan (ODP) submittals to the City.

The base 2045 socioeconomic scenario was the PPACG adopted forecasts for 2045. The OOACG forecasts are constrained to county-level control totals prepared by the Colorado Department of Local Affairs. It is believed that these forecasts understate expected Fountain area growth. The 2045 "build-out" socioeconomic scenario includes new development that is not included in the PPACG forecasts, but that would reasonably be built-out by 2045.

Identified Needs

Traffic flows on many Fountain area roadways are expected to increase significantly by 2045. The roadway network within and serving Fountain is limited and has poor east-west connectivity. Without improvements beyond those included in the PPACG 2045 RTP, 2045 traffic volumes on many area roadways will triple by 2045. Link Road will increase from 7,660 ADT to 27,000 ADT; C & S Road will increase from 6,000 ADT to 18,000 ADT; and Squirrel Creek Road will increase from 4,000 ADT to 15,000 ADT. The western segment of SH 16/ Mesa Ridge Parkway will increase from the existing average daily traffic (ADT) volume of 36,000 vehicles per day to 58,000 vehicles per day. Other roadways that will incur significant traffic flow increases include Link Road, Squirrel Creek Road, and Marksheffel Road.

Critical examination of traffic growth patterns showed that three factors will drive Fountain area capacity deficiencies now and in the future: inadequate north-south capacity, inadequate east-west capacity, and poor east-west connectively. The first of these factors points to the need to develop fully connected north-south routes as alternatives to I-25. The second and third factors point to the need to create additional, fully connected east-west routes.

Mobility Analysis

The development "build-out" scenario and the enhanced 2045 PPACG fiscally constrained network were used to evaluate mobility performance with an expanded roadway network and build-out of planned development in the Fountain study area. For the PPACG network, traffic growth patterns for the 2045 "build-out" scenario showed spreading and increased congestion levels affecting the same roadways congested with the PPACG adopted socioeconomic forecasts. SH 16/Mesa Ridge Parkway and C & S Road were heavily congested, with the increased traffic brings these roadways from LOS C-D-E to LOS D-E-F for longer stretches than for the PPACG socioeconomic forecasts. This finding reinforced the conclusion that the Fountain area transportation network needed to be expanded significantly to adequately serve future travel demand associated and continuing growth of the City. The analysis confirmed the need to develop additional north-south routes as alternatives to I-25 as well as fully connected east-west routes.

Transportation Master Plan

Roadway Improvements

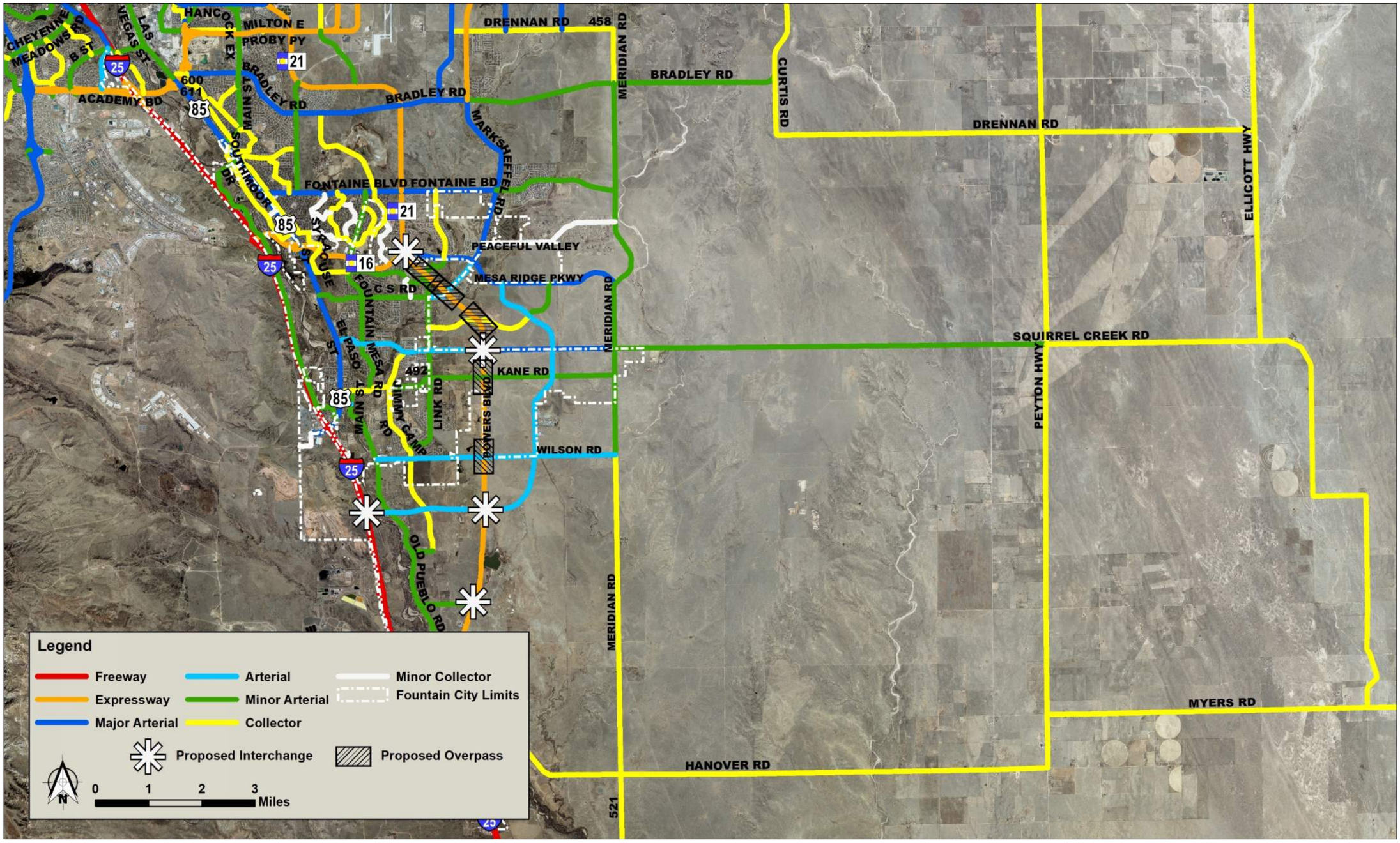
The TMP 2022 roadway network includes a mix of expressway, arterial, and collector facilities that balances travel demand and access requirements as shown on the following page. The overall roadway network will relieve current and future congested conditions and promote improved mobility and safety performance.

Connectivity Improvements

Fountain Creek, Jimmy Camp Creek, and dual-line railroad tracks bisect the Fountain area transportation network at various locations. At-grade crossing of these barriers to network connectivity currently impacts both mobility and safety. Previous plans for grade separation of existing railroad crossing within Fountain were reviewed. It was found that both cost and engineering feasibility have been and will continue to be factors that preclude grade-separation of the City's existing railroad crossings. One exception is the Link Road railroad crossing. By relocating the existing Link Road crossing to the planned TMP 2022 extension of Wilson Road to Old Pueblo Road, it will be possible to create the separation distance needed to get up and over the railroad and back down to meet the Old Pueblo Road intersection grade. Additional creek and railroad crossings were created with planned new roadway network connectivity elements are listed below.

TMP 2022 - Railroad and Creek Crossing Improvements

	Roadway Name	From	To	Crossing Feature
1	Mesa Ridge Parkway	Marksheffel Rd.	Amara N-S Spine Rd.	Creek Crossing
2	Squirrel Creek Road	Jimmy Camp Rd.	Fountain Mesa Rd.	Creek Crossing
3	Powers Boulevard	Mesa Ridge Pkwy.	Squirrel Creek Rd.	Creek Crossing
4	Wilson Road	Old Pueblo Rd.	Progress Dr.	Railroad Crossing
5	Amara N-S Loop	I-25	Old Pueblo Rd.	Railroad Crossing
6	Amara N-S Loop	I-25	Old Pueblo Rd.	Creek Crossing
7	Powers Boulevard	I-25	Birdsall Rd.	Railroad Crossing
8	Powers Boulevard	I-25	Birdsall Rd.	Creek Crossing



Transportation Master Plan 2022 – Roadway Network Improvements

Implementation Plan

Cost of Improvements

Cost estimates for TMP 2022 projects are summarized on the following pages. In the first table, relevant projects that are already identified for funding as El Paso County MTCP 2040 Improvements and funded projects included in the PPACG FY2021 to FY2024 TIP are listed. The inclusion of projects in the 2040 MTCP 2040 Improvements listings indicates a prioritization by the County to fund these projects, using various funding sources. In contrast, the inclusion of projects in the PPACG TIP listing shows that funding has been solidly committed to these projects. The second table includes listings of projects are listed in four categories based on potential entities that would be responsible for implementing the projects. For all projects, applicable sources of funding are also noted under Funding Eligibility. Funding eligibilities indicate nothing more than eligibility or potential for these projects to be funded either privately or by state and local funding streams versus by local funding alone. It should be noted that Fountain would not be responsibility for matching federal funding for regional projects but would provide match for "Fountain Facilities" funded using federal funding. For those projects for which Funding Eligibility is shown as "TBD," there is insufficient information available at this time to determine whether private funding may play a role in building these roadway segments. The listed costs were developed using unit costs applied to included project elements and lengths.

Funding Resources and Strategies

Improvements identified by TMP 2022 will ultimately be built using a variety of funding sources and strategies. Federal and state funds will be utilized for eligible projects to the extent that funding is available. Limited City of Fountain funding with be used primarily to match federal and state. Fountain has implemented a Roadway Impact Fee Program and may seek voter approval for a renewed Moving Fountain Forward sales-tax-based ballot issue for dedicated local funding for roadway capital improvements. The extent to which federal/state funding, direct private funding, or impact fee reimbursed private funding will play a role in funding improvements will depend on the role that regional travel demand plays in creating a need for additional roadway capacity versus the role that development-based travel demand plays in creating the need for additional roadway capacity.

Summary of 2040 MTCP and PPACG FY 2021 – FY 2024 TIP Funded Projects

Road Segment	Segment		Funding Eligibility	Existing Conditions		Future Conditions		Total Cost
	Beginning	End		Lanes	Functional Class	Lanes	Functional Class	
Mesa Ridge Parkway	Powers Blvd.	Marksheffel Rd.	2040 MTCP	0	New Roadway	4	Major Arterial	$14,170,000
Mesa Ridge Parkway	Marksheffel Rd.	Meridian Rd.	2040 MTCP	0	New Roadway	2	Minor Arterial	$5,216,000
Meridian Road	Bradley Rd.	Mesa Ridge Pkwy.	2040 MTCP	0	New Roadway	2	Minor Arterial	$11,312,000
El Paso County 2040 MTCP – Funded Total								**$30,698,000**
Mesa Ridge Parkway	SH 16/Sneffels St. Intersection		TIP FY21-24	4	Expressway	4	Expressway	$1,385,500
Various	Bus Pads/ADA Curb Ramps		TIP FY21-24	0	New			$150,000
Link Road			TIP FY21-24	2	Minor Arterial	2	Minor Arterial	$2,069,225
PPACG FY 2021 - FY 2024 TIP – Funded Total								**$3,604,725**

Transportation Master Plan 2022 - Project Cost Summary

Road Segment	Segment		Funding Eligibility	Existing Conditions		Future Conditions		Total Cost
	Beginning	End		Lanes	Improvement	Lanes	Functional Class	
Regional Facilities – Federal and State Funding Eligible								
Mesa Ridge Pkwy.	Powers Blvd.	Marksheffel Rd.	Fed/State	0	New Roadway	4	Major Arterial	$22,780,000
Mesa Ridge Pkwy.	Marksheffel Rd.	N-S Arterial Loop Rd.	Fed/State	0	New Roadway	4	Major Arterial	$12,750,000
	Bridge over Jimmy Camp Creek		Fed/State					$16,800,000
Mesa Ridge Pkwy.	N-S Arterial Loop Rd.	E-W Collector	Fed/State	0	New Roadway	4	Major Arterial	$15,300,000
Mesa Ridge Pkwy.	E-W Collector	Meridian Rd.	Fed/State	0	New Roadway	4	Major Arterial	$22,100,000
Powers Blvd.	Mesa Ridge Pkwy.	Squirrel Creek Rd.	Fed/State	0	New Roadway	4	Expressway	$49,000,000
	Mesa Ridge Parkway Interchange		Fed/State					$40,000,000
	Bridge over Cross Creek Parkway		Fed/State					$8,400,000
	Bridge over Marksheffel Road		Fed/State					$8,400,000
	Bridge over Jimmy Camp Creek		Fed/State					$8,400,000
	Bridge over E-W Collector		Fed/State					$8,400,000
	Squirrel Creek Road Interchange		Fed/State					$40,000,000
Powers Blvd.	Squirrel Creek Rd.	Wilson Rd.	Fed/State	0	New Roadway	4	Expressway	$39,200,000
	Bridge over Kane Rd.		Fed/State					$40,000,000
	Bridge over Wilson Rd.		Fed/State					$40,000,000
Powers Blvd.	Wilson Rd.	N-S Arterial Loop Rd.	Fed/State	0	New Roadway	4	Expressway	$58,800,000
	N-S Arterial Loop Rd. Interchange		Fed/State					$40,000,000

Road Segment	Segment		Funding Eligibility	Existing Conditions		Future Conditions		Total Cost
	Beginning	End		Lanes	Improvement	Lanes	Beginning	
Regional Facilities – Federal and State Funding Eligible (Continued)								
Powers Blvd.	N-S Arterial Loop Rd.	Birdsall Rd.	Fed/State	0	New Roadway	4	Expressway	$35,280,000
	Birdsall Rd. Interchange		Fed/State					$40,000,000
Powers Blvd.	Birdsall Rd.	I-25	Fed/State	0	New Roadway	4	Expressway	$35,280,000
	Overpass		Fed/State					$8,400,000
	Bridge over Fountain Creek		Fed/State					$16,800,000
	I-25 Interchange		Fed/State					$70,000,000
Subtotal								**$676,090,000**
Fountain Facilities - Federal and State Funding Eligible								
Bandley Road	North of SH 16	US 85/Santa Fe Ave.	Fed/State	0	New Roadway	3	Minor Arterial	$12,250,000
	Bridge over Fountain Creek		Fed/State					$8,400,00
Jimmy Camp Road	Wilson Rd.	N-S Arterial Loop Rd.	Fed/State	0	New Roadway	2	Collector	$12,600,000
Link Rd.	Wilson Rd.	C&S Rd.	Fed/State	2	Widening/Upgrades	3	Minor Arterial	$29,400,000
N-S Arterial Loop Rd.	Wilson Rd.	Powers Blvd.	Fed/State	0	New Roadway	4	Arterial	$22,140,000
N-S Arterial Loop Rd.	Powers Blvd.	Old Pueblo Rd.	Fed/State	0	New Roadway	4	Arterial	$20,910,000
N-S Arterial Loop Rd.	Old Pueblo Rd.	I-25	Fed/State	0	New Roadway	4	Arterial	$4,920,000
	Bridge over Fountain Creek		Fed/State					$16,800,000
	I-25 Interchange		Fed/State					$50,000,000
Subtotal								**$177,420,000**
Fountain Facilities – Undetermined Funding								
Squirrel Creek Rd.	Meridian	Powers Blvd	TBD	2	Widening/Upgrades	4	Major Arterial	$42,330,000
Squirrel Creek Rd.	Powers Blvd.	Jimmy Camp Rd.	TBD	2	Widening/Upgrades	4	Arterial	$18,450,000
Squirrel Creek Rd.	Jimmy Camp Rd.	Fountain Mesa Rd.	TBD	0	New Roadway	4	Arterial	$9,840,000
	Bridge over Jimmy Camp Creek							$16,800,000
Comanche Village Dr.	Fountain Mesa Rd.	US 85/Santa Fe Ave.	TBD	2	Widening/Upgrades	4	Arterial	$6,150,000
Kane Rd.	Shumway Rd.	Meridian Rd.	TBD	0	New Roadway	2	Minor Arterial	$29,400,000
Kane Rd.	Link Road	Shumway Rd.	TBD	2	Widening/Upgrades	2	Minor Arterial	$4,900,000
Kane Rd./Ohio Ave.	Link Rd.	REA Rd.	TBD	0	New Roadway	2	Minor Arterial	$3,430,000
Wilson Road	Old Pueblo Rd.	Orleans Rd	TBD	0	New Roadway	4	Arterial	$4,920,000
Wilson Road	Orleans Rd.	Progress Dr.	TBD	2	Widening/Upgrade	4	Arterial	$6,150,000
Wilson Road	Progress Dr.	Meridian Rd.	TBD	0	New Roadway	4	Arterial	$44,526,000
Birdsall Road	Powers Blvd.	Old Pueblo Rd.	TBD	2	Widening/Upgrade	4	Minor Arterial	$9,310,000
Intersection Upgrades			TBD					$43,500,000
Subtotal								**$239,706,000**

Road Segment	Segment		Funding Eligibility	Existing Conditions		Future Conditions		Total Cost
	Beginning	End		Lanes	Improvement	Lanes	Functional Class	
Development Facilities – Undetermined Funding								
E-W Collector	Link Rd.	N-S Arterial Loop Rd.	TBD	0	New Roadway	2	Collector	$14,000,000
E-W Collector	N-S Arterial Loop Rd.	Mesa Ridge Pkwy.	TBD	0	New Roadway	2	Minor Arterial	$19,600,000
N-S Arterial Loop Rd.	Mesa Ridge Pkwy.	Squirrel Creek Rd.	TBD	0	New Roadway	4	Arterial	$20,910,000
N-S Arterial Loop Rd.	Squirrel Creek Rd.	Wilson Rd.	TBD	0	New Roadway	4	Arterial	$25,830,000
Autumn Glen Drive	Fountain City Limit	Fontaine Blvd.	TBD	0	New Roadway	2	Collector	$1,540,000
Subtotal								**$81,880,000**

Notes:
1) Full reconstruction was assumed for roadways that exist as 2-lane collectors.
2) Intersection upgrades and new intersections assume signalized control in an arterial context.
3) Unit costs that were applied and basis of costs are included as Appendix B. Costs are in 2021 dollars and have not been escalated for the 2045 planning horizon.
4) It was assumed that the existing I-25 interchange where the Powers Boulevard south extension terminate will require full reconstruction.

1.0 Introduction

The City of Fountain (hereafter, the City) *Transportation Master Plan 2022* (TMP 2022) represents the first comprehensive update of the City's vision for transportation planning in 20 years. Its predecessor, the 2002 *Traffic Master Plan*, was developed to complement the City's 1999 Comprehensive Development Plan (CDP) and provided a major thoroughfare plan for the City and the extended surrounding areas. The CDP identified the community goals and values, defined the City's planning principles and policies, and provided an updated database of community resources and a series of planning maps that illustrated the City's vision for future land use and annexation/growth service areas. The CDP included a transportation framework plan that defined a hierarchy of regional and community streets for Fountain and a broader planning area (three-mile annexation plan). In 2005, the City updated the CDP, including the transportation framework plan. The City of Fountain Annexation Plan was adopted in 2007. One element of the 2005 CDP, the "Future Land Use Map," was updated and published independently in 2013.

Development pressures identified in the base 1999 CDP have since continued or intensified. In this context, the importance of preserving major transportation corridors is paramount. TMP 2022 integrates planning for motorized and non-motorized modes in a single, fiscally constrained plan. Major spine corridor alignments, key connections, and creek and railroad crossings are identified for corridor preservation. TMP 2022 also establishes a functional classification hierarchy to support access control planning and integrates planning to implement improvements from a financial perspective. TMP 2022 was developed to be consistent with and build upon regional plans, El Paso County plans, and private development plans and facilitate planned improvements by integrating funding streams for local, federal, state, and private sources for shared priorities.

1.1 Purpose of the Transportation Master Plan

TMP 2022 serves several purposes. Foremost among these, the plan establishes the vision for the long-term transportation system that will best meet the City's future needs. The plan also provides policy direction for the transportation system decision-making process and the financial framework to pay for transportation infrastructure improvements. The plan also prioritizes project implementation to meet short-term deficiencies while working towards the City's ultimate transportation system.

1.2 Plan Development Process

The plan development process began with a review of the existing City of Fountain transportation system and the regional transportation system context that supports and interacts with the City of Fountain transportation system. The inventory highlighted changes that had occurred since the 2002 *Traffic Master Plan* was adopted and identified opportunities to be built upon within the regional transportation system. Next, the Pikes Peak Area Council of Governments (PPACG) travel demand model was used to identify existing and future transportation system deficiencies and needs. Plan review findings and modeling results were used to identify transportation system need and develop a preferred long-term transportation system.

In parallel with this effort, the City design standards and criteria were reviewed and updated. Final design standards were then used to develop cost estimates for each transportation system element included in the preferred transportation system. After analyzing existing financial resources to support the plan, projects were prioritized, and funding was identified for near-term improvement priorities. Critical to both near-term and long-term plan implementation, the City also established an impact fee program in December 2020.

This plan's development was a collaborative effort by the City planning, engineering, administrative staff, and the consultant team. The public and stakeholders were engaged in the planning process by informal and formal methods comprising web-based small group meetings, stakeholder webinar presentations (including

question-and-answer forums), and a final Virtual Open House. This collaboration was instrumental in ensuring that the City's overall planning process recognizes and embraces the symbiotic relationship between land use and transportation.

1.2.1 Existing Plans Review and Inventory

Four current and legacy transportation plans, as follow, were reviewed as a foundation for TMP 2022:

- The most recent City of Fountain transportation plan *Traffic Master Plan* (2002) included the Major Thoroughfare Plan network, which was used as the initial future transportation network for TMP 2022. The City's 2002 plan established a local future transportation system vision unconstrained by funding availability. This vision represents the City's preferred transportation system.
- The Colorado Department of Transportation functional classification map identifies a subset of roadways within the City of Fountain that would be eligible for federal or state funding.
- The current PPACG regional transportation plan (RTP), *Moving Forward 2045 RTP,* identifies the fiscally constrained regional transportation system for the 2045 planning horizon. All projects included in the 2045 *Moving Forward RTP* have been prioritized for implementation by 2045 using reasonably available local, federal, and private funding.
- The El Paso County *Major Corridors Transportation Plan* (MTCP) includes the 2040 Improvements Plan and 2060 Corridor Preservation Plan elements. The 2040 Improvements Plan is analogous to the PPACG plan in that reasonably available funding has been identified for included improvements. However, it differs in that projects are funded by not only state, local (matching funds and/or Pikes Peak Regional Transportation Authority (PPRTA), and private (developer-funded projects) monies, but also those that are targeted to be funded by the County's Impact Fee Program.

The City's Traffic Master Plan was used as the framework upon which TMP 2022 was built. Together, the CDOT functional classifications map, the PPACG 2045 RTP, and the El Paso County 2040 MTCP were used to identify candidate facilities and specific improvements that should be imcluded in TMP 2022, but that could be funded using federal, state, PPRTA or El Paso County funding.

1.2.2 Framework Goals, Principles, and Policies

The City of Fountain's 2005 CDP identified community goals and values, defined planning principles and policies, and provided the City with a database of community resources. The CDP, and subsequent updates, included a series of planning maps that define the City's vision for future land use, transportation and "greenfrastructure" annexation, and growth service areas. The transportation framework plan defined a hierarchy of regional and community streets that form the backbone for mobility within the City of Fountain and the broader planning area. This "three-mile plan" includes Fountain's urban service area and the Fountain planning influence area. The CDP had the following significant visions for mobility which were used to guide the development of TMP 2022:

- Development of an "adequate transportation system." This community vision, along with protection of open space, was a top goal, targeted by the community to "provide for the safe and convenient circulation of motorists, cyclists, and pedestrians throughout the City of Fountain."
- The community desires strategies that emphasize multiple transportation modes and improve traffic safety and circulation.

- Citizens are concerned that growth pays for itself and that developers contribute a fair share toward needed infrastructure improvements. As a planning policy, the CDP suggests that new development contributes to the overall transportation system based on generated trips.
- Transportation planning must be a cooperative endeavor with other local, regional, and state agencies. Fountain's participation in regional planning endeavors and developing effective partnerships with other planning agencies, most notably, the Pikes PPACG, CDOT, El Paso County, and the City of Colorado Springs is strongly supported by the CDP.
- The CDP suggests careful attention to transportation facilities that cross jurisdictional boundaries. Consistent street standards should be implemented so that facilities that cross municipal boundary lines are compatible.
- Alternative transportation systems should be incorporated to encourage the use of modes other than the single-occupant vehicle. Increased bus service, improved bus stops and transfer facilities, path and trail system connections between neighborhoods and destinations, and carpool programs are all preferred strategies of the CDP.
- Critical transportation needs identified by the CDP include: east-west connectors, preservation of right-of-way, improved access to and from I-25, safer truck routes, and signalization or grade-separation of existing at-grade railroad crossings.
- From a capital improvements planning perspective, the CDP suggests that priority be given to the maintenance and improvement of existing roads.

1.2.3 Land Use, Population, and Employment Forecasts

The PPACG adopted regional socioeconomic forecasts were used as one future land use development scenario. Because that scenario is constrained to a county-level control total that is believed to understate Fountain's growth potential, a second scenario was evaluated. The second future land-use scenario includes the build-out of approved developments that have been, or are expected to be, annexed into the City within the 2045 planning horizon. In this second scenario, areas along the City's eastern edges were updated to include approved development densities or estimated build-out densities. This scenario was developed to afford a clear understanding of future transportation system needs due to the rapid population growth and increased development pressures that will drive increased travel demand in the City.

1.2.4 Conceptual Modeling Scenarios

Four network scenarios and two 2045 socioeconomic scenarios were developed for needs assessment and mobility analysis modeling. The first two network scenarios, the PPACG 2020 and 2045 fiscally constrained networks, were used for baseline analysis and needs assessment. The PPACG networks for these scenarios were edited and enhanced within the Fountain area of the model to include recent network improvements and to improve the model resolution within the study area. An example of the edits was the addition of the Duckwood Road extension to SH 85/Santa Fe Drive project to the 2020 network. Two other 2045 networks were created for the 2045 mobility and access analysis. The first added the 2002 Traffic Master Plan's recommended improvements to the enhanced PPACG 2045 fiscally constrained network. The second included enhancements, additions, and deletions that were identified during planning charrettes or that were provided as part of Overall Development Plan (ODP) submittals to the City.

1.2.5 Development of a Capital Improvements Program

A list of transportation system deficiencies, including roadway, bicycle/pedestrian, and rail crossings, was developed to show improvements necessary to achieve the TMP 2022 vision. Capital cost estimates were prepared for each listed project. A ranking methodology that prioritized needs was developed using recent trend data, accident history, existing traffic conditions, and the improvement project's ability to provide needed linkages to the rest of the transportation system. These criteria were used to evaluate the condition of the current facilities. Projects were then prioritized based on the ranking criteria.

As a part of the Capital Improvements Program (CIP) development process, a financial analysis was completed to forecast funding levels through the year 2045 based on existing and anticipated revenue streams for capital projects. Projects were then matched to available funding sources to develop the fiscally constrained CIP list.

1.2.6 Outreach Efforts

Throughout this plan's development, various strategies were used to engage the public and potentially affected stakeholders in the planning process. Ongoing internal project team coordination efforts included the City administration, planning, and engineering staff. A detailed list of outreach efforts is included in **Appendix A**.

Several in-person meetings were held to bring together regional stakeholders, including The City of Fountain, the PPACG, local military installations, El Paso County, the City of Colorado Springs, CDOT, Nor'wood (Mesa Ridge development site), and La Plata Communities (Amara and Kane Ranch development sites). These meetings were followed by a more broadly attended webinar meeting and two limited web-based meetings with CDOT All of these meetings focused on the extension of Powers Boulevard/SH 21 through the City of Fountain and El Paso County to a planned southern terminus at a connection to I-25 south of Fountain.

The outcomes of the South Powers Boulevard extension meetings included solidifying full, 300-foot-wide right-of-way dedications for the northern Powers Boulevard extension alignment through the Mesa Ridge, Amara, and Kane Ranch developments and creating multiagency support funding for a near-term Planning and Environmental Linkages (PEL) for the complete Powers Boulevard southern extension alignment.

Outreach for TMP 2022 was conducted in two phases. Two virtual stakeholder meetings were held midway through the planning process during the first outreach phase. Planning context and an initial TMP 2022 network were presented at the first meeting. At the second meeting functional classifications, conceptual typical cross sections, and a refined TMP 2022 roadway network were presented. A refined TMP 2022, including the final TMP 2022 roadway network, cost estimates, funding analysis, and refined functional classifications and typical cross sections, where presented at two additional virtual meetings. The first second phase outreach meeting was sponsored and attended by representatives of the Home Builders Association (HBA).

2.0 Existing Conditions

The City of Fountain is located within El Paso County, Colorado, approximately 10 miles south of downtown Colorado Springs and immediately to the east of Fort Carson. Together, Fountain and the unincorporated Security and Widefield communities make up the "Fountain Valley." Based on the latest US Census Bureau projections, the City of Fountain 2020 population is estimated at 31,454. The population estimate represents a 75.6 percent increase in the City's population since 1990, including a 17.8 percent increase since the last official US Census population count (2010) of 25,846.

In 2009, the citizens of Fountain approved the Moving Fountain Forward (MFF) ballot initiative, providing the necessary resources to improve the quality of transportation infrastructure throughout the City. The taxes collected have funded various transportation projects completed throughout the community.

2.1 Roadway Network

Key roadways that serve the Fountain area include:

- **US 85-87/Santa Fe Avenue/Venetucci Boulevard**. US 85 functions as both a business loop paralleling I-25 and a main north-south arterial. Much of the City's commercial development is located along US 85. The roadway begins as Santa Fe Avenue at Charter Oak Ranch Road and crosses I-25 at a diamond interchange with I-25 (Exit 128).

  There is a two-lane bridge on US 85 across Fountain Creek. The roadway then continues north, east of and paralleling I-25 and Fountain Creek, and west of the Burlington Northern Santa Fe (BNSF) and Union Pacific (UP) railroad tracks.

  US 85 continues north through a grade-separated interchange with SH 16 and another with South Academy Boulevard. North of South Academy Boulevard, US 85, turns to the west crossing Fountain Creek and passes over I-25. Past I-25, US 85 turns north again and becomes Venetucci Boulevard that extends to Lake Avenue in Colorado Springs, becoming Cheyenne Road north of that intersection.

  The cross-section of US 85 varies. Between Charter Oak Ranch Road to Ohio Street, US 85 has one lane in each direction, including some areas with a two-way left-turn lane. From Ohio Street to Comanche Village Drive, there are two through-lanes in each direction. Through much of this segment, there is no center left-turn lane. The speed limit on these segments of US 85 is 35 mph.

  North of Comanche Village Drive to South Academy Drive, US 85 narrows to one lane in each direction with a center left-turn lane in commercial areas. At the SH 16 and the South Academy Boulevard interchanges, there are two through-lanes in each direction. There is a 45 to 50 mph speed limit posted in this segment.

  Currently, there are signalized intersections on US 85 at Crest Drive, Ohio Street, westbound SH 16, Fontaine Boulevard, Plaza Boulevard, the Wal-Mart Super Center (Center Valley), Main Street, and at both eastbound and westbound South Academy Boulevard. The current Average Daily Traffic (ADT) on US 85 is approximately 12,000 vehicles per day immediately east of I-25; 13,000 at Illinois Avenue; 11,000 at Ohio Street; and 19,000 and 20,000 south and north of Mesa Ridge Parkway.

- **SH 16/Mesa Ridge Parkway**. At the west end of SH 16 is a major entrance gate into Fort Carson, adjacent to a diamond interchange with I-25 (Exit 132). The grade-separated interchange bridge at SH 16 and US 85 also carries SH 16 over the BNSF and UP railroad tracks. All interchange ramps with US 85 are located west of US 85 to avoid conflicts with the railroad tracks. As a result, the ramps to and from the east are loop ramps. As SH16 proceeds east of the interchange with US 85, it becomes Mesa Ridge Parkway.

  The SH 16 segment between the I-25 and US 85 interchange has one lane in each direction. The Mesa Ridge Parkway segment has two lanes in each direction. Currently, Mesa Ridge Parkway terminates by turning north and becoming Powers Boulevard.

  There are traffic signals on SH 16/Mesa Ridge Parkway at the two I-25 ramp intersections, at Syracuse Street, and at Fountain Mesa Road. The current ADT on SH 16 is approximately 36,000 vehicles/day between I-25 and US 85.

- **SH 21/ Powers Boulevard.** Powers Boulevard was originally built by the Metex Improvement District and was transferred to CDOT in 2007 after the bonds were retired. Now SH 21 exits as a four-lane divided expressway with signalized intersections commencing at Mesa Ridge Parkway and extending north to SH 83 in Colorado Springs. In this configuration, SH 21/Powers Boulevard serves as a loop road on the east side of the Colorado Springs metro area with connections to I-25 north of Colorado Springs and north of Fountain. Ultimately CDOT envisions an upgrade of SH 21 to a freeway classification. The current ADT on Powers Boulevard is approximately 18,000 vehicles per day north of Mesa Ridge Parkway. The posted speed is 55 mph.

- **C & S Road/Duckwood Road.** C & S Road is a two-lane road commencing just west of Fountain Mesa Road and ending at Link Road. East of Link Road, it becomes Marksheffel Road. C & S Road has a posted speed limit of 30 to 40 mph.

  Duckwood Road extends west from the C & S Road and Mesa Road intersection to a new US 85/Santa Fe Avenue connection. The Duckwood Road Crossing Project was part of the City's MMF initiative. As part of the City's efforts to reduce train noise within the City, when Duckwood Road opened, the Mesa Road railroad crossing to the north was closed. Motorists are no longer able to turn from SH 85/87 onto Mesa Road. Mesa Road still connects to Syracuse Street, but now, motorists cannot continue driving west toward SH 85/87.

- **Marksheffel Road**. Marksheffel Road is currently variable, including segments with three lanes (center turn lane) and two-lane roadway segments with dedicated turn lanes. The posted speed is 45 to 55 mph. El Paso County's MTCP envisions the future Marksheffel Road as a four- to six-lane expressway facility.

- **Fountain Mesa Road.** Fountain Mesa Road is a four-lane street between Fontaine Boulevard and Mesa Ridge Parkway. There is a 40-mph speed limit posted on this segment. South of Mesa Ridge Parkway, Fountain Mesa narrows to one lane in each direction to Ohio Ave. Posted speed limit on this segment varies from 25 to 30 mph. Residences are fronting Fountain Mesa Road south of Lake Avenue. The Mesa Ridge Parkway intersection is signalized.

- **Grinnell Boulevard.** Not within city limits, Grinnell Boulevard is a four-lane street that extends north from Fontaine Boulevard to Powers Boulevard/SH 21. Grinnell Boulevard is classified as a Minor Arterial and has a posted speed limit of 40 to 50 mph.

- **Goldfield Drive.** Not within the city limit, Goldfield Drive is a two-lane road, that extends from Powers Boulevard, north of Bradley Road, to Fontaine Boulevard. The posted speed limit is 30 mph with many reduced speed areas for curves. Goldfield Drive continues as a residential street south of Fontaine Boulevard. The posted speed limit south of Fontaine Boulevard is 25 mph.

- **Fontaine Boulevard.** Fontaine Boulevard is a two-lane street extending from US 85 to Marksheffel Road. Fontaine Boulevard has traffic signals at US 85, Security Boulevard, Dartmouth Street, Grinnell Street, Metropolitan Street, Fountain Mesa Road, and Powers Boulevard. There is also an at-grade crossing of the BNSF and UP railroad tracks just east of US 85. The current ADT on Fontaine Boulevard is approximately 7,400 vehicles/day east of Powers Boulevard. The posted speed limit is 35 mph.

- **Bradley Road.** Between Academy Boulevard and Hancock Expressway in Security-Widefield, Bradley Road is a three-lane roadway with a center turn lane. At Hancock Expressway, Bradley Road extends east as a four-lane roadway typical section with a raised median or center turn lane until just west of Grinnell Boulevard. From that point, east of the Fountain Mutual Irrigation Ditch crossing, Bradley continues east to Goldfield Drive as a two-lane roadway. The posted speed limit is 40 mph.

- **Squirrel Creek Road.** Squirrel Creek Road is a two-lane roadway that extends east from Jimmy Camp Road. The current City of Fountain CDP shows Squirrel Creek Road extended west to Fountain Mesa Road, aligning with Comanche Village Drive across Jimmy Camp Creek. The posted speed limit on Squirrel Creek Road is 25 mph west of Link Road and 35 mph east of Link Road.

- **Link Road.** Link Road is a two-lane roadway that extends east from Old Pueblo Road and then north to the intersection of C & S Road and Marksheffel Road. The posted speed limit on Link Road varies from 30 mph to 40 mph. There is an at-grade railroad crossing in the vicinity of Wilson Road. There are new signals at the Squirrel Creek and C & S intersections.

- **Mesa Road /Cross Creek Parkway.** Mesa Road is a two-lane road that extends east from Syracuse Street and transitions to a four-lane road west of its eastern terminus at the intersection of Fountain Mesa Road/Mesa Road/Cross Creek Parkway. Cross Creek Parkway is a three-lane (center turn lane) roadway between the traffic signal at Fountain Mesa Road and its eastern terminus. The posted speed limit along the entire corridor is 35 mph.

- **Old Pueblo Road.** Old Pueblo Road is a two-lane roadway that extends from Valley Road, as an extension of South Main Street, to an I-25 "junior interchange." The posted speed limit is 45 mph.

- **Ohio Avenue/Kane Road.** Ohio Avenue is a two-lane roadway that extends east from Fountain Street to Rea Road. Ohio Avenue has a posted speed limit of 35 mph and 25 mph east and west of Jimmy Camp Road. Kane Road, a potential extension of the Ohio Avenue corridor via Ria Road, is a two-lane roadway that currently continues east from Ria Road to just east of Shumway Road. Kane Road is a paved road with one through lane in each direction west of Link Road and a gravel road east of Link Road.

- **Jimmy Camp Road.** Jimmy Camp Road is a two-lane roadway with a center turn lane in some segments. Jimmy Camp Road extends south from Luminary Lane to Link Road. North of Ohio Avenue, the existing roadway functions primarily as a residential collector. South of Ohio Avenue, adjacent land uses are more diverse, and the roadway takes on a major collector role. The entire corridor's posted speed limit is 30 mph, although there are several areas of reduced speed along the corridor for school zones.

- **Bandley Drive.** Bandley Drive is a two-lane roadway that runs along the east side of I-25, between Crest Drive (connecting to S Santa Fe Avenue/ US 85) on the south and SH 16/Mesa Ridge Parkway on the north. From there, Bandley extends into a commercial area north of SH 16/Mesa Ridge Parkway. Brandley Drive functions as an I-25 frontage road between the I-25 interchanges at SH 16/Mesa Ridge Parkway and Santa Fe Avenue/US 85. The posted speed limit is 35 mph.

  There is an opportunity to extend Bandley Drive north, over Fountain Creek, to connect to US 85 on the north via Southmoor Drive. Connections from Bandley Drive to SH 16 and US 85 are via signalized intersections. 2.2 Development Patterns and Densities

Like other Colorado Front Range cities, the City of Fountain has developed linearly along the foothills. Fountain Creek, the railroad tracks, and the I-25 corridor forms the primary spine along which the City has developed. Jimmy Camp Creek forms a secondary spine along which growth has occurred. The proximity of Fort Carson Army Post, which sits along the west side of the City, has factored into the pace and character of development.

Fountain is connected to the broader Pikes Peak region by a relatively sparse major roadway network, including SH 16/Mesa Ridge Parkway, SH 21/Powers Boulevard, I-25, and lesser extent, Marksheffel Road.

2.3 Special Traffic Generators

A major Fountain area employer is the US Army's Fort Carson, located immediately west of the City. Fort Carson encompasses 373,000 acres. It is bounded on the east by I-25, on the west by SH 115, and on the north by Academy Boulevard. The southern parameter of the base is just north of the Pueblo West and Primrose communities.

Fort Carson has a diverse military and civilian population. As of April 2020, 26,957 soldiers are posted to Fort Carson, along with 31,122 family members, 5,711civilian employees, and 967 contract employees, making Fort Carson's total population approximately 64,757. Significant to Fountain area traffic generation, 57% of all soldiers and their families live off-post, many in Fountain. Units assigned to the post include a mechanized infantry brigade, a Special Forces group, and an armored cavalry regiment.

The main entrance to the base is from South Academy Boulevard at Magrath Avenue. Magrath Avenue passes through the base to another primary gate just west of I-25 at the SH 16 interchange.

2.4 Bicycle and Pedestrian Facilities

As of 2003, the City had approximately 12.5 miles of primary, multi-purpose trails located within the Urban Growth Area. Existing trails are paved, typically 8 to 10 feet wide, and are intended to accommodate various uses, including biking, walking, jogging, and in-line skating. As shown in **Figure 2.1**, most of the existing trail system, primarily constructed by El Paso County, is located along Fountain Creek, and connects Mayors Park, Fountain Creek Regional Park, Cersa Park, and Widefield Park. This trail is part of a regional and statewide system that will eventually link communities along the Front Range, from Colorado's southern to northern border.

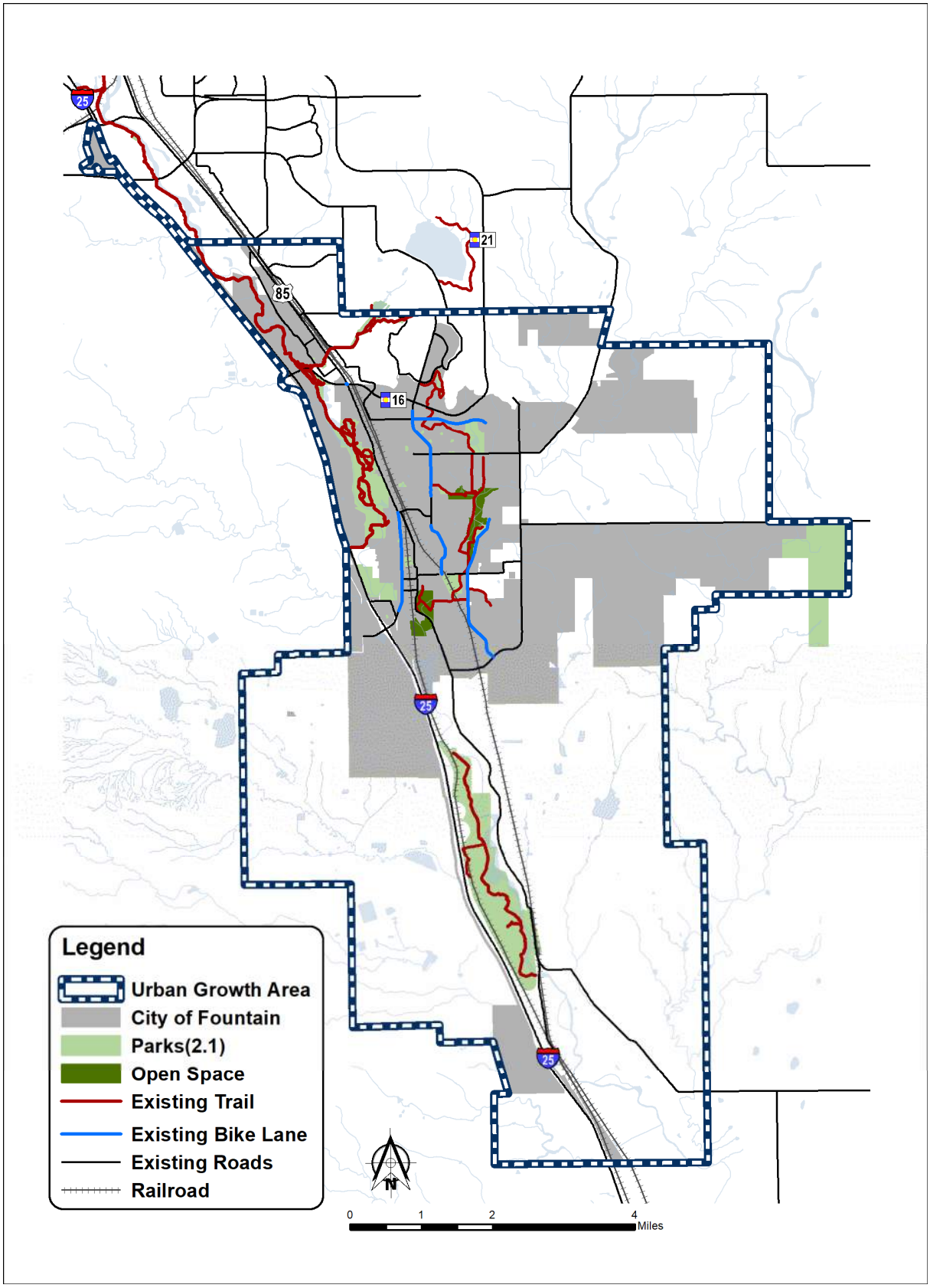


Figure 2. 1 Existing Fountain Area Trails and Bicycle Lanes

2.5 Transit Service

2.5.1 Fixed Route Bus Service

Fountain Municipal Transit currently operates fixed route bus service within Fountain and to PPCC and the El Paso County Service Center. Fountain Municipal Transit (FMT) Bus Service was created in April 2012, and it is funded entirely by MFF funds. Over its first five years of services, FMT served 111,379 riders, and FMT buses have traveled a total of 566,001 miles.

FMT operates fixed-route service and on-demand, diverted route service. Hourly service is provided on a single loop route using two vehicles with staggered start times. Service operates on weekdays between approximately 5:00 AM and 7:00 PM. Saturday services are provided between approximately 9 AM and 5 PM.

Hourly AM and PM transit service schedules and a corresponding route map, as of March 1, 2021, are shown in **Table 2.1 and Table 2.2,** and **Figure 2.2**.

Table 2. 1 Fountain Municipal Transit AM Route Schedule

BUS STOP		Run 1		Run 2		Run 3		Run 4		Run 5	
		Bus 1	Bus 2	Bus 1	Bus 2	Bus 1	Bus 2	Bus 1	Bus 2	Bus 1	Bus 2
2	Camden/Subway DEPARTS	4:55	5:55	6:25	7:24	7:54	8:54	9:24	10:24	10:54	11:54
3	El Paso County South BACK										
4	El Paso County North FRONT										
7	Fountain Mesa/ Walgreens	5:02	6:02	6:32	7:34	8:04	9:04	9:34	10:34	11:04	12:04
14	Ohio Ave / Metcalf Park	5:11	6:11	6:41	7:41	8:11	9:11	9:41	10:41	11:11	12:11
17	Jimmy Camp/ Middle Bay	5:19	6:19	6:49	7:49	8:19	9:19	9:49	10:49	11:19	12:19
21	Royalty Place/ Park N Ride	5:30	6:30	7:00	8:00	8:30	9:30	10:00	11:00	11:30	12:30
25	US 85 North of Comanche Drive	5:35	6:35	7:05	8:05	8:35	9:35	10:05	11:05	11:35	12:35
26	US 85 Alegre (east side)										
27	Camden Auto Zone	5:42	6:42	7:12	8:12	8:42	9:42	10:12	11:12	11:42	12:42
28	Camden O-Reilly Departs	5:50	6:50	7:20	8:15	8:45	9:45	10:15	11:15	11:45	12:45
29	EPC – Transfer Main Street										
31	PPCC 3rd Stall E of Main Bldg.	6:05	7:05	7:35	8:35	9:05	10:05	10:35	11:35	12:05	1:05
32	PPCC DEPARTS	6:15	7:15	7:45	8:45	9:15	10:15	10:45	11:45	12:15	1:15

Table 2. 2 Fountain Municipal Transit PM Route Schedule

BUS STOP		Run 6		Run 7		Run 8		Run 9		Run 10	
		Bus 1	Bus 2	Bus 1	Bus 2	Bus 1	Bus 2	Bus 1	Bus 2	Bus 1	Bus 2
2	Camden/Subway DEPARTS	12:24	1:24	1:54	2:54	3:24	4:24	4:54	5:54	6:25	7:25
3	El Paso County South BACK										
4	El Paso County North FRONT										
7	Fountain Mesa/ Walgreens	12:34	1:34	2:04	3:04	3:34	4:34	5:04	6:04	6:32	7:32
14	Ohio Ave / Metcalf Park	12:41	1:41	2:11	3:11	3:41	4:41	5:11	6:11	6:41	7:41
17	Jimmy Camp/ Middle Bay	12:49	1:49	2:19	3:19	3:49	4:49	5:19	6:19	6:49	7:49
21	Royalty Place/ Park N Ride	1:00	2:00	2:30	3:30	4:00	5:00	5:30	6:30	7:00	8:00
25	US 85 North of Comanche Drive	1:05	2:05	2:35	335	4:05	5:05	5:35	6:35	7:05	8:05
27	Camden Auto Zone	1:12	2:12	2:42	3:42	4:12	5:12	5:42	6:42	7:12	8:12
28	Camden O-Reilly Departs	1:15	2:15	2:45	3:45	4:15	5:15	5:45	6:45	END	END
29	EPC – Transfer Main Street										
31	PPCC 3rd Stall E of Main Bldg.	1:35	2:35	3:05	4:05	4:35	5:35	6:05	7:05		
32	PPCC DEPARTS	1:45	2:45	3:15	4:15	4:45	5:45	6:15	7:15		

2.5.2 Specialized Transit Service

Fountain Valley Seniors. Inc. operates demand responsive, door to door transit service to seniors in the Fountain Valley area and eastern El Paso County. The service is available for a variety of trip purposes, including medical/dental appointments, shopping, employment, education, and recreation. Community Intersections delivers a portion of the One Ride trips under contract to Fountain Valley Seniors.

2.5.3 Intercity Bus Service

The CDOT Bustang Outrider Line stops at the Fountain Park & Ride to pick-up and drop-off passengers. Bustang riders can also connect to the Bustang South Line to/from Denver and beyond is also available from Colorado Springs.

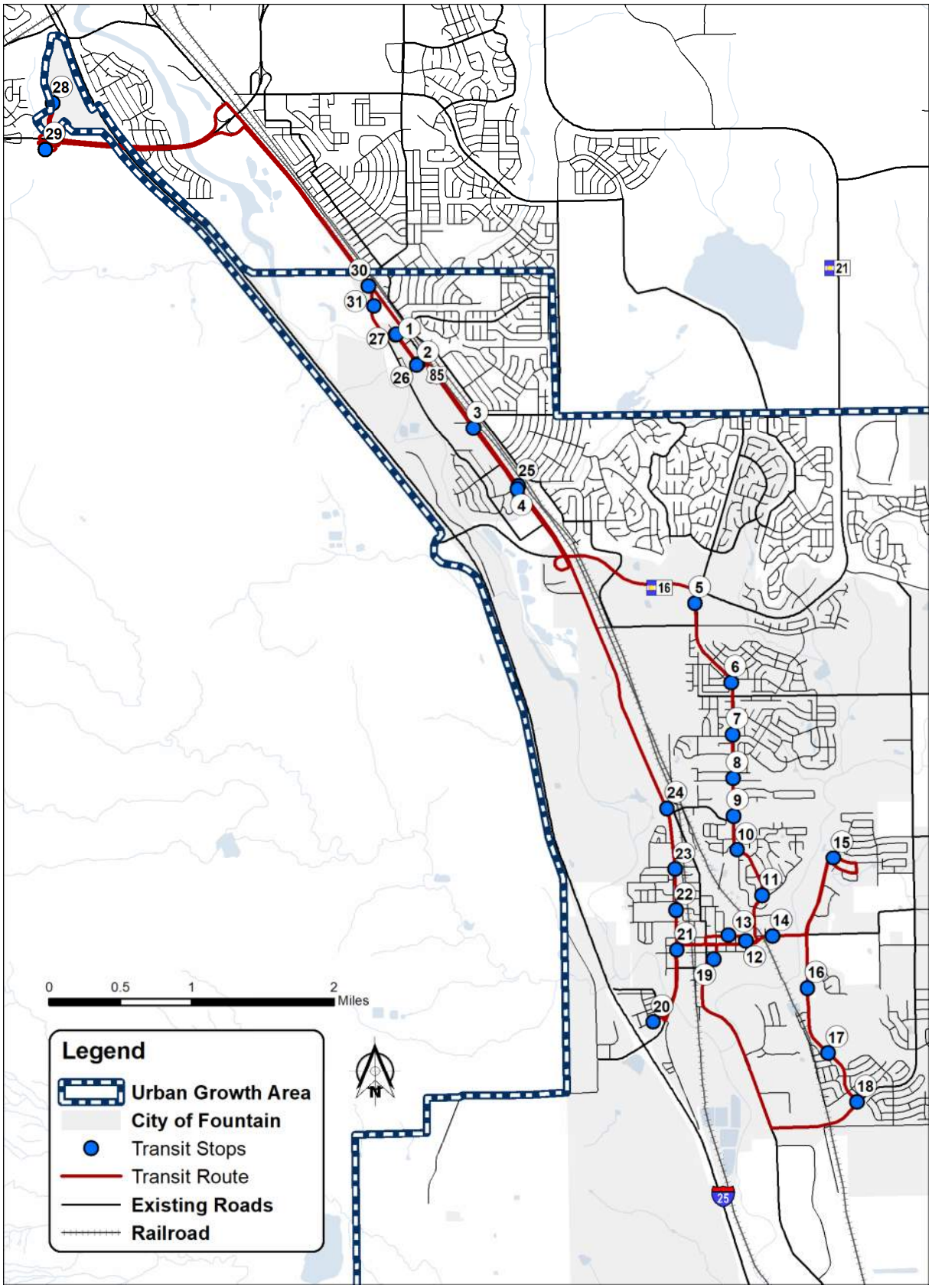


Figure 2. 2 Fountain Municipal Transit Map

2.6 Freight and Rail

The Union Pacific Railroad (UP) and the Burlington Northern/Santa Fe (BNSF) Railroad both have a major presence in the City. Fountain is the only secondary location along the Front Range with Dual-railway serviceability. Fountain's dual rail service is derived from the Ray D. Nixon Power Plant switch loop infrastructure owned by Colorado Springs Utilities.[1] The mainline corridors of each of these railroads bisect the community. Historically, the railroads played a major role in the local economy and predetermined the physical design of the street and land use network. Today, the railroads have less effect on the local economy as freight rail service diminishes. However, the presence of the rail corridors and the increasing number of trains passing through the community continue to have a profound impact on land uses along the corridor and the street network that crosses them.

2.6.1 Existing Railroad Crossings

The only grade-separated railroad crossing in the City is on SH 16/Mesa Ridge Parkway. Seven at-grade crossings are located at: Fontaine Boulevard, Duckwood Road (replaces Mesa Road crossing that has been closed), Comanche Village Drive, Ohio Avenue, Link Road, and Illinois Avenue (to be relocated to Indiana Avenue). Ohio Avenue crosses the railroad in two locations where the two tracks run on split alignments.

2.6.2 Railroad Crossing Improvements

Earlier plans, including the CDP and 2002 *Traffic Master Plan,* have explored ways to improve roadway connectivity and safety through a combination of signal upgrades, bypasses, and grade-separated railroad crossing strategies. There remains a need to implement railroad crossing improvements. The greatest benefit is the separation of different types of traffic, including cars, trains, and pedestrians, which lowers the risk of accidents for all parties. Other benefits, include:

- Improved traffic flow,
- Better connections and crossings for pedestrians and cyclists
- Improved emergency access
- Better connections and crossings for pedestrians and cyclists
- Air quality benefits from reduced vehicle idling at crossings, and
- Reduced noise from at-grade crossing signals and train whistles.

Grade-Separations. As the City grows and travel demand linking the development to the east and I-25 on the west rises, it will become increasingly difficult to maintain efficient east-west traffic flow across the mainline rail corridors. Given increased average daily traffic and increased train movements, one or more grade separations may be required to minimize congestion and assure adequate response times for fire, police, and other emergency vehicles.

As a part of previous planning, the City and partner agencies have explored grade-separating the existing crossings on Fontaine Boulevard and Ohio Avenue and a proposal to create an "Old Pueblo Road to US 85 downtown" grade-separated bypass. These initiatives have not been advanced because the existing development context and terrain at each location present engineering challenges that would be difficult, if not impossible, to overcome. The creation of a Link Road/extended Wilson Road grade-separated crossing would be feasible. It will be considered part of this plan, as will opportunities to grade-separate the railroad crossings on new east-west corridors.

[1] https://www.fountaincolorado.org/cms/one.aspx?portalId=6004447&pageId=8300338

Signalization of At-Grade Crossings All at-grade, public railroad crossings in the central area of the city are signalized and protected by standard warning signage. Existing at-grade, public crossings are located at: Fontaine Boulevard (located in Widefield), Duckwood Road, Comanche Village Drive, Ohio Avenue, Illinois Avenue and Link Road. South of Illinois Avenue, there are additional private, at-grade crossings that are not signalized. These crossings are marked by RR X warning signs and STOP signs. These unsignalized crossings generally serve individual businesses or private ranches and residences. An exception is the Birdsall Road crossing (located in El Paso County) that is located on a public road and provides access to a variety of adjacent land uses.

Two recent improvement projects have relocated signalized crossings to improve circulation and safety. The Mesa Road Crossing was closed in 2019 and was replaced by a new signalized crossing at Duckwood Road. The City is also relocating the existing, signalized crossing at Illinois Avenue to Indiana Avenue.

Land Use Strategies. In addition to operating its mainline corridor through the city, Union Pacific is also a landowner. The City could establish a formal dialogue with Union Pacific representatives regarding possible land exchanges to create more useable industrial properties and increase market values. The City could promote the development of land adjacent to rail corridors throughout Fountain in the following ways:

- Planned Industrial, which may aid in diversifying the economic base of the City.
- Open space to buffer lower-density residential uses from the noise and safety concerns associated with railroad traffic.
- Mixed residential only after non-residential uses are placed along the railroad corridor.
- Small office/warehouse with warehousing facilities adjacent to the corridor.
- Higher density residential uses only if sufficient open space and landscape buffers are provided to mitigate adverse impact.

3.0 Goals, Principles, and Policies

3.1 Community Vision and Goals

The City of Fountain's vision statement promotes, in part, "a vibrant, friendly, and growing community [that] maintains at its core a genuine and welcoming All-America hometown feel."[2] In support of the community vision statement, Fountain City Council identified several Strategic Priorities to be accomplished following the strategic plan cycle's completion (2018–2021). The first strategic priority, which is relevant to this TMP, is to "improve the conditions of City-wide transportation infrastructure to support enhanced road safety, encourage economic development and improve traffic flow, focused principally on major City transportation corridors, then residential areas." The community recognizes the critical role that transportation infrastructure plays in improving the overall quality of life in the City of Fountain.

To this same end, the City's Fountain Roadway Focus Group (FRFG)[3] was established with a primary objective to explore options for improving the condition of City of Fountain streets. The focus group also explores ways to fund the necessary work.

Twelve overall community goals were identified in the 2005 CDP:

1. Ensure that growth and development within the City of Fountain enhances the quality of life for present and future citizens, provides a positive impact on the tax base, and does not adversely affect community services or the natural environment.
2. Encourage development that provides a diverse and stable economic base and provides employment opportunities for existing and future residents.
3. Maintain a balance between developed lands and Fountain's natural amenities.
4. Ensure that new and existing land uses do not harm the transportation system, the environment, or the visual quality of the community and surrounding lands.
5. Revitalize the downtown area to provide a focal point and meeting place for the citizens of Fountain, area residents, and visitors to Colorado.
6. Preserve and improve significant features within the City, such as creeks, flood plains, wetlands, and historical and architectural elements.
7. Provide the residents of Fountain with adequate and cost-effective public facilities and community services.
8. Ensure that adequate water supply and wastewater treatment are available and maintained for current and future residents and businesses in the City.
9. Continue to develop and maintain a park and open space system linked together by a series of trails and sidewalks.
10. Encourage an appropriate mix of housing types, locations, and values for all residents of the City.

[2] City of Fountain website, visited February 8, 2021, "City of Fountain Vision Statement", https://www.fountaincolorado.org/common/pages/DisplayFile.aspx?itemId=13791988
[3] City of Fountain website, visited February 8, 2021, Fountain Roadway Focus Group, https://www.fountaincolorado.org/cms/One.aspx?portalId=6004447&pageId=12270138

11. Provide for the safe and convenient circulation of motorists, cyclists, and pedestrians throughout the City of Fountain.

12. Preserve and enhance visual resources for the benefit of all City residents and visitors.

Transportation plays an integral role in the pursuit of the City's vision, providing strategies to develop an integrated system of pedestrian, bicycle, and transit ways, as well as safer roads and crossings throughout Fountain. Major themes include:

- Multimodal Transportation
- Safety
- Integrated Circulation
- Intergovernmental Transportation Improvements
- Infrastructure Condition
- Congestion Reduction
- Freight Movement and Economic Vitality
- System Reliability
- Environmental Sustainability
- Reduced Project Delivery Delays

In addition to the goals, principles, and policies that the City has already identified, there are emerging issues that the City will need to address in the future. These relate to how the City wants to deal with Adequate Public Facilities, continued growth in vehicle miles traveled (VMT), maximum street and intersection geometry, constrained street corridors, law enforcement, and development of a transportation system performance measurement system. These issues are discussed in general terms as part of this plan, recognizing that the City will need to consider these items in more detail to implement this plan.

3.2 Design Criteria and Standards

The City of Fountain's impact criteria for traffic congestion states that: "all signalized intersections should be maintained at overall LOS C or better. In addition, the benchmark requires that all movements that have 5% or more of the total entering intersection volume should be maintained at LOS C or better and have a volume to capacity ratio less than 1.0."[4] The City has also established design criteria that vary by function and carrying capacity of the roadway. The current design criteria and impact criteria are included in Title 12 (Streets, Sidewalks, and Public Places, Chapter 12.04 – Construction Generally) and Title 16 (Building, Chapter 16.20 Subdivision Regulations, Section 16.25 Criteria for Traffic Impact Studies), of the Municipal Code, respectively. The impact criteria remain unchanged; however, the City's Street Design Standards, as described in Section 3.2.1, were updated for TMP 2022.

3.2.1 Roadway Classifications and Standards

The TMP 2022 roadway functional classification system and design standards are designed to balance the function of the City's streets to carry traffic and to provide access to adjacent property. The functional classifications provide the hierarchy that is needed to allow safe and continuous travel and access. Streets are divided into categories based on their function within the overall transportation network. Different design criteria are associated with each functional classification to maintain and protect the roadway's primary purpose. The roadway design standards are intended to provide a benchmark for street sections, but variances

[4] City of Fountain, visited March 23, 2021, Th impact criteria and "Fountain Municipal Code", https://www.fountaincolorado.org/UserFiles/Servers/Server_6004363/Image/Government/City%20Departments%20&%20Division/Neighborhood%20Services/CIty%20Code.pdf

to these standard sections can be requested. Roadway typical section reductions will be considered if a lesser typical section can be shown to accommodate the projected long-term traffic volumes adequately.

The functions of each of the updated roadway classifications are differentiated as follow:

- **Expressway**. Expressways permit rapid and relatively unimpeded movement of traffic and typically serve longer trips.
- **Major Arterial**. (**Figure 3.2**) Major arterial streets permit rapid and relatively unimpeded traffic movement throughout the City and carry high volumes of inter and intra- traffic, which connects major land use elements and communities. The primary function is to serve through traffic. The secondary function is to serve abutting property. This functional description pertains to four-lane and greater facilities.
- **Arterial/Minor Arterial (Figures 3.3 and 3.4)**. Arterial and minor arterial streets permit rapid and relatively unimpeded traffic movement throughout the City and carry high volumes of inter and intra-traffic, which connect major land use elements.
- **Collector/Minor Collector (Figures 3.5 and 3.6)**. Collector streets are designed to serve the neighborhood's local needs and provide direct access to non-residential, abutting properties. All traffic carried by collector streets should have an origin or a destination within a residential neighborhood.
- **Residential (Figure 3.7).** Residential streets are designed to serve the neighborhood's local needs and provide direct access to abutting residential properties. All traffic carried by residential streets should have an origin or a destination within the neighborhood.
- **Minor Residential (Figure 3.8)**. Minor residential streets are designed to provide direct access to abutting
  single-family residential properties. Cul-de-sacs must have a length of no greater than 500 feet.
- **Industrial Collectors (Figure 3.9)**. Industrial/ commercial streets are designed to serve industrial/commercial areas and connect such sites with major arterial and collector streets.
- **Public Alleys (Figure 3.10)**. Alleys are designed to provide access to abutting property at rear lot lines.

Illustrations of typical sections for expressway, arterial, collector, residential, and public alley functional classes are included below as **Figure 3.1** through **Figure 3.10**. The figures are not to scale and are not intended to be used as engineering designs. Larger plot versions of the typical sections are included as **Appendix A**.

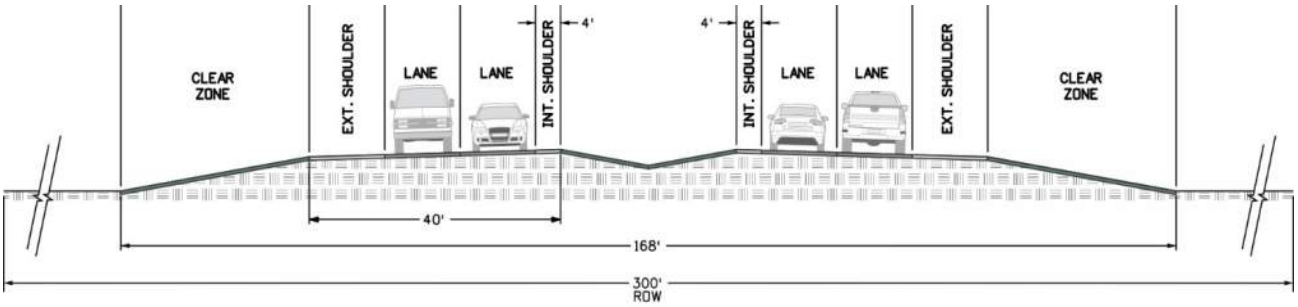


Figure 3. 1 Expressway Typical Section

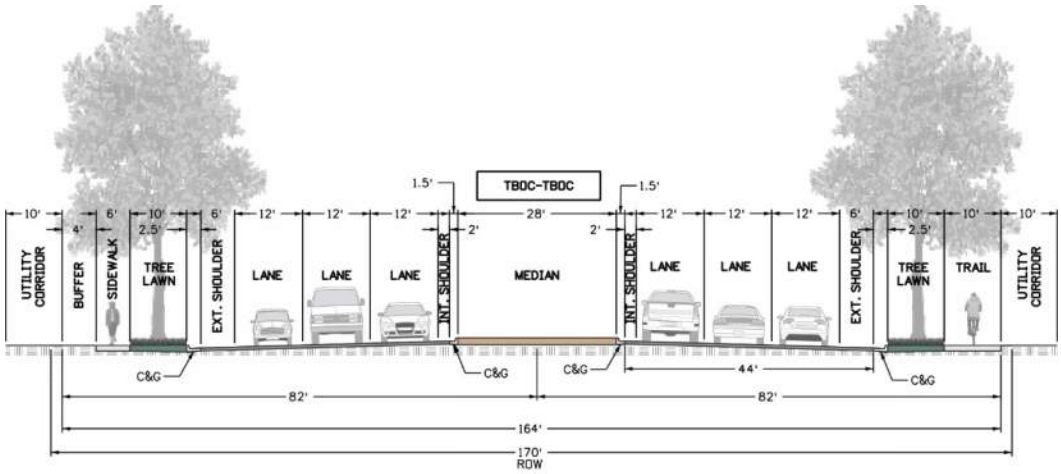


Figure 3. 2 Major Arterial Typical Section

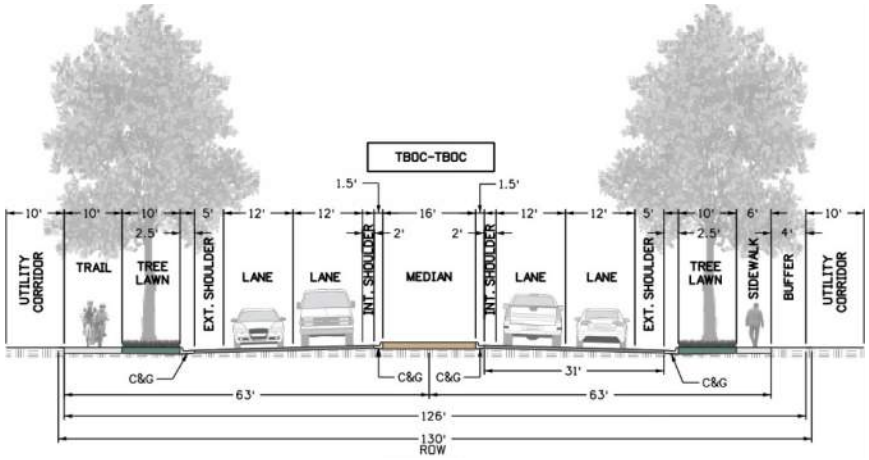


Figure 3. 3 Arterial Typical Section

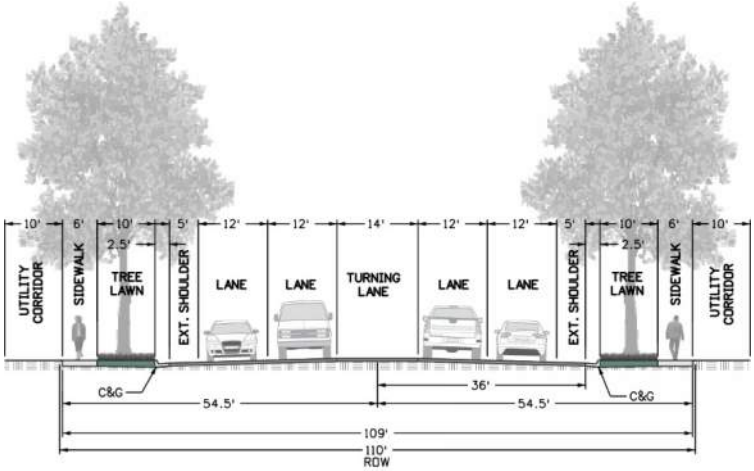


Figure 3. 4 Minor Arterial Typical Section

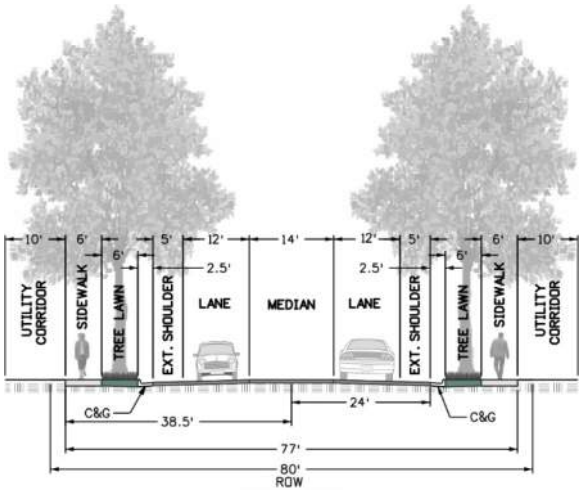


Figure 3. 5 Collector Typical Section

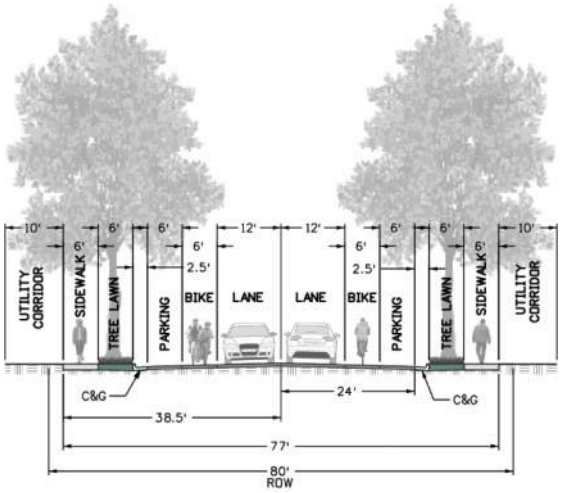


Figure 3. 6 Minor Collector Typical Section

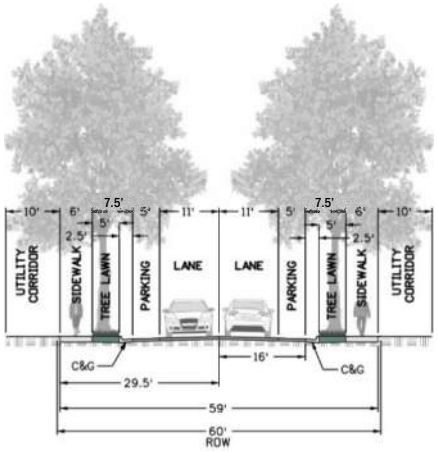


Figure 3. 7 Residential Typical Section – Detached Sidewalk

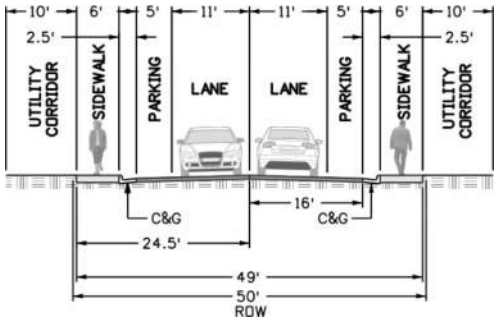


Figure 3. 8 Residential Typical Section – Attached Sidewalk

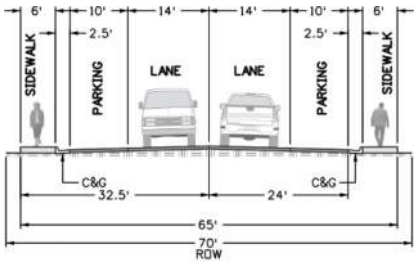


Figure 3. 9 Industrial Commercial Collector Typical Section

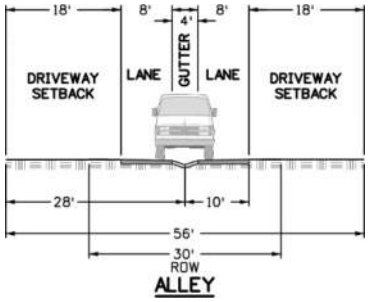


Figure 3. 10 Public Alley Typical Section

Table 3. 1 Roadway Functional Classification and Standards

Roadway Classification	Expressway	Major Arterial	Arterial	Minor Arterial	Collector	Minor Collector	Residential Detached Sidewalk	Residential Attached Sidewalk	Industrial Commercial Collector	Public Alley
Design Speed/Posted Speed (mph)	70/55	50/45	50/45	45/40	40/35	40/35	30/25	30/25	30/25	NA
Suggested ADT	60,000-85,000	25,000-60,000	10,000-25,000	5,000-10,000	3,000-5,000	1,500-3,000	300-1,500	300-1,500	NA	NA
Clear Zone (Clear zone per AASHTO Roadside Design Guide Table 3.1 - 10' minimum)	30'	10'	10'	10'	10'	NA	NA	NA	10'	NA
Right of Way Width	300'	170'	130'	110'	80'	80'	60'	50'	70'	30'
Roadway Width (pavement mat)	2 - 40' to 60'	2 - 44'	2 - 31'	72'	48'	48'	32'	32'	48’	20'
Number of Lanes	4-6	6	4	5	3	2	2	2	2	2
Lane Widths	12'	12'	12'	12'	12'	12'	11'	11'	14'	10'
Shoulder Width (Ext., excluding C&G)	8' or 12'	2 - 6' Multi-Use Shoulders	2 - 5' Multi-Use Shoulders	2 - 5' Multi-Use Shoulders	2 - 5' Multi-Use Shoulders	NA	NA	NA	NA	NA
Shoulder Width (Int.., excluding C&G)	4' or 12'	2'	2'	NA	NA	NA	NA	NA	NA	NA
Median	Depressed (swale) 28'	28' TBC-TBC	16' TBC-TBC	Painted – 14’	Painted - 14'	NA	NA	NA	NA	NA
Curb & Gutter Type (required)	NA	Type 1 Type 3 (median)	Type 1 Type 3 (median)	Type 1	Type 1	Type 1	Type 1/Type 5	Type 1/Type 5	Type 1	4’ Inverted Concrete Pan
Sidewalk Requirement (placement)	NA	6' Detached (located on one side)	6' Detached (located on one side)	2 - 6' Detached	2 - 6' Detached	2 - 6' Detached	2 - 6' Detached	2 - 6' Attached	2 - 6' Attached	NA
Bicycle Accommodations	NA	10' Off-Street Trail (located on other side)	10' Off-Street Trail (located on other side)	Multi-Use Shoulder	Multi-Use Shoulder	6' Bike Lane between travel lane and parking	No	No	No	NA
Tree Lawn Width	NA	10'	10'	10'	6'	6'	5'	NA	NA	NA
10' Utility Corridor	NA	10' from buffer or back of Trail	10' from buffer or back of Trail	10' from back of sidewalk	10' from back of sidewalk	10' from back of sidewalk	10' from back of sidewalk	10' from back of sidewalk	NA	NA
Alley Driveway Setback	NA	NA	NA	NA	NA	NA	NA	NA	NA	18' from edge of asphalt
Parking	No	No	No	No	No	Yes; 2 - 6'	Yes; 2 - 5'	Yes; 2 - 5'	Yes; 2-10'	Allowed only on 18' driveways
Design Vehicle	WB 67	WB 67	WB 67	WB 67	WB 50	WB 50	SU 30	SU 30	WB 67	SU 30
Signalized Intersection Frequency	1 Mile	1/2 Mile	1/2 Mile	1/2 Mile	NA	NA	NA	NA	NA	NA
Unsignalized Intersection Frequency	NA	1/2 Mile	1/2 Mile	1/4 Mile	600'	600'	300' Max	300' Max	600'	1/2 Adjacent Street Length
Access Distance to Cross Street (minimum)	NA	115'	115'	115'	75'	75'	25'	25'	75'	NA
Vertical Alignment	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO
Horizontal Alignment Radius*	3,150' w/6% Super of 8% Max	930'	930'	750'	550'	550'	200'	200'	200'	85'
Grade (Min-Max)	1% - 4%	1% - 4%	1% - 4%	1% - 4%	1% - 8%	1% - 8%	1% - 8%	1% - 8%	1% - 6%	1% - 8%
Intersection Grade	1% - 2%	1% - 3%	1% - 3%	1% - 3%	1% - 3%	1% - 3%	1% - 4%	1% - 4%	1% - 3%	1% - 4%
Intersection Sight Distance	CDOT Desisgn-2018	555'	555'	445'	445'	445'	280'	280'	445'	170'
Stopping Site distance	CDOT Desisgn-2018	425’	425’	425’	200’	200’	155’	155’	200’	80’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

3.2.2 Off-Street Trail Classifications and Standards

The 2003 City of Fountain *Parks, Recreation, and Trails Master Plan* (PRTMP)[5] identified two off-street trail classifications and established design standards for each, as detailed below.

Primary Multi-Purpose, Off-Street Trails

Paved multi-purpose, off-street trails form the central trail spines through the Fountain. They accommodate various trail users, including walkers, joggers, recreational bikers, and sometimes, commuter bikers within the same trail corridor. These trails' preferable location is along drainage-ways or other linear features, connecting parks, open space areas, recreational facilities, and major destination nodes. Environmentally sensitive areas should be avoided. Primary trails that must be located adjacent to roadways should incorporate a 50-foot easement where feasible and appropriate. A 3-foot wide, soft surface shoulder on one side of the trail should be provided for joggers and walkers who prefer a softer surface**. Figure 3.6** illustrates the minimum shoulder width clear of hazards on each side of the trail and minimum vertical clearances for pedestrian and bicyclists. **Table 3.2** lists specific City of Fountain design standards for Primary Off-Street Trails.

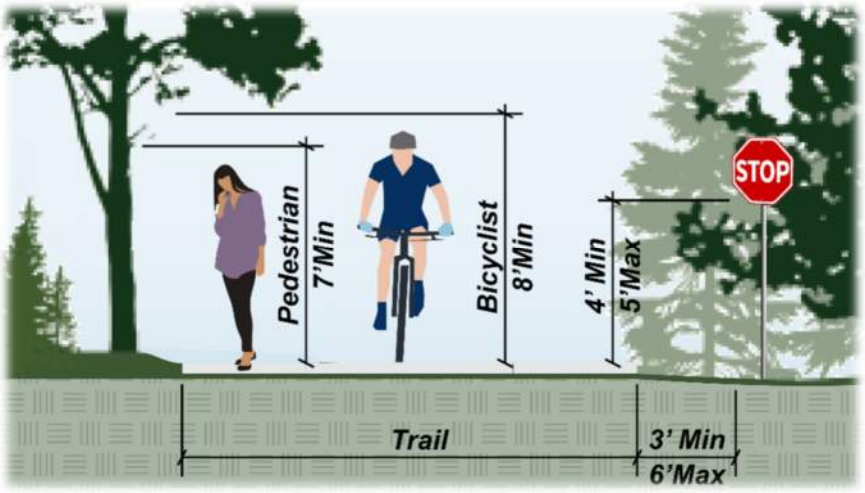


Figure 3.11 Multi-Purpose Off-Street Trail Minimum Clearance Distances

Secondary Multi-Purpose, Off-Street Trails

Secondary trail links connect the primary trail system to development areas and parks and open space areas that are not on the primary system. These paved, multi-purpose, off-street trails, provided by the project developer, are an integral part of the development's circulation and open space system. Like primary trails, the secondary trails are preferably located in an open space corridor and accommodate various trail users, including walkers, joggers, and bicyclists. Secondary trails that must be located adjacent to roadways should incorporate a 30-foot easement where feasible and appropriate. **Table 3.2** lists the specific City of Fountain design standards for design standards for Secondary Off-Street Trails.

[5] City of Fountain, "Parks, Recreation, and Trails Master Plan", May 2003, www.fountaincolorado.org/UserFiles/Servers/Server_6004363/File/Planning%2

Table 3. 2 Off-Street Trail Functional Classification and Standards

Design Criteria	Primary Off-Street Trail	Secondary Off-Street Trail
Definition	Trails for walking, jogging, skating, bicycling, and other non-motorized uses that are part of the City of Fountain Primary Trail System and are constructed and maintained as part of the City's recreational facilities.	Trails for walking, jogging, skating, bicycling, and other non-motorized uses that provide connections to the primary trail system, or to attractions, employment, shopping, or services, or between neighborhoods. These trails shall be privately owned and maintained and are required by the City development process.
Right-of-Way	50 feet minimum width where feasible, designed as naturalized open space or parkland as determined by the City.	30 feet minimum width, designed as naturalized open space or parkland as determined by the City
Trail Width	10 feet.	8 feet.
Trail Surface	Concrete. No openings greater than ½ inch per ADA.	Concrete. No openings greater than ½ inch per ADA.
Parallel Trail Width	3 feet if present.	NA
Parallel Trail Surface	Crushed gravel if not used by equestrians. Natural surface if used by equestrians.	NA
Sight Distance	130 feet minimum. If unattainable, provide adequate signage.	90 feet minimum. If unattainable, provide adequate signage.
Grades	5% maximum preferred. In special circumstances, up to 8.33% may be allowed, not to exceed 200 feet in length.	5% maximum preferred. In special circumstances, up to 8.33% may be allowed, not to exceed 200 feet in length.
Cross Slope	1-2 % typical. 3% maximum.	1-2 % typical. 3% maximum.
Vertical Clearance	12 feet preferable, 10 feet minimum.	12 feet preferable, 10 feet minimum.
Shoulders	3 feet mowed and clear of hazards on each side of the trail. Design for pruning and occasional mowing for 10 feet on each side of the trail.	3 feet zone, clear of hazards either side.
Trail Centerline Radius	40 feet minimum at tight corners and switchbacks. 100 feet minimum elsewhere. Adequate signage where radius is shorter.	30 feet minimum at tight corners and switchbacks. 100 feet minimum elsewhere. Adequate signage where radius is shorter.
Radius at Intersections of Trails	15 feet to accommodate maintenance vehicles. 8 feet where vehicles are not anticipated.	8 feet minimum.
Separation from Roadway	20 feet minimum where feasible.	8 feet minimum where feasible.
Stripping	4 inch wide, dashed white center lane striping. Yellow solid line where site distances prohibit safe passing.	None.
Underpass Width	12 feet minimum. 14 feet preferable.	10 feet minimum. 12 feet preferable.
Bridges	10 feet minimum.	8 feet minimum.
Guardrails	Guardrails or fencing along steep drops within 5 feet of trail.	Guardrails or fencing along steep drops within 5 feet of trail.
Trail Markings and Signage	As needed for safety, regulations, and as desired for interpretation and wayfinding. Designs to meet *Manual of Uniform Traffic Control Devices (MUTCD) standards and as recommended in AASHTO Guide for the Development of Bicycle Facilities.*	As needed for safety, regulations, and as desired for interpretation and wayfinding. Designs to meet *Manual of Uniform Traffic Control Devices (MUTCD) standards and as recommended in AASHTO Guide for the Development of Bicycle Facilities.*
Amenities	Restrooms and drinking fountains/water jug fillers at strategic trailheads and as provided by nearby commercial uses. Benches, approximately 2 per mile. Trail markers, every 0.1 mile. Picnic tables as appropriate.	As appropriate.

3.3 Transportation Performance Measurement

Data related to transportation are collected to develop performance measures used to assess the effectiveness and efficiency of the transportation system. Traffic data such as travel time, speed, and delay are often used to describe mobility in a less technical way. Performance measures are selected to measure progress toward achieving the vision, goals, and objectives established for the plan. The City of Fountain has set Level of Service (LOS) C as the design/required traffic operations criteria. Thus, a LOS of greater than C constitutes a traffic impact that must be mitigated.

3.4 Funding Transportation Improvements

The City of Fountain is part of the PPACG, the Metropolitan Planning Organization (MPO). As an urbanized area with a population of over 200,000, the PPACG is also a Transportation Management Agency (TMA). As a TMA, the PPACG has greater planning responsibilities than a small- or medium-sized MPO and has access and direct control over allocations for more diverse federal funding for transportation infrastructure and programs.

3.4.1 State and Federal Funding

The City of Fountain is part of the PPACG, the Metropolitan Planning Organization (MPO), and includes a set of roadways eligible for federal and state funding based on roadway functional classifications established by the Federal Highway Administration (FHWA) and CDOT. Eligible roadways are classified as Interstate/Expressway, Primary Arterial, Minor Arterial, or Collector facilities. Within the City, as shown in **Figure 3.11**, roadways that are eligible for federal and state funding include:

- I-25
- US 85
- SH 16/Mesa Ridge Parkway
- portions of Jimmy Camp Road
- Link Road
- Old Pueblo Road
- Fountain Mesa Road
- Fontaine Boulevard
- Marksheffel Road
- C & S Road – Duckwood Road
- Ohio Avenue
- Goldfield Drive, and
- Selected major collector facilities.

The PPACG is responsible for developing and maintaining a Transportation Improvement Program (TIP) that identifies state and federally funded surface transportation projects to be implemented in the Pikes Peak region during the current four federal fiscal years. The TIP is developed under the federal guidelines and requirements within the FAST (Fixing America's Surface Transportation) Act, the current federal transportation law. In addition to all federally funded projects, regionally significant projects must be included in the TIP per current federal planning regulations. Projects are defined as regionally significant if they require action by FHWA or the Federal Transit Administration (FTA) or are funded with federal funds other than those administered by FHWA or FTA.

The PPACG TIP stipulates that TIP is intended to fulfill the following purposes:

- *To serve as a short-range implementation tool to achieve compliance with the goals of the regional long-range transportation plan (LRTP).*
- *To provide continuity of current transportation improvement projects with those identified in previous TIPs; To identify transportation projects recommended for implementation by transportation mode, type of improvement, funding sources, and geographic area.*

- *To establish a prioritization of projects proposed for federal and state funding. The project allocations are to be consistent with the funds reasonably anticipated to be available for such projects in the area. To establish a prioritization of projects to effectively utilize federal funds as they become available.*
- *To identify and implement transportation improvements [that] will reduce congestion, increase mobility and safety, and enhance the region's air quality; and*
- *To utilize performance-based planning and programming techniques by establishing and monitoring regional performance measures and targets.*[6]

The PPACG 2021-2024 TIP includes three projects sponsored by Fountain and a fourth project that Fountain is advancing cooperatively with other affected jurisdictions. The value of the Fountain projects, including local match dollars, is $5,082,723. The combined funding identified for the South Powers Boulevard Study is $1,000,000. These state and federally funded projects are summarized in **Table 3.3**.

Table 3. 3 PPACG 2021-2024 TIP Fountain Area Projects

Years	Project	Description	Funding
FY20 FY21	SH16 (Mesa) and Sneffels St. Signal and Intersection Improvements.	SH16 (Mesa) and Sneffels St. Signal and Intersection Improvements.	$1,385,500
FY21	Fountain Municipal Transit Pedestrian and ADA Enhancements	Construct bus stop pads, seating accommodations, and ADA sidewalk curb ramps to improve access.	$150,000
FY21	Indiana Avenue & BNSF Crossing Improvements	Construct 4-lane road from US 86 to Race St. & a 3-lane road from Race to S. Main St.; close RR Xing on Illinois Ave. (originally programmed $800,000).	$2,476,998
FY21 FY22 FY23	South Powers Boulevard Multimodal Corridor Study	Working with affected jurisdictions, plan for the next phase of corridor planning for South Powers Boulevard Corridor Study Mesa Ridge Parkway to I-25. The goals are to produce a corridor plan, determine a more precise alignment, plan for access and right-of-way (ROW) needs for vehicles, transit and multimodal transportation needs and phasing options. This holistic approach will identify critical ADA compliant bike/pedestrian connections and crossings for safer travel, will consider transit opportunities for Bustang intercity bus service, Mountain Metro Transit, Fountain Metro Transit and/or paratransit services along with park and ride locations if needed. This corridor study is the next planning phase that will determine the appropriate corridor plan and alignment for the extension of South Powers Boulevard from Mesa Ridge Parkway Boulevard to a connection with I-25.	$1,000,000
FY23 FY24	Link Road	Roadway reconstruction, roadway widening, safety improvements, drainage improvements, signalization improvements, bike lanes and sidewalk.	$2,069,225
		Total – PPACG 2021-2024 TIP	**$6,082,723**

[6] PPACG, "2021-2024 TIP", April 17, 2020, http://www.ppacg.org/wp-content/uploads/2020/04/Full-FY-2021-2024-TIP_federal-req-_FINAL_4_17_20.pdf.

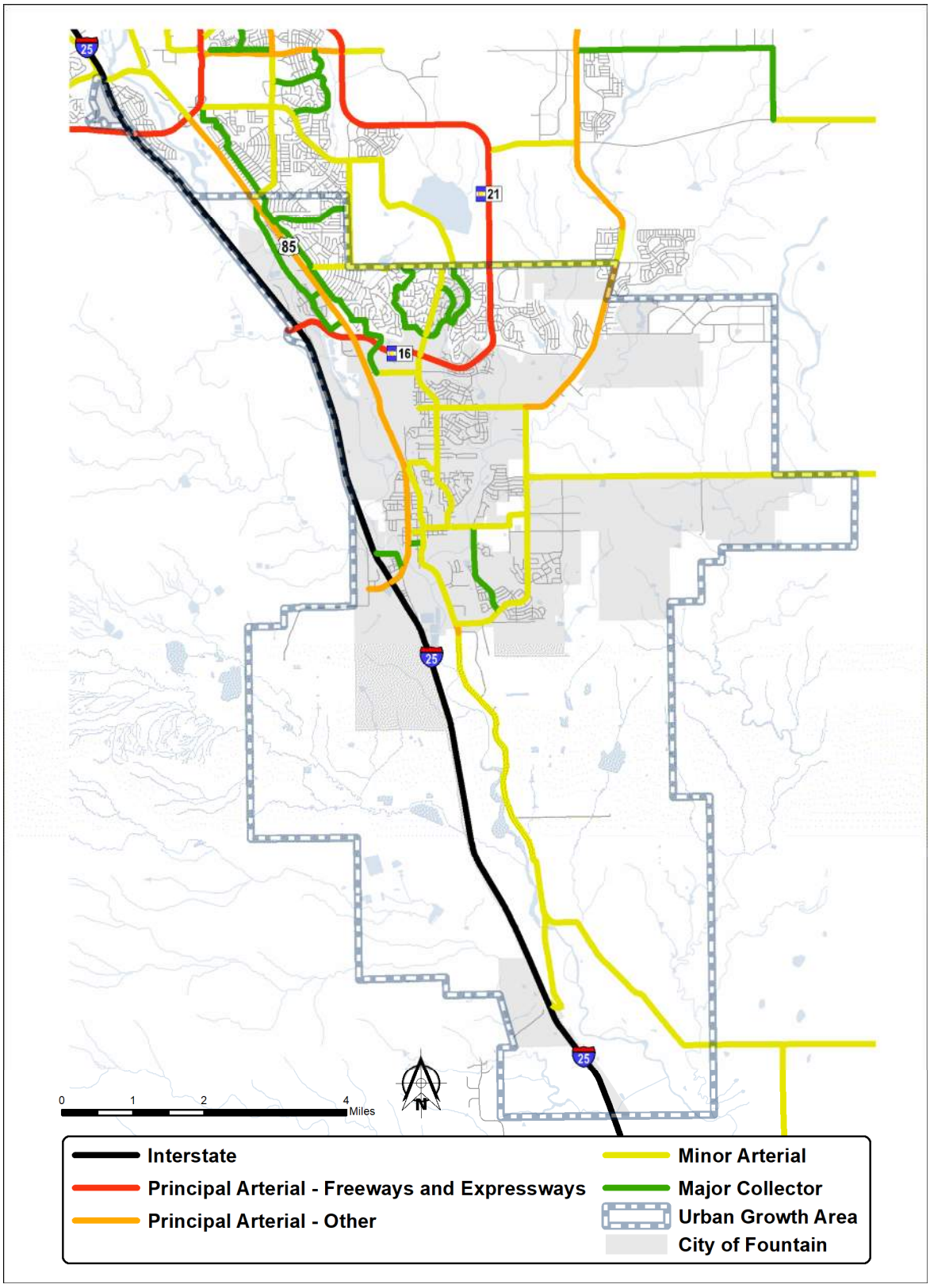


Figure 3. 12 Map of Roadways Eligible for State and Federal Funding

3.4.2 Local Funding

The City of Fountain has limited local funding dedicated to transportation system improvements. The City has chosen not to participate in the PPRTA; however, the City passed the MFF local ballot initiative in 2009.

In 2009, the citizens of Fountain approved the Moving Fountain Forward (MFF) ballot initiative[7], providing necessary resources to improve the quality of transportation infrastructure throughout the City. Under the initiative, various projects were designed to address issues across the community, including improvements to road safety, vehicle congestion, and noise pollution reduction.

The MFF initiative[8] focused sales tax monies (0.75 percent or three-quarters of a cent on each dollar purchase) to three areas of transportation funding:

1. Street resurfacing (0.15 percent) - This work has been ongoing, and all money accrued has been spent each year on resurfacing projects throughout the City.
2. Public transportation (0.25 percent) - The City of Fountain Municipal Transit Bus Service was created in April 2012 and is funded annually through this portion of MFF.
3. Capital projects (0.35 percent) – Included 10 Capital projects. Estimated project costs did not keep pace with current construction costs leaving a major funding shortfall to complete projects, partly because budget projections in 2009, amidst the Great Recession, were far lower than current 2018 project construction costs. The Capital Projects portion was given a sunset date of January 1, 2020. In November of 2019, Fountain citizens voted not to continue this portion of the MFF special tax.

3.4.3 Railroad Funding Sources

The City should work closely with the railroads and the Colorado Public Utilities Commission (PUC) to consider the physical separation of rail and automobile/ truck traffic. The PUC has the authority to approve or deny railroad/highway grade separation projects and to allocate funding for individual projects. Upon receipt of an application for a grade separation project that meets the criteria, the PUC may allocate related construction costs based upon reasonably adequate facilities. Fifty percent of the cost may be borne by the railroad or railroads and fifty percent by the State, County, Municipality, or public authority in interest. However, the PUC may impose a different allocation if demonstrated, by substantial evidence, to be of benefit and need.

The State of Colorado's Highway Crossing Protection Fund is the primary funding source for new crossing signal installations or upgrades. The PUC administers the crossing program and allocation of funds. The Commission will consider the benefits to the parties involved when allocating the cost of improvements. Generally, the PUC adopts a cost-sharing approach requiring both the railroad and the local municipality to share the cost of signal improvements

[7] City of Fountain website, visited March 8, 2021, Moving Fountain Forward, https://www.fountaincolorado.org/cms/One.aspx?portalId=6004447&pageId=11961755
[8] City of Fountain website, visited March 8, 2021, MFF Initiative, https://www.fountaincolorado.org/UserFiles/Servers/Server_6004363/File/10%20YEAR%20REVENUE%20%20SPENDING%20REORD%20City%20of%20Fountain%202010-2018.pdf

3.4.4 Roadway Impact Fee Program

Effective December 20, 2020, the City of Fountain implemented an Interim Road Impact Fee. The interim fees mirror those currently in force for the El Paso County Impact Fee Program. The interim fee structure will remain in effect for six months to be refined as more local information becomes available consistent with TMP 2022 findings and recommendations. Effective impact fees in force are summarized in **Table 3.3**.

Table 3. 4 City of Fountain Interim Impact Fees

Land Use	Unit	Full Fee
Single-Family	Dwelling	$3,830
Multi-Family	Dwelling	$2,407
Hotel/Motel	Room	$2,806
General Commercial	1,000 sf	$4,958
Convenience Comm.	1,000 sf	$8,800
Office	1,000 sf	$3,180
Public/Institutional	1,000 sf	$3,372
Industrial	1,000 sf	$3,651
Warehouse	1,000 sf	$1,865
Mini Warehouse	1,000 sf	$725

4.0 Transportation Demand Analysis

4.1 Methodology

The PPACG Travel Model was used to develop traffic forecasts for alternative 2045 transportation networks and land-use scenarios. The adopted PPACG 2045 socioeconomic forecasts model version was used as the base land-use scenario. Travel demand analysis using this scenario was used to identify transportation system deficiencies and to conduct needs analysis. The second future land-use scenario includes the build-out of approved developments that have been, or are expected to be, annexed into the City within the 2045 planning horizon. The development build-out scenario was used to evaluate alternative future networks and to size transportation corridors to support the forecasted 2045 travel demand.

4.1.1 Model Network Refinements

The PPACG 2020 and 2045 adopted model version highway networks were refined within the overall TMP analysis area. The network refinements for the base land-use scenario model version were limited to the addition of local streets and revisions to the number and placement of connectors from traffic analysis zones (TAZs) to the network. These changes were consistently implemented for the PPACG 2015 network and the PPACG 2045 network. The revised PPACG 2045 network was used in both the 2045 PPACG 2045 land-use model scenario and the 2045 "build-out" land-use model scenario.

4.1.2 Model Land Use Forecast Refinements

The build-out land-use scenario data set was created by reviewing and updating PPACG 2045 forecast employment and number of households for fifteen TAZs located in the growth areas located along the current eastern municipal city boundaries. The boundaries and locations of Fountain area TAZs, are shown in **Figure 4.1**. PPACG forecasts for households and employment for fifteen TAZs located along the eastern city boundary are listed in **Table 4.1**. Forecast 2045 households and employment counts were adjusted for four of these TAZs, as shown in bold text.

Table 4. 1 Summary of 2045 Development Buildout Land Use Revisions

TAZ #	PPACG 2045 Forecasts		Build-out 2045 Forecasts	
	Households	Employment	Households	Employment
137	**1**	**0**	**1,790**	**4,250**
305	8	0	8	0
325	31	46	31	46
326	**1,037**	**604**	**2,978**	**604**
327	61	5	61	5
328	10,052	0	10,052	0
329	**115**	**12**	**600**	**1,285**
336	**1,247**	**51**	**1,247**	**2,640**
341	2,260	47	2,260	47
343	1,740	22	1,740	22
466	2,096	3	2,096	3
682	1,080	4	1,080	4
683	2,978	15	2,978	15
687	22	13	22	13
824	1,231	0	1,231	0

Forecasts of households and employment for TAZs 137, 336, and 682 were adjusted to represent Overall Development Plan (ODP) densities for the Mesa Ridge, Amara, Kane Ranch, and Almagre developments. Adjusted data from these ODP submittals was then used to calculate average development densities, including commercial and residential shares for these planned large-scale developments. Calculated densities were then used to review the forecast for the remaining, largely undeveloped, TAZs. Only developable land was considered, and allowances were made for open space set-asides. Using this methodology, forecast residential development for TAZ 326 was increased significantly.

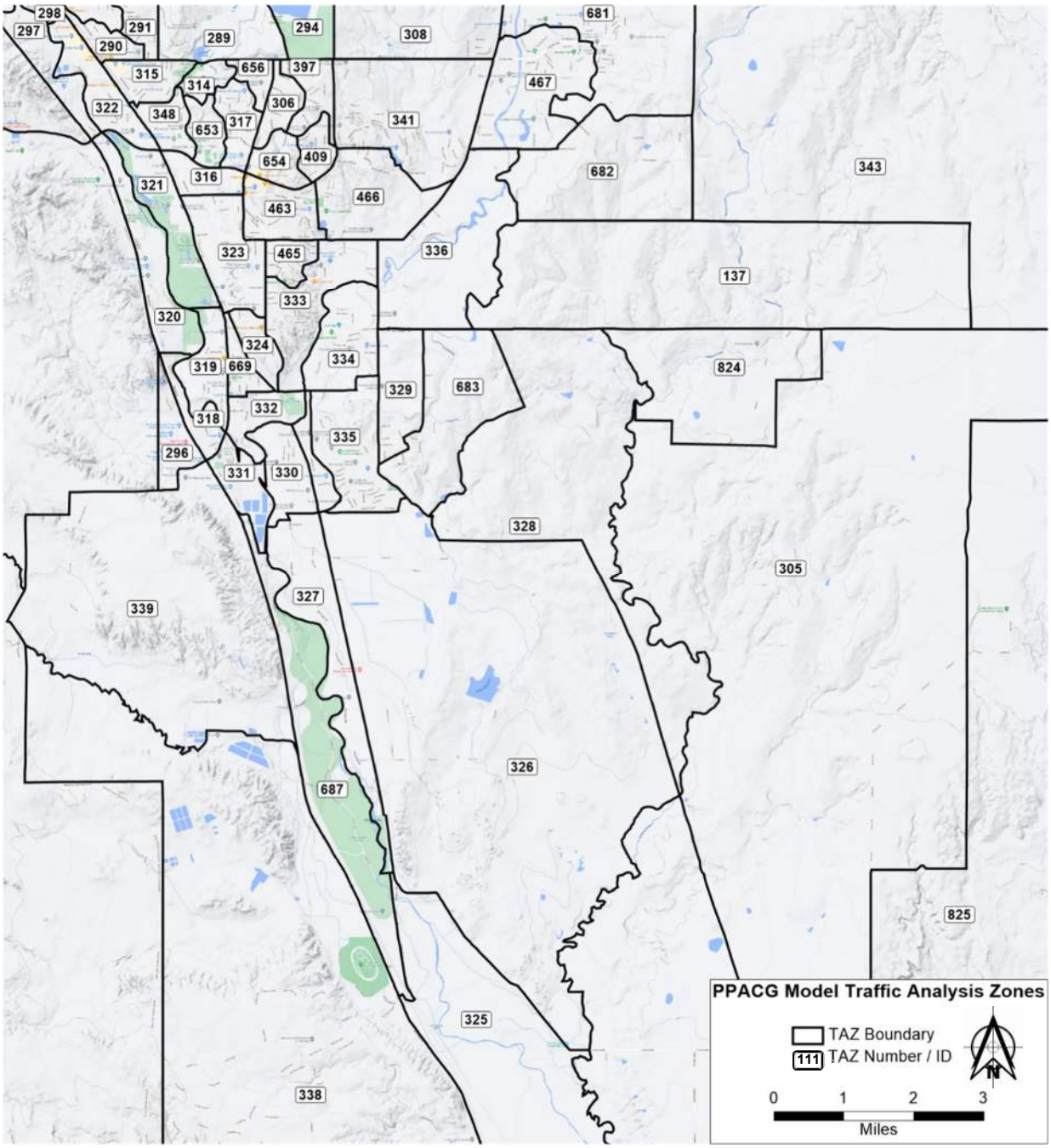


Figure 4. 1 Fountain Area Traffic Analysis Zones

4.2 2045 Transportation Needs Analysis

A 2045 daily traffic assignment using the enhanced PPACG 2045 adopted Regional Transportation Plan (RTP) network and 2045 socioeconomic forecasts was completed as a baseline scenario to assess the City transportation system needs. The adopted PPACG 2045 (RTP) roadway network is "fiscally constrained." It only includes existing facilities, near-term improvements for which funding has been committed, and long-term improvements that have been prioritized by CDOT and PPACG and that are expected to be funded within the long-range planning horizon.

As shown in **Figure 4.2**, traffic flows on many Fountain area roadways are expected to increase significantly by 2045. The network within and serving Fountain is limited and has poor east-west connectivity. Without improvements beyond those included in the PPACG 2045 RTP, 2045 traffic volumes on many area roadways are expected to triple by 2045. Link Road will increase from 7,660 ADT to 27,000 ADT; C & S Road will increase from 6,000 ADT to 18,000 ADT; and Squirrel Creek Road will increase from 4,000 ADT to 15,000 ADT. The western segment of SH 16/ Mesa Ridge Parkway will increase from the existing average daily traffic (ADT) volume of 36,000 vehicles per day (vpd) to 58,000 vpd. Other roadways that will incur significant traffic flow increases include Link Road, Squirrel Creek Road, and Marksheffel Road.

As shown in **Figure 4.3**, increased traffic flow will result in increased peak-hour congestion. Further, future peak-hour congestion levels are understated by the 2045 baseline scenario, which does not include the anticipated build-out of planned development along the eastern boundaries of the City.

Critical examination of traffic growth patterns showed that three factors will drive Fountain area capacity deficiencies now and in the future: inadequate north-south capacity, inadequate east-west capacity, and poor east-west connectively. The first of these factors points to the need to develop fully connected north-south routes as alternatives to I-25. The second and third factors point to the need to create additional, fully connected east-west routes.

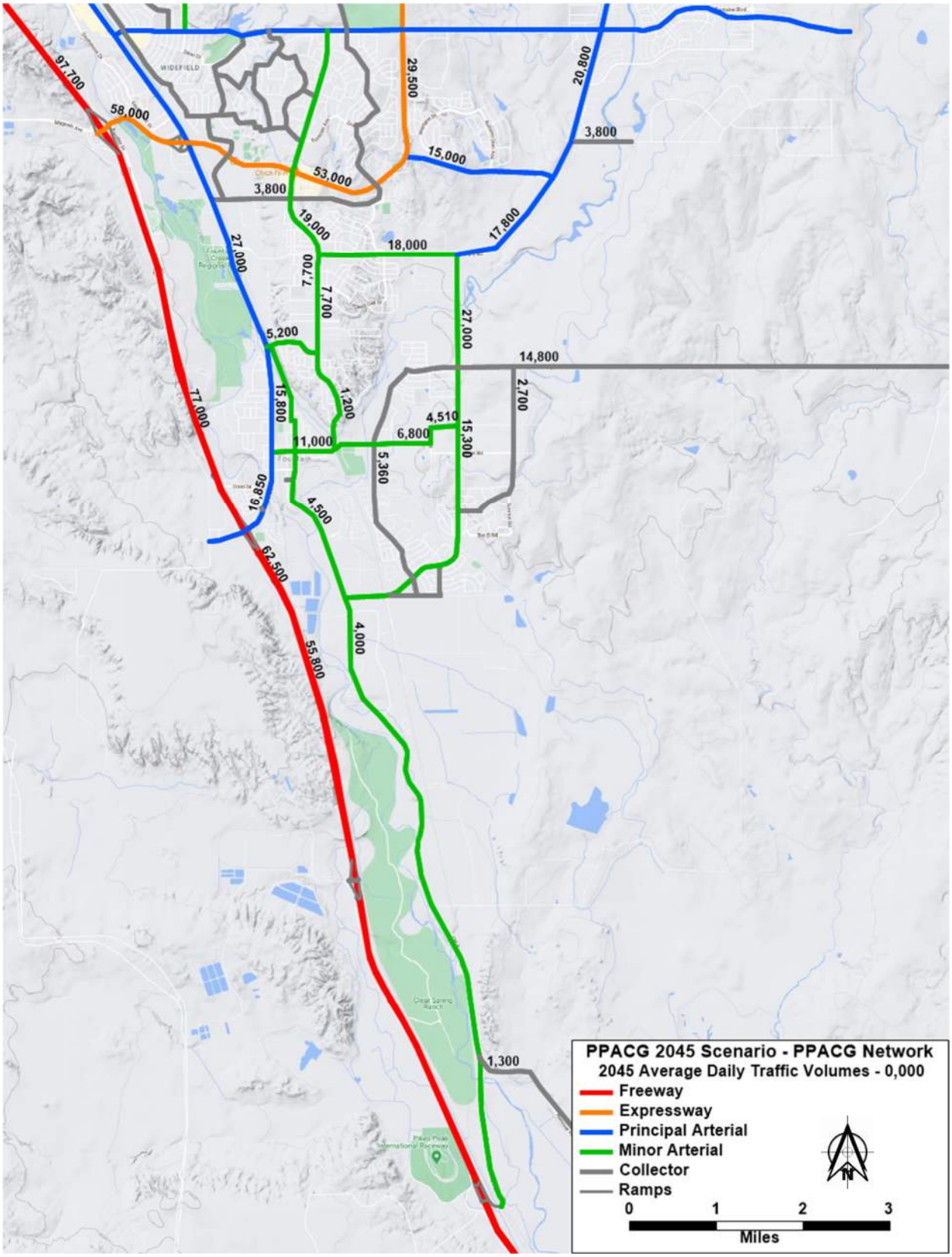


Figure 4. 2 2045 ADT Traffic Forecasts – PPACG 2045 Network and 2045 Land Use

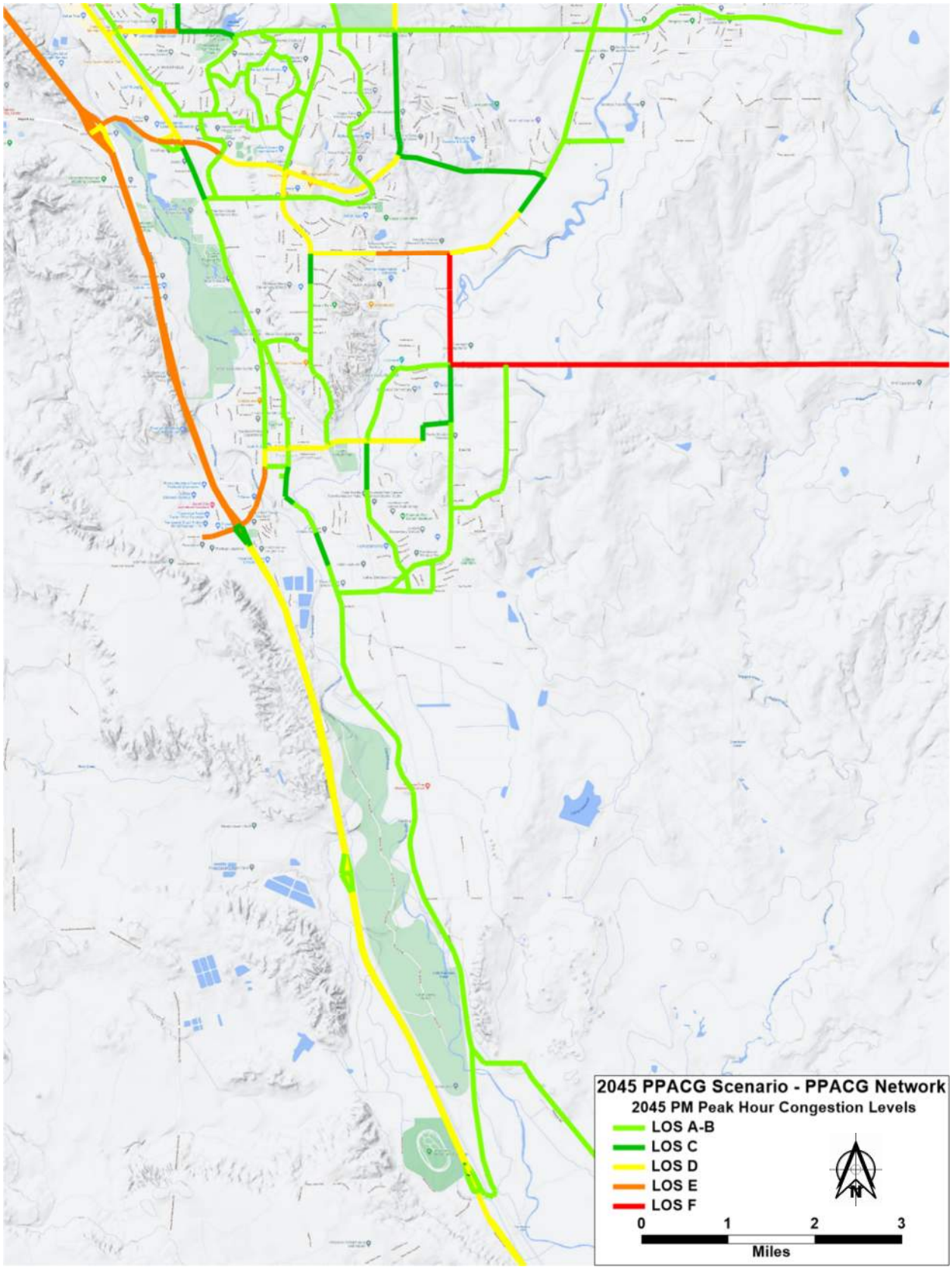


Figure 4. 3 2045 PM Peak Hour LOS – PPACG 2045 Network and 2045 Land Use

4.3 2045 Build-out Transportation Demand

A development "build-out" scenario was also evaluated to assess the effects that annexations and development in areas that are currently undeveloped or located outside of the City of Fountain will have on Fountain's transportation system needs. A 2045 daily traffic assignment was completed using the enhanced PPACG 2045 adopted Regional Transportation Plan (RTP) network and 2045 development "build-out" socioeconomic forecasts.

As shown in **Figure 4.4**, traffic flows on Fountain area roadways would increase significantly more by 2045 with the build-out of planned development. Because the 2045 "build-out" socioeconomic forecasts include adjustment within the Fountain area only, the effect of increased development in the Fountain area is the only driver of the observed increases in traffic. However, the volumes shown in Figure 4.4 provide a more accurate picture of future travel demand in the Fountain area. As shown in **Figure 4.5**, increased traffic flow will result in increased peak-hour congestion.

Examination of the the traffic growth patterns in traffic showed spreading and increased levels of congestion that affected the same roadways that were congested with the PPACG adopted socioeconomic forecasts. Again, SH 16/Mesa Ridge Parkway and C & S Road were heavily congested, but the increased traffic brought these roadways from LOS C-D-E to LOS D-E-F for longer stretches than for the PPACG socioeconomic forecasts. This finding reinforces the conclusion that the Fountain area transportation network will need to be expanded significantly to adequately serve future travel demand associated with continued growth of the City. The analysis confirmed the need to develop additional north-south routes as alternatives to I-25 as well as alternative, fully connected east-west routes. More diverse east-west route options will create a diversion of traffic from Mesa Ridge Parkway in particular and C & S Road and Ohio Avenue. Additional north-south routes will relieve Link Road, US 85/Santa Fe Avenue, that will otherwise continue to be overburdened as connectors to I-25, via Mesa Ridge Parkway and SH 21/Powers Boulevard.

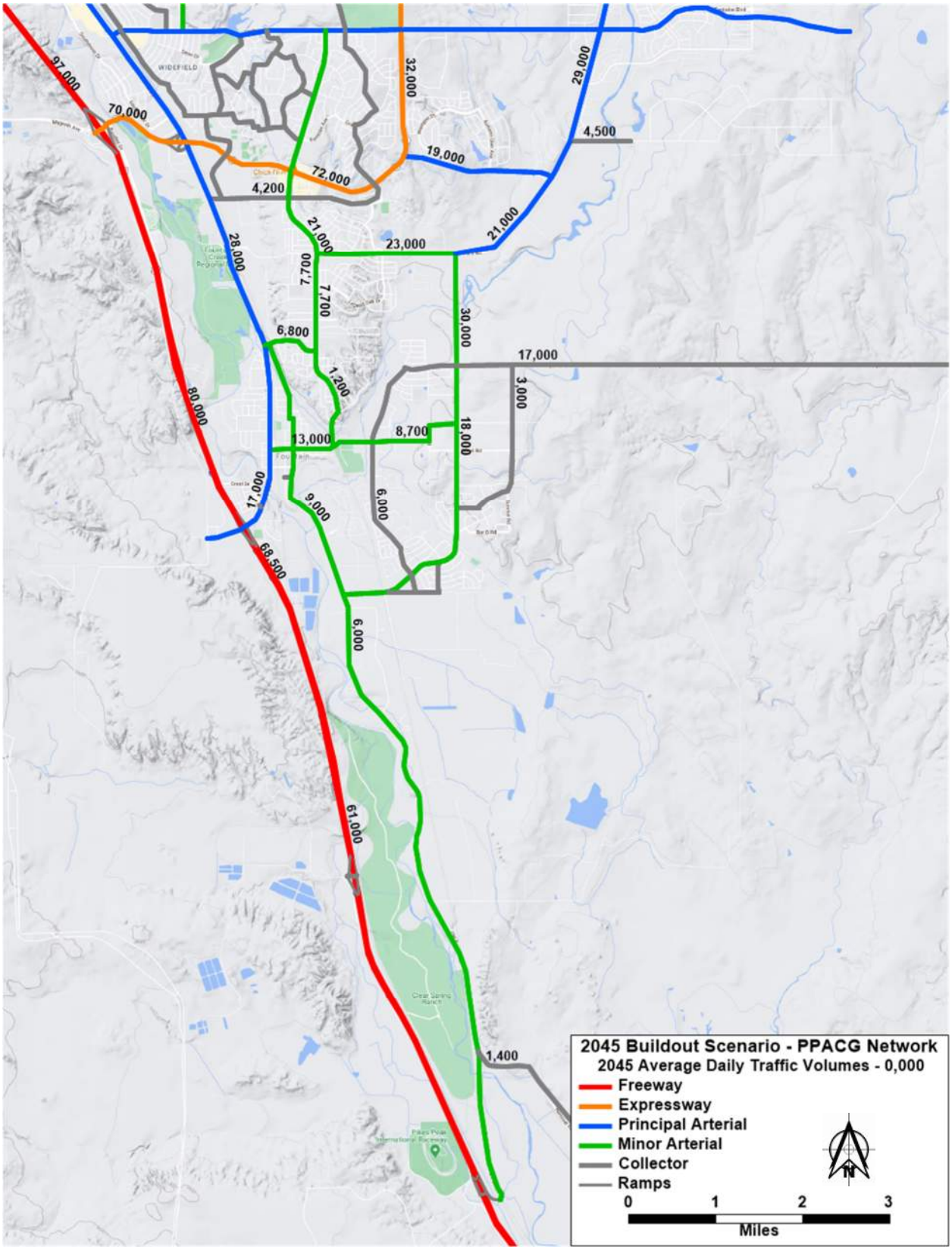


Figure 4. 4 2045 ADT Traffic Forecasts - PPACG 2045 Network and 2045 Buildout Land Use

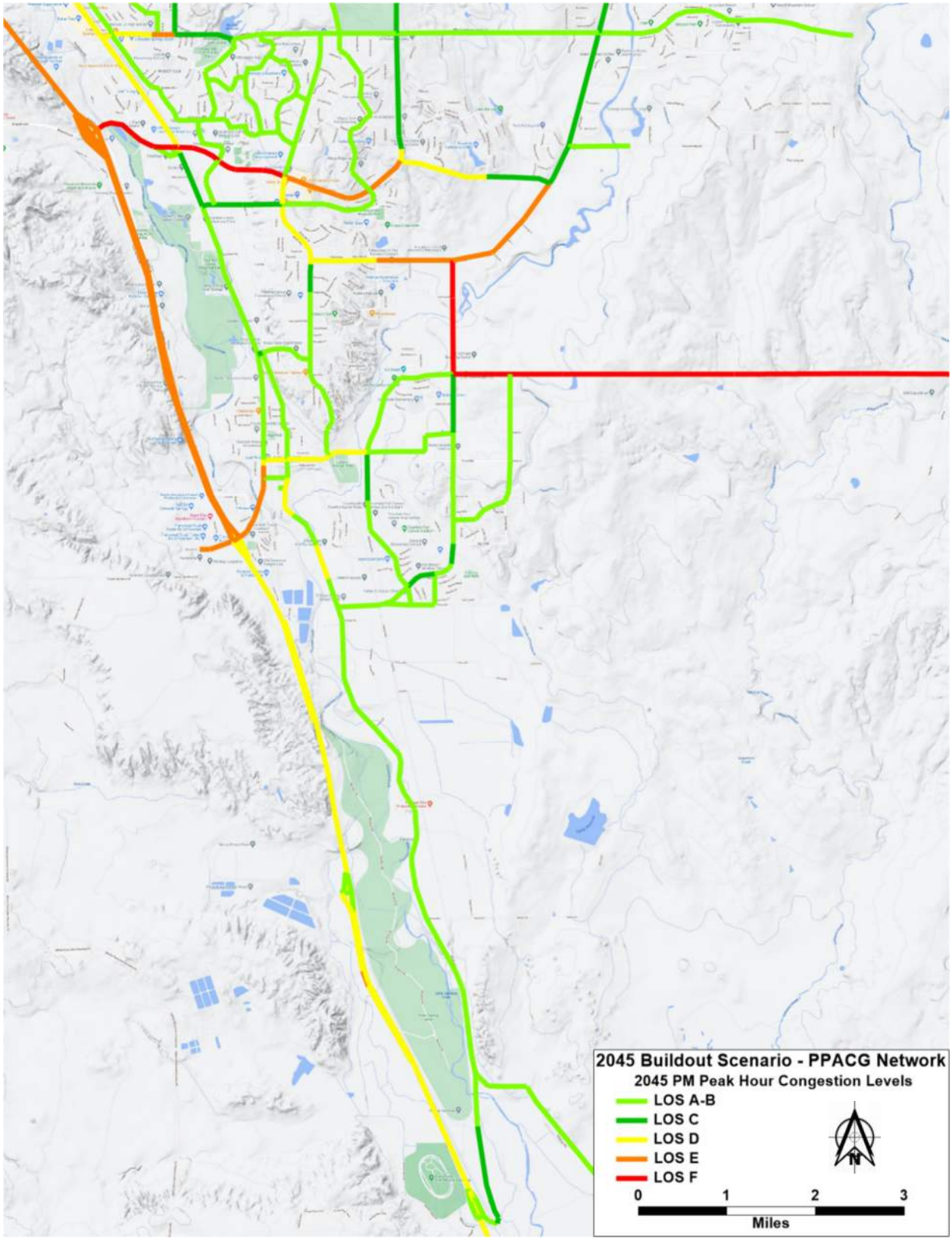


Figure 4. 5 2045 PM Peak Hour LOS – PPACG 2045 Network and 2045 Buildout Land Use

5.0 Mobility and Access Analysis

5.1 TMP 2022 Roadway Network Development

An enhanced highway network was developed to assess alternative strategies that address identified Fountain future transportation system needs. The roadway network envisioned by the 2003 Traffic Master Plan and roadway plans for adopted or active development plans were used as a foundation. The updated TMP 2022 network includes available detail within planned development areas and adds north-south roadway capacity and improved east-west connectivity. The enhanced network also builds on planning for the South Powers Boulevard extension and includes several relevant regional corridor expansion projects included in the El Paso County MTCP.

Specific elements include an extension of Wilson Road to Old Pueblo Road to create a grade-separated crossing, replacing the existing at-grade crossing on Link Road. Additional rail crossings and creek crossings were also built into several new roadway additions, providing improved safety and east-west connectivity. Grade separating the Link Road railroad crossing, which is on an FMT bus route, will also increase transit service reliability and safety.

PPACG model assignment plots and iterative TMP 2022 network development analysis are included as **Appendix C**.

5.2 2045 Baseline Network Analysis

As a baseline to confirm the proposed TMP 2022 roadway network's adequacy to meet future demand based on adopted growth forecasts for the Fountain area, a 2045 daily traffic assignment was completed using the TMP 2022 network PPACG adopted 2045 socioeconomic forecasts. As shown in **Figure 5.1**, the proposed network creates diversion from otherwise overloaded SH 16/Mesa Ridge Parkway, Marksheffel Road, Link Road, and Squirrel Creek Road. The network also produces a slight reduction of I-25 traffic flows for 2045 that is most pronounced in the segments north on the south connection of Powers Boulevard to I-25.

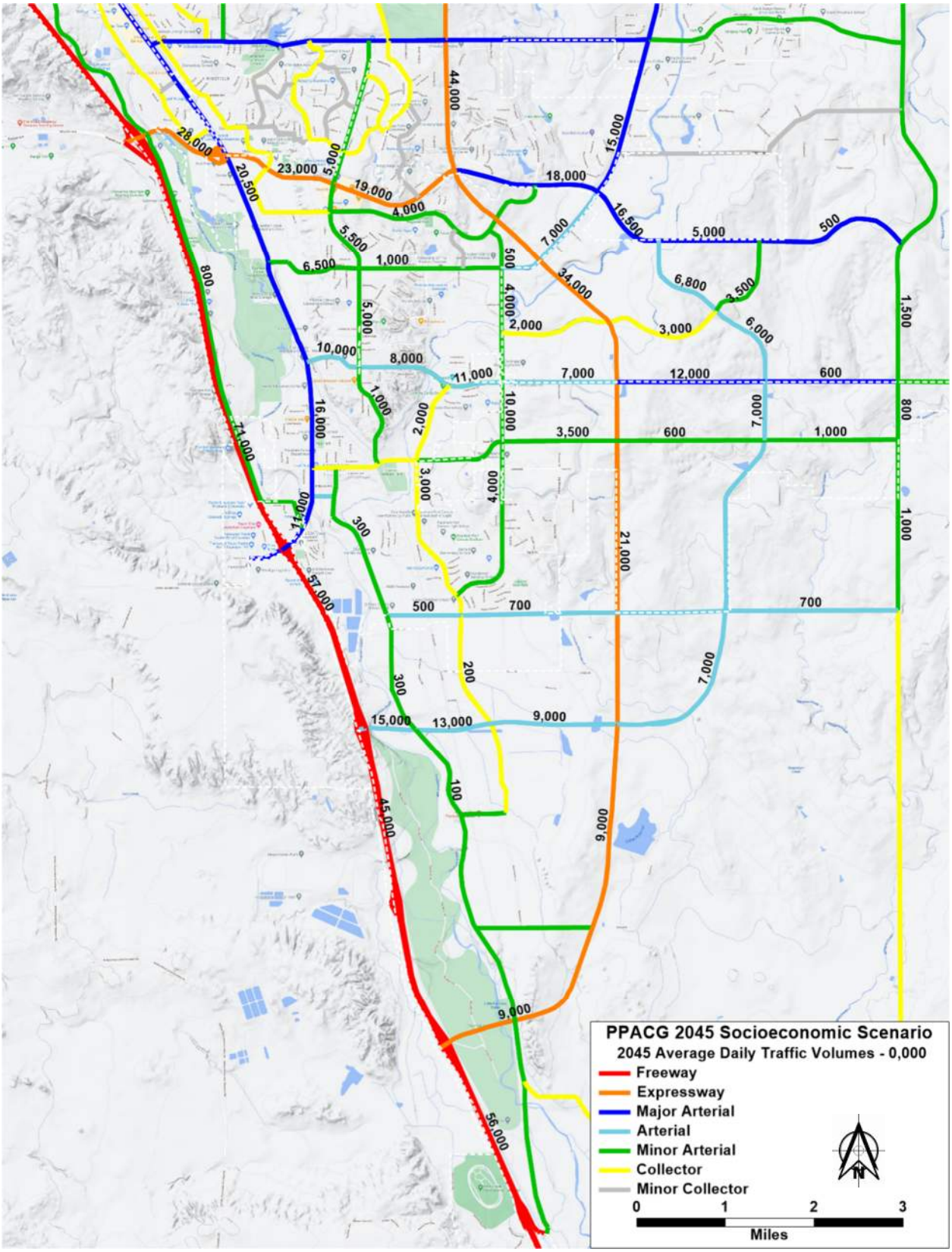


Figure 5. 1 2045 ADT Traffic Forecasts – TMP 2022 Network and PPACG 2045 Land Use

5.3 2045 Buildout Network Analysis

Traffic assignment for the TMP 2022 enhanced network with 2045 development "build-out" forecast was completed to confirm the TMP 2022 transportation network's adequacy to serve anticipated increased growth within the Fountain area. The ADT traffic volume forecasts were also used to establish appropriate sizing and functional classes for included new roadways.

As shown in **Figure 5.2**, with increased 2045 "build-out" development growth, the proposed network creates diversion from heavily burdened SH 16/Mesa Ridge Parkway, Marksheffel Road, Link Road, and Squirrel Creek Road to other routes. This diversion also creates a moderate reduction in I-25 traffic flows over 2045 forecast traffic flows for the PPACG 2045 RTP network and forecasts without build-out development.

The increased overall network capacity and better distribution throughout the network results in reductions in peak hour congestion, as shown in **Figure 5.3**. The entire network operates at LOS D or better for the most highly congested PM peak hour, with almost all roadways operate at LOS C or better. Significantly, SH 16/Mesa Ridge Parkway, Link Road, Squirrel Creek Road, Marksheffel Road, and I-25 all experience significant congestion relief.

Suggested daily traffic volume ranges for the City's upper tier functional classifications are listed below, in **Table 5.1**. These ADT ranges were used a general guidance for setting functional classifications for new and fully reconstructed roadways included in the TMP 2022 roadway network. The assigned functional classifications for the entire network are shown in **Figure 5.2**.

Table 5. 1 Recommended Average Daily Traffic by Functional Classification

Functional Classification	Expressway	Major Arterial	Arterial	Minor Arterial	Collector	Minor Collector
Number of Lanes	4 - 6	6	4	5 w/ two-way center turn-lane	3 w/ two-way center turn-lane	2
ADT Volumes Range	60,000 to 80,000 ADT	25,000 to 60,000 ADT	10,000 to 25,000 ADT	5,000 to 10,000 ADT	3,000 to 5,000 ADT	1,500 to 3,000 ADT

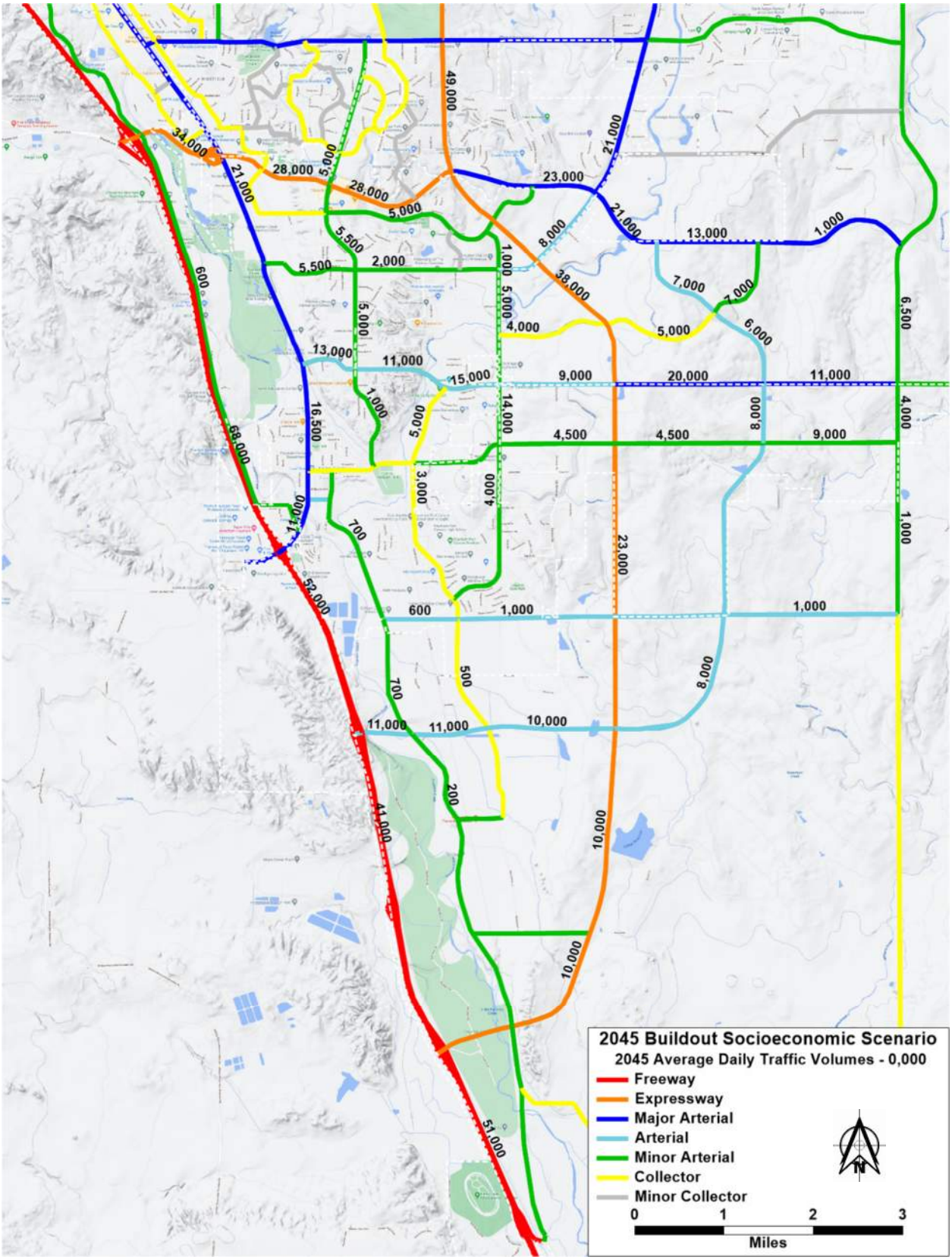


Figure 5.2 2045 ADT Traffic Forecasts – TMP 2022 Network and 2045 Buildout Land Use

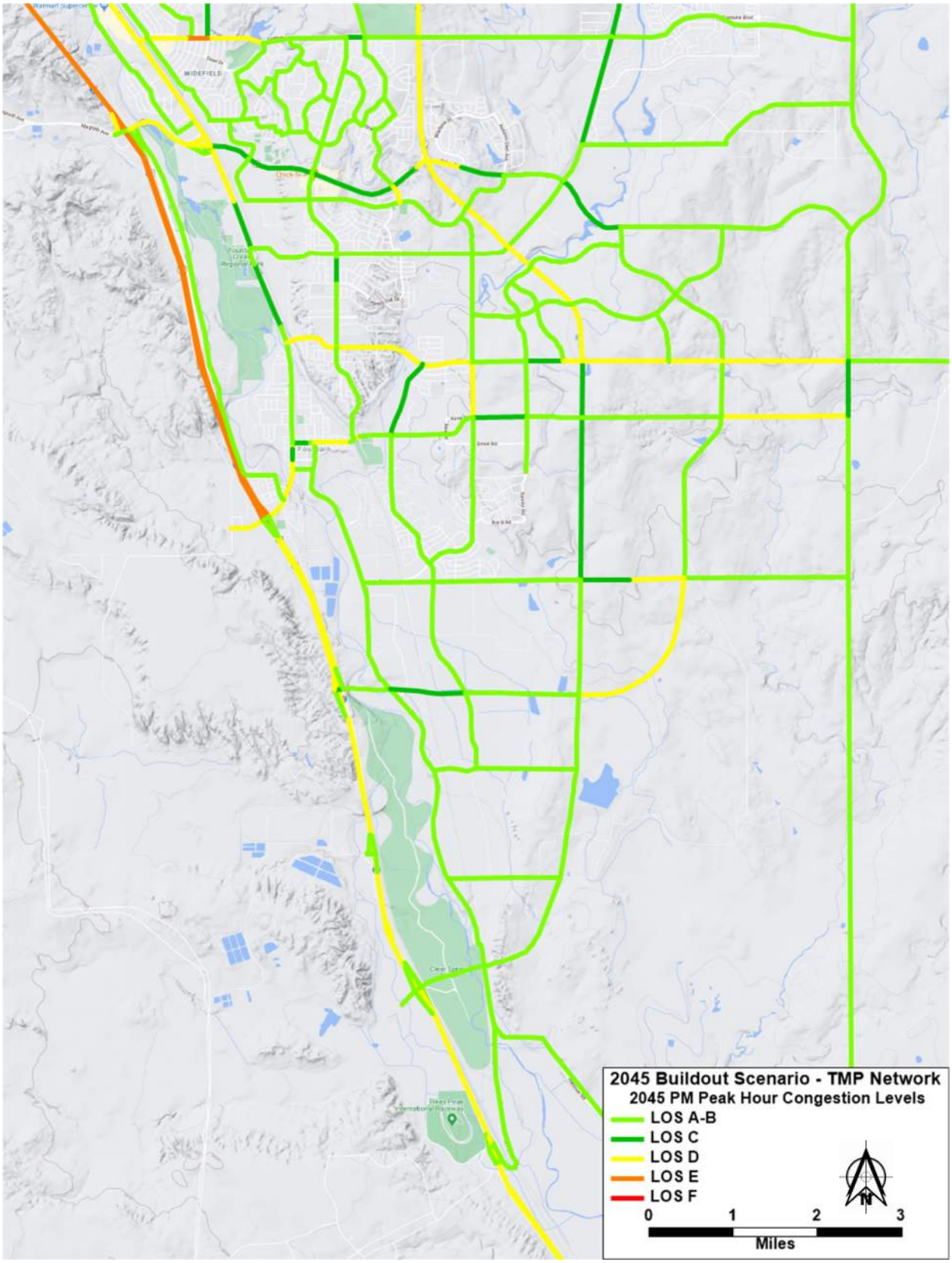


Figure 5. 3 2045 PM Peak Hour LOS – TMP 2022 Network and 2045 Buildout Land Use

6.0 Transportation Master Plan

The recommended future City of Fountain Transportation System network is depicted in **Figure 6.1** (North Area), **Figure 6.2** (Central Area), **Figure 6.3** (South Area), and **Figure 6.4** (Full Network).

6.1 Roadway Network

The TMP 2022 roadway network includes a mix of expressway, arterial, and collector facilities that balances travel demand and access requirements. The overall roadway network will relieve current and future congested conditions and promote improved mobility and safety performance.

6.2 Barriers and Solutions

Fountain Creek, Jimmy Camp Creek, and dual-line railroad tracks bisect the Fountain area transportation network at various locations. At-grade crossing of these barriers to network connectivity currently impacts both mobility and safety. Previous plans for grade separation of existing railroad crossing within Fountain were reviewed. It was found that both cost and engineering feasibility have been and will continue to be factors that preclude grade-separation of the City's existing railroad crossings. One exception is the Link Road railroad crossing. By relocating the existing Link Road crossing to the planned TMP 2022 extension of Wilson Road to Old Pueblo Road, as shown in **Figure 6.2**, it will be possible to create the separation distance needed to get up and over the railroad and back down to meet the Old Pueblo Road intersection grade. Additional creek and railroad crossings were created with planned new roadway network connectivity elements are listed in **Table 6.1**.

Table 6. 1 TMP 2022 Railroad and Creek Crossings

	Roadway Name	From	To	Crossing Feature
1	Mesa Ridge Parkway	Marksheffel Rd.	Amara N-S Spine Rd.	Creek Crossing
2	Squirrel Creek Road	Jimmy Camp Rd.	Fountain Mesa Rd.	Creek Crossing
3	Powers Boulevard	Mesa Ridge Pkwy.	Squirrel Creek Rd.	Creek Crossing
4	Wilson Road	Old Pueblo Rd.	Progress Dr.	Railroad Crossing
5	Amara N-S Loop	I-25	Old Pueblo Rd.	Railroad Crossing
6	Amara N-S Loop	I-25	Old Pueblo Rd.	Creek Crossing
7	Powers Boulevard	I-25	Birdsall Rd.	Railroad Crossing
8	Powers Boulevard	I-25	Birdsall Rd.	Creek Crossing

Figure 6. 1 North Area Network/Functional Class Map

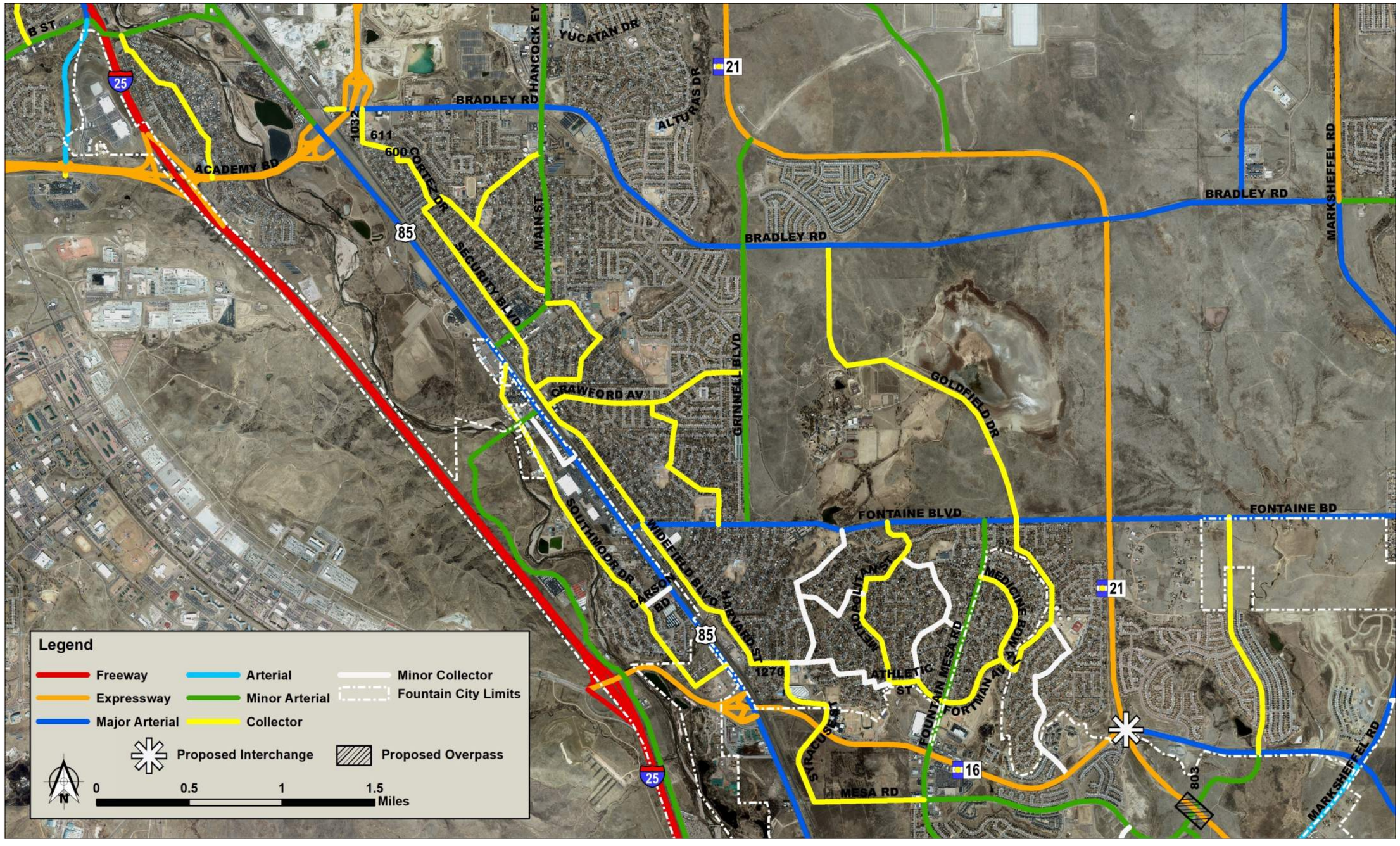


Figure 6. 2 Central Area Network/Functional Class Map

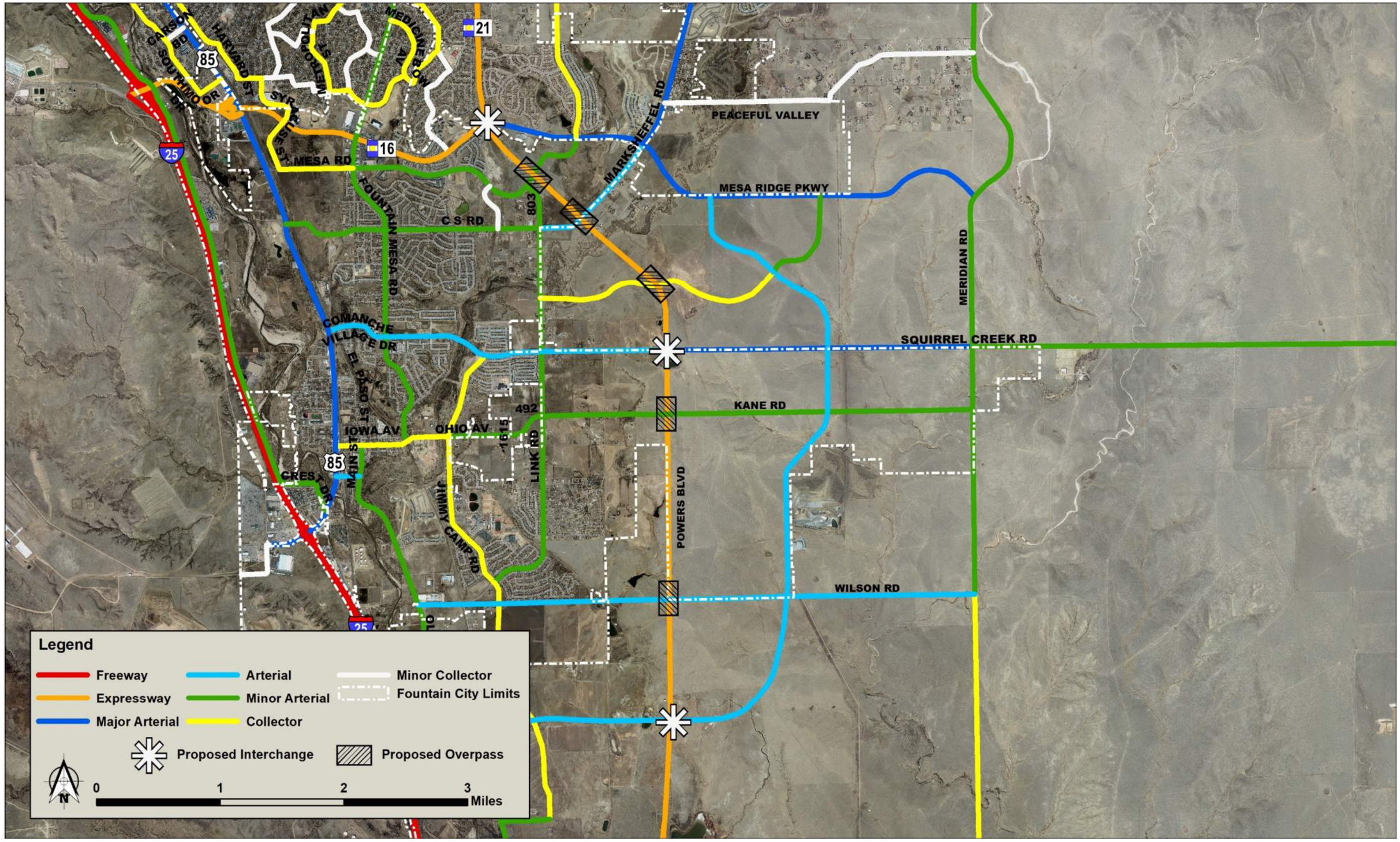


Figure 6. 3 South Area Network/Functional Class Map

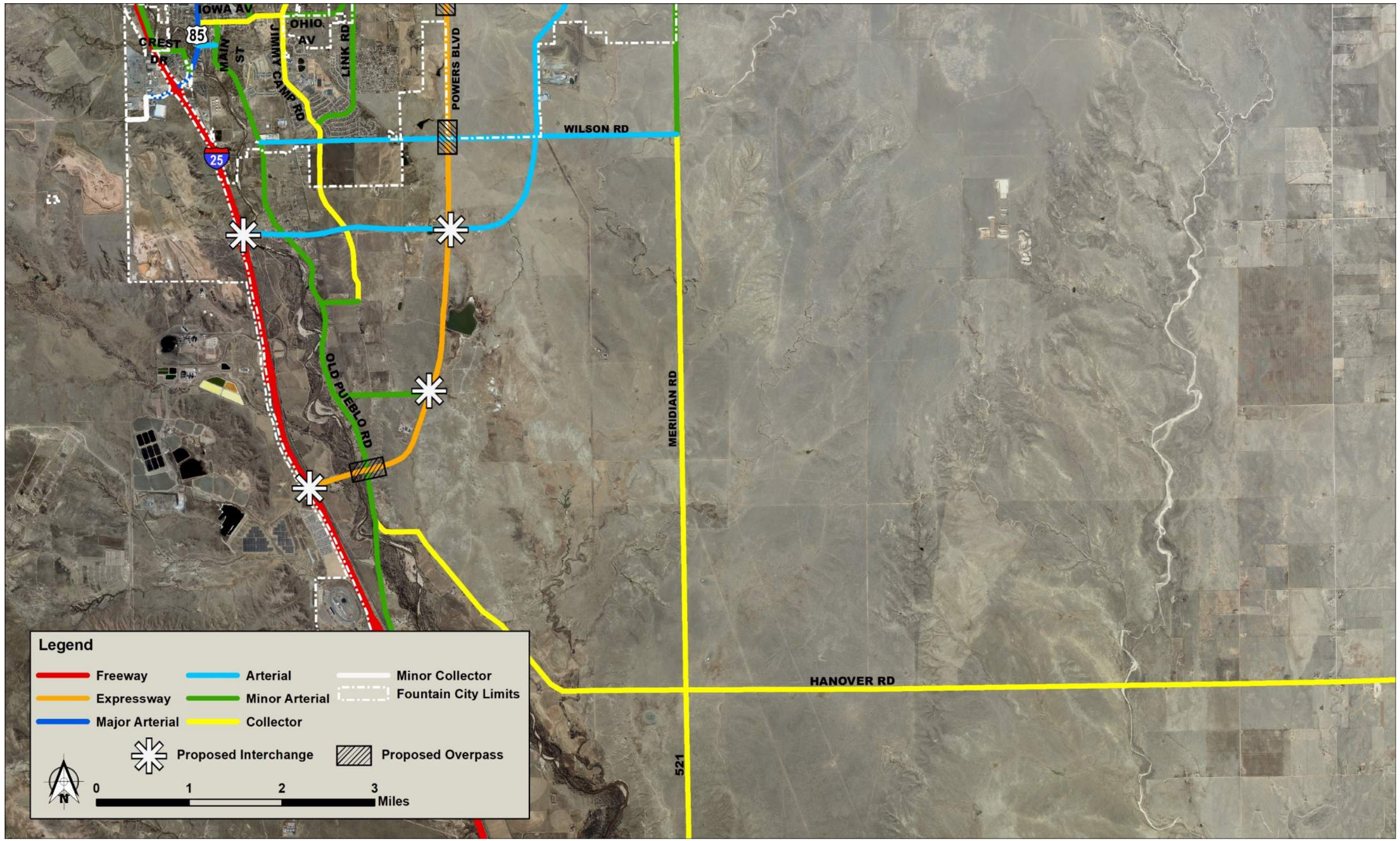
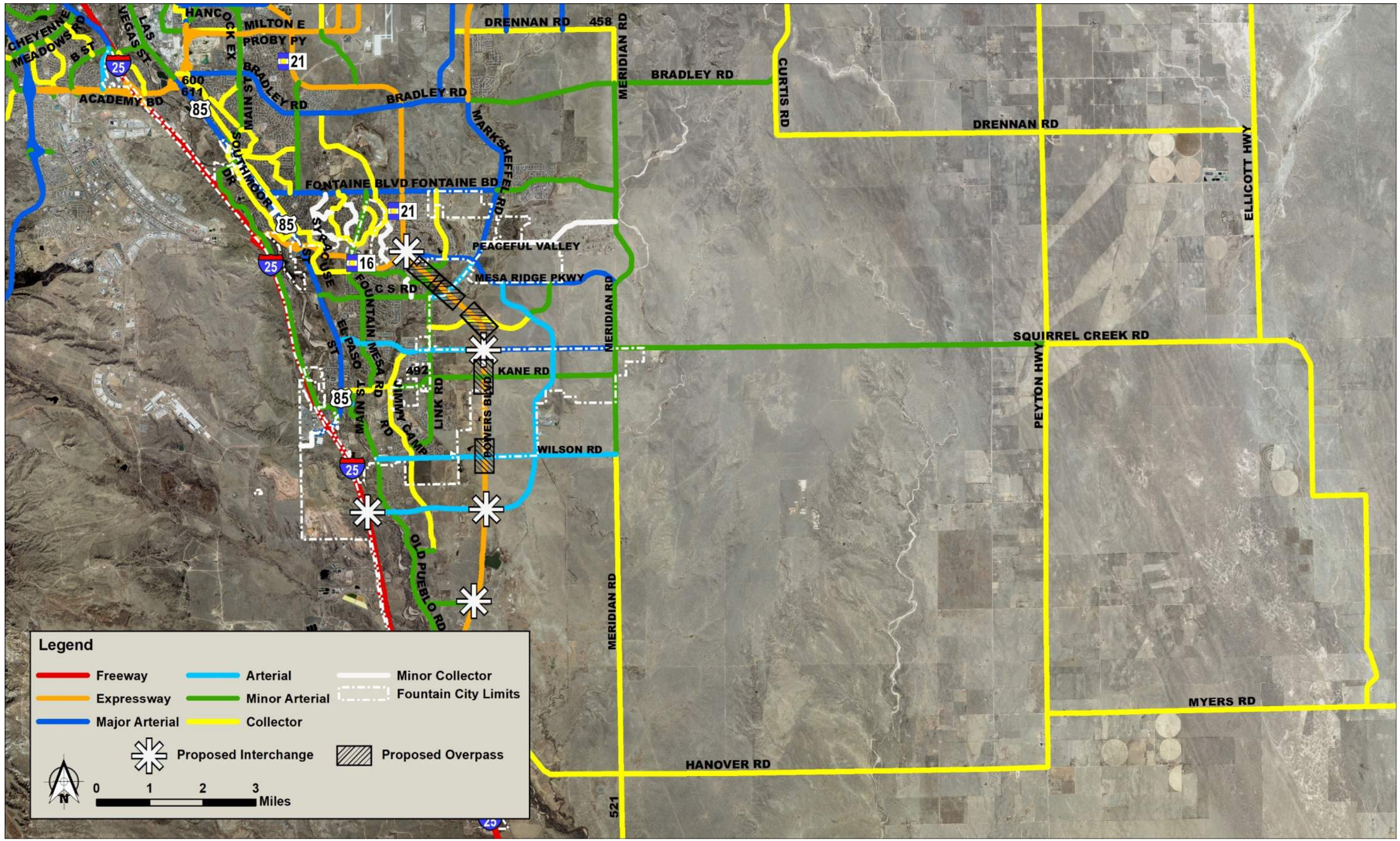


Figure 6. 4 Overall Area Network/Functional Class Map



6.3 Trails and Bicycle Facilities

The integrated trails and bicycle facilities component of TMP 2022 are shown in **Figure 6.5**. The included multi-purpose trails and bicycle facilities were drawn from current City and El Paso County plans, recognizing the importance of creating an integrated multimodal system to serve future travel demand. The planned trails and bicycle facilities will advance the City's goals to expand multimodal travel and recreation opportunities. State and federal funding is available to the City to implement improvement projects.

6.4 Transit and Passenger Rail Service

Although neither planning for transit nor bringing passenger rail to Fountain are the focus on TMP 2022, both modes will be supported roadway and grade-crossing projects that are included in TMP 2022. Improved roadway connectivity, including grade-separations, will improve transit and intercity bus safety and schedule reliability. Planned roadway system connectivity improvements, together with and arterial and expressway alternatives to US 85 may also enhanced the feasibility of bring passenger rail service to Fountain.

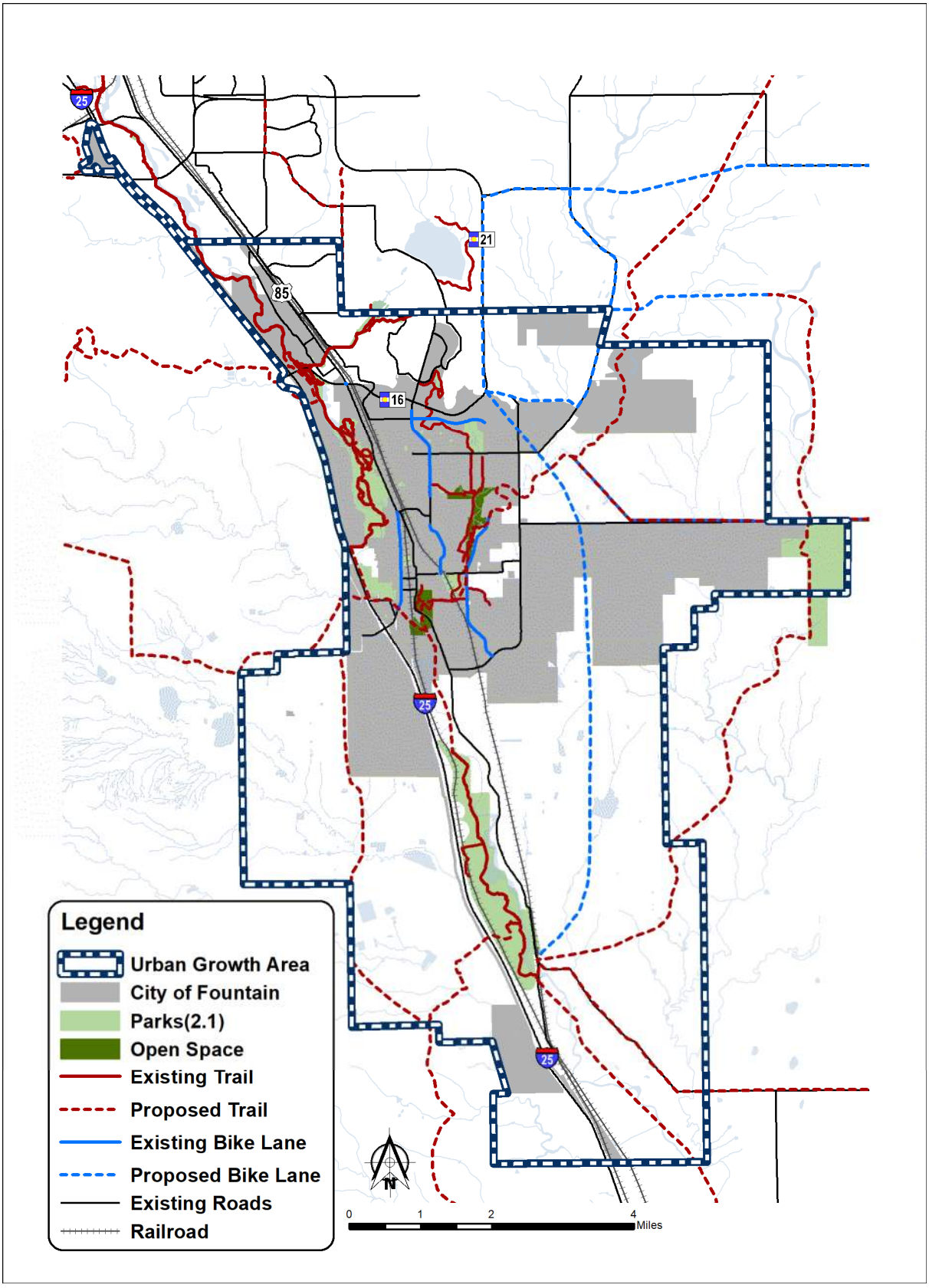


Figure 6. 5 Planned Fountain Area Trails and Bicycle Lanes

7.0 Implementation Plan

On December 20, 2020, the City of Fountain enacted a Temporary Interim Road Impact Fee that is to remain in effect for six months from that date. The Interim Road Impact Fee models the El Paso County Road Impact Fee in fees and applicability as implemented. The goals and principles of the Fountain Road Impact Fee Program, adopted from the El Paso County model, are:

Goal Statements:

- To accurately identify transportation improvements to county and state roads needed to accommodate growth.
- To accurately assess appropriate fees for the transportation improvements and ensure that costs and fees are updated regularly.
- To ensure that either the identified transportation projects are built or that fees are paid.
- To ensure accurate and reliable accounting of fees, credits, and reimbursements for eligible improvements.
- To ensure that identified transportation project costs are fairly and equitably distributed.

Program Principles:

- Ensure that needed roads are built and that the costs of road projects are equitably distributed by spreading the cost of major collectors and arterials to all new development on a cost per trip basis.
- The fee program is based on the premise that all new development (large and small) should pay a fair share either by building improvements or paying a fee.
- The fee program is a "credit and reimbursement" program that would credit (payback) applicants that build regional transportation improvements.
- The fee program is a program for future development to fund a portion of necessary transportation improvements to accommodate future growth.
- The funds are all held in accounts that are entirely separate from county funds.
- The program does not change the current improvement obligation process. Developers will still be responsible for making the improvements necessary to their subdivisions according to the engineering criteria manual and applicable laws.
- Buyer Beware: Developments requiring expensive transportation improvements will not be able to recover the total costs of those improvements. Credits and reimbursements will be on a unit cost basis, not actual costs, to keep fees lower and fairer.
- More predictable, saves time, and levels the playing field for all landowners who develop. [9]

During the interim period, the Fountain Road Impact Fee will be tailored to meet Fountain local conditions and needs using planned TMP 2022 improvements and costs.

The Road Impact Fee Program intends to charge fees to offset infrastructure improvement needs that are primarily generated by new development. The Fountain Road Impact Fee will ultimately provide a method to more fairly and equitably allocate the impact of new development and recover the associated infrastructure costs than individually negotiated developer agreements. TMP 2022 and the impact fee program will provide a process through which the City will: identify transportation improvements needed to accommodate growth, fairly allocate the costs of transportation improvements among new developments, and to ensure the proper and timely accounting of improvements and funds. The program will not include all roads in the unincorporated County, only higher traffic roads that provide regional travel.

[9] El Paso County, El Paso County Colorado Road Impact Fee Implementation Documents, 2019, https://assets-publicworks.elpasoco.com/wp-content/uploads/Implementation-Document-2019b.pdf.

7.1 Cost of Needed Improvements

Cost estimates for TMP 2022 projects are summarized on the following pages. In **Table 7.1**, relevant projects that are already identified for funding as El Paso County MTCP 2040 Improvements and funded projects included in the PPACG FY2021 to FY2024 TIP are listed. The inclusion of projects in the 2040 MTCP 2040 Improvements listings indicates a prioritization by the County to fund these projects, using various funding sources. In contrast, the inclusion of projects in the PPACG TIP listing shows that funding has been solidly committed to these projects. Cost estimates for TMP 2022 projects are summarized in **Table 7.2**. Projects that are already "funded" and are included in the current TIP are not repeated in **Table 7.2** even though they may be part of TMP 2022. The summary table includes listings of projects in four categories based on potential entities that would be responsible for implementing the projects. For all projects, applicable sources of funding are also noted under Funding Eligibility. Funding eligibilities indicate nothing more than eligibility or potential for these projects to be funded either privately or by state and local funding streams versus by local funding alone. It should be noted that Fountain would not be responsible for matching federal funding for regional projects but would provide match for "Fountain Facilities" funded using federal funding. For those projects for which Funding Eligibility is shown as "TBD," there is insufficient information available at this time to determine whether private funding may play a role in building these roadway segments. The listed costs were developed using unit costs applied to included project elements and lengths. Basis of cost assumptions and unit cost calculations used for project cost estimates are included in **Appendix B**.

Table 7. 1 Summary of 2040 MTCP and PPACG FY 2021 – FY 2024 TIP Funded Projects

#	Road Segment	Segment		Funding Eligibility	Existing Conditions		Future Conditions		Total Cost
		Beginning	End		Lanes	Improvement	Lanes	Classification	
Funded Projects (Federal/State/PPRTA)									
1	Mesa Ridge Parkway	Powers Blvd.	Marksheffel Rd.	2040 MTCP	-	New	4	Major Arterial	$14,170,000
2	Mesa Ridge Parkway	Marksheffel Rd.	Meridian Rd.	2040 MTCP	-	New	2	Minor Arterial	$5,216,000
3	Meridian Road	Bradley Rd.	Mesa Ridge Pkwy.	2040 MTCP	-	New	2	Minor Arterial	$11,312,000
								El Paso County 2040 MTCP – Funded Total	**$30,698,000**
4	Mesa Ridge Parkway	SH 16/Sneffels St. Intersection		TIP FY21-24	4	Expressway	4	Expressway	$1,385,500
5	Various	Bus Pads/ADA Curb Ramps		TIP FY21-24	-	New			$150,000
6	Link Road			TIP FY21-24	2	Minor Arterial	2	Minor Arterial	$2,069,225
								PPACG FY 2021 - FY 2024 TIP – Funded Total	**$3,604,725**

Table 7. 2 Transportation Master Plan 2022 - Project Cost Summary

#	Road Segment	Segment		Funding Eligibility	Existing Conditions		Future Conditions		Total Cost
		Beginning	End		Lanes	Functional Class	Lanes	Functional Class	
Regional Facilities – Federal and State Funding Eligible									
7	Mesa Ridge Pkwy.	Marksheffel Rd.	N-S Arterial Loop Rd.	Fed/State	0	New Roadway	4	Major Arterial	$12,750,000
		Bridges over Jimmy Camp Creek		Fed/State	0	New Roadway	4	Major Arterial	$16,800,000
8	Mesa Ridge Pkwy.	N-S Arterial Loop	E-W Spine	Fed/State	0	New Roadway	4	Major Arterial	$15,300,000
		E-W Spine	Meridian Rd.	Fed/State	0	New Roadway	4	Major Arterial	$22,100,000
9	Powers Blvd.	Mesa Ridge Pkwy.	Squirrel Creek Rd.	Fed/State	0	New Roadway	4	Expressway	$49,000,000
		Mesa Ridge Parkway Interchange		Fed/State	0	New Roadway	4	Expressway	$40,000,000
		Bridge over Cross Creek Parkway		Fed/State	0	New Roadway	4	Expressway	$8,400,000
		Bridge over Marksheffel Road		Fed/State	0	New Roadway	4	Expressway	$8,400,000
		Bridge over Jimmy Camp Creek		Fed/State	0	New Roadway	4	Expressway	$8,400,000
		Bridge over E-W Collector		Fed/State	0	New Roadway	4	Expressway	$8,400,000
		Squirrel Creek Road Interchange		Fed/State	0	New Roadway	4	Expressway	$40,000,000
10	Powers Blvd.	Squirrel Creek Rd.	Wilson Rd.	Fed/State	0	New Roadway	4	Expressway	$39,200,000
		Bridge over Kane Rd.		Fed/State	0	New Roadway	4	Expressway	$40,000,000
		Bridge over Wilson Rd.		Fed/State	0	New Roadway	4	Expressway	$40,000,000
	Powers Blvd.	Wilson Rd.	N-S Arterial Loop	Fed/State	0	New Roadway	4	Expressway	$58,800,000
		N-S Arterial Loop Interchange		Fed/State	0	New Roadway	4	Expressway	$40,000,000
11	Powers Blvd.	N-S Arterial Loop	Birdsall Rd.	Fed/State	0	New Roadway	4	Expressway	$35,280,000
		Birdsall Rd. Interchange		Fed/State	0	New Roadway	4	Expressway	$40,000,000
12	Powers Blvd.	Birdsall Rd.	I-25	Fed/State	0	New Roadway	4	Expressway	$35,280,000
		Overpass		Fed/State	0	New Roadway	4	Expressway	$8,400,000
		Bridge over Fountain Creek		Fed/State	0	New Roadway	4	Expressway	$16,800,000
		I-25 Interchange		Fed/State	0	New Roadway	4	Expressway	$70,000,000
	Subtotal								**$653,310,000**

Table 7. 2 Transportation Master Plan 2022 - Project Cost Summary (Continued)

#	Road Segment	Segment		Funding Eligibility	Existing Conditions		Future Conditions		Total Cost
		Beginning	End		Lanes	Improvement	Lanes	Classification	
Fountain Facilities - Federal and State Funding Eligible									
13	Bandley Drive	North of SH 16	US 85/Santa Fe Ave.	Fed/State	0	New Roadway	3	Minor Arterial	$12,250,000
		Bridge over Fountain Creek		Fed/State	0	New Roadway	3	Minor Arterial	$8,400,000
14	Jimmy Camp Rd.	Wilson Rd.	N-S Arterial Loop	Fed/State	0	New Roadway	2	Collector	$12,600,000
15	Link Rd.	Wilson Rd.	C&S Rd.	Fed/State	2	Widening/Upgrades	3	Minor Arterial	$29,400,000
16	N-S Arterial Loop	Wilson Rd.	Powers Blvd.	Fed/State	0	New Roadway	4	Arterial	$22,140,000
		Powers Blvd.	Old Pueblo Rd.	Fed/State	0	New Roadway	4	Arterial	$20,910,000
		Old Pueblo Rd.	I-25	Fed/State	0	New Roadway	4	Arterial	$4,920,000
		Bridge over Fountain Creek		Fed/State	0	New Roadway	4	Arterial	$16,800,000
		I-25 Interchange		Fed/State	0	New Roadway	4	Arterial	$50,000,000
	Subtotal								**$177,420,000**
Fountain Facilities – Undetermined Funding									
17	Squirrel Creek Rd.	Meridian	Powers Blvd	TBD	2	Widening/Upgrades	4	Major Arterial	$42,330,000
		Powers Blvd.	Jimmy Camp Rd.	TBD	2	Widening/Upgrades	4	Arterial	$18,450,000
		Jimmy Camp Rd.	Fountain Mesa Rd.	TBD	0	New Roadway	4	Arterial	$9,840,000
		Bridge over Jimmy Camp Creek		TBD	0	New Roadway	4	Arterial	$16,800,000
18	Comanche Village Dr.	Fountain Mesa Rd.	US 85/Santa Fe Ave.	TBD	2	Widening/Upgrades	4	Arterial	$6,150,000
19	Kane Rd./Ohio Ave.	Shumway Rd.	Meridian Rd.	TBD	0	New Roadway	2	Minor Arterial	$29,400,000
		Link Road	Shumway Rd.	TBD	2	Widening/Upgrades	2	Minor Arterial	$4,900,000
		Link Rd.	REA Rd.	TBD	0	New Roadway	2	Minor Arterial	$3,430,000
20	Wilson Road	Old Pueblo Rd.	Orleans Rd	TBD	0	New Roadway	4	Arterial	$4,920,000
		Orleans Rd.	Progress Dr.	TBD	2	Widening/Upgrade	4	Arterial	$6,150,000
		Progress Dr.	Meridian Rd.	TBD	0	New Roadway	4	Arterial	$44,526,000
21	Birdsall Road	Powers Blvd.	Old Pueblo Rd.	TBD	2	Widening/Upgrade	4	Minor Arterial	$9,310,000
	Intersection Upgrades	Improvements to Existing Intersections		TBD	-	Upgrades	-	-	$43,500,000
	Subtotal								**$239,706,000**
Development Facilities – Undetermined Funding									
22	E-W Spine	Link Rd.	N-S Arterial Loop	TBD	0	New Roadway	2	Collector	$14,000,000
		N-S Arterial Loop	Mesa Ridge Pkwy.	TBD	0	New Roadway	2	Minor Arterial	$19,600,000
23	N-S Arterial Loop	Mesa Ridge Pkwy.	Squirrel Creek Rd.	TBD	0	New Roadway	4	Arterial	$20,910,000
		Squirrel Creek Rd.	Wilson Rd.	TBD	0	New Roadway	4	Arterial	$25,830,000
24	Autumn Glen Drive	Fountain City Limit	Fontaine Blvd.	TBD	0	New Roadway	2	Collector	$1,540,000
	Subtotal								**$81,880,000**

Notes: 1) Full reconstruction assumed for roadways that exist as 2-lane collectors; 2) Intersection upgrades assume signalized arterial context; 3) Unit costs and basis of costs detail is included as Appendix B; 4) Full reconstruction assumed for the existing I-25 interchange to which extended Powers Boulevard will be connected.

7.2 Funding Sources and Strategies

Improvements identified by TMP 2022 will ultimately be built using a variety of funding sources and strategies. Federal and state funds will be utilized for eligible projects to the extent that funding is available. Limited City of Fountain funding with be used primarily to match federal and state. Fountain has implemented a Roadway Impact Fee Program and may seek voter approval for a renewed Moving Fountain Forward sales-tax-based ballot issue for dedicated local funding for roadway capital improvements. The extent to which federal/state funding, direct private funding, or impact fee reimbursed private funding will play a role in funding improvements will depend on the role that regional travel demand plays in creating a need for additional roadway capacity versus the role that development-based travel demand plays in creating the need for additional roadway capacity.

7.3 Plan Monitoring and Updating Process

Forecasting travel demand is an inexact process. For this reason, it will be important to monitor both growth trends (new development and traffic) and plan implementation to ensure that the long-term needs assessment represented by TMP 2022 remains accurate. Typically, minor updates to the long-range plan should be processed on a 5-year cycle. The updates to the plan should evaluate progress toward plan implementation, performance relative to design criteria and standards, validity of growth forecasts, and the pace of growth that underpins the plan.

7.4 Next Steps

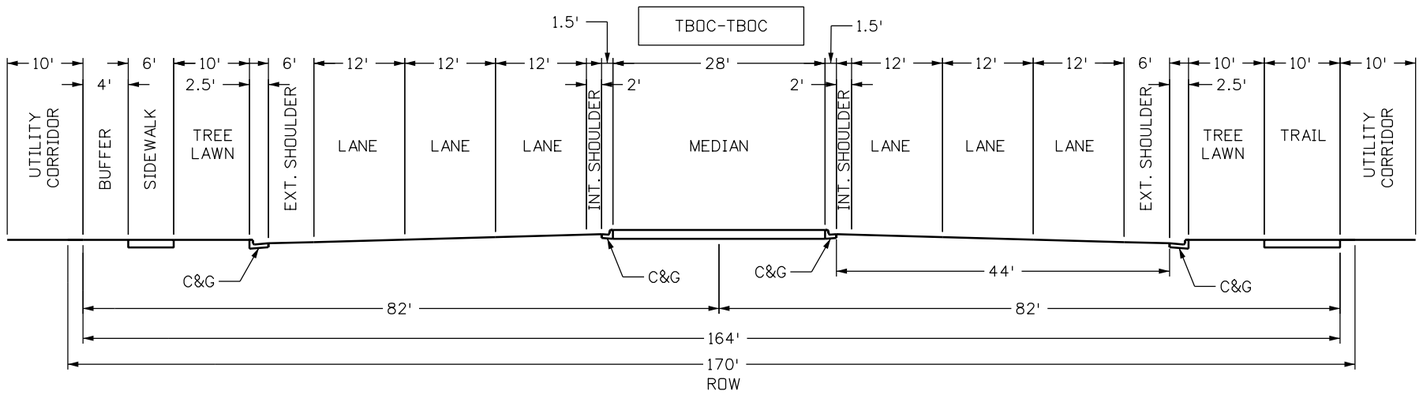
The first "next step" to support TMP 2022 implementation will be to develop forecasts of the funding that can reasonably be expected to be available over time to implement the recommended TMP 2022 improvements. The second “next step” will be to prioritize TMP 2022 improvements for implementation.

The Interim Road Impact Fee Program that was “borrowed” form El Paso County will need to be tailored to Fountain’s long-range planning goals and supporting funding resources. Modifications to make the County plan fit Fountain’s needs may include modifying the fee structure and will require creation of a formal process for impact fee collection and administration. The final version of the impact fee program will be structured to support the construction of improvements identified by TMP 2022. Fees will be set to separate infrastructure needs that are development-generated from local and regionally generated infrastructure needs, and will recognize that development fees cannot exclusively fund development-generated needs. The goal will be to ensure that City and its residents benefit from growth and that funding responsibilities are shared equitably.

Prioritization of TMP 2022 improvements will be undertaken using funding eligibity and/or demand driver categories to organize improvements for prioritization. The Powers Boulevard extension, as an example, is a regionally significant improvement that would be eligible for state and federal funding and would most certainly would be supported by funding from regional partners. Although Powers Boulevard will benefit private development, private development is not the driver of the need for the Powers Boulevard extension. The need for other improvements may be driven solely by by private development demand, or may be driven by shared local, regional and private development travel demand. Modeling completed for mobility analysis for TMP 2022 can be used to identify demand shares using each new roadway, another way to organize the improvements for peioritization. The mobility analysis will also be a good toll for estimating the level and timing of need: is capacity exceeded now and if not, when will it be exceeded? The timing of the need for each project may be more difficult to estimate and phasing plans for approved deelopment plans will be a good basis for developing a phasing plan that will bee used as input to project prioritization.

8.0 Appendices

Appendix A – Roadway Typical Sections



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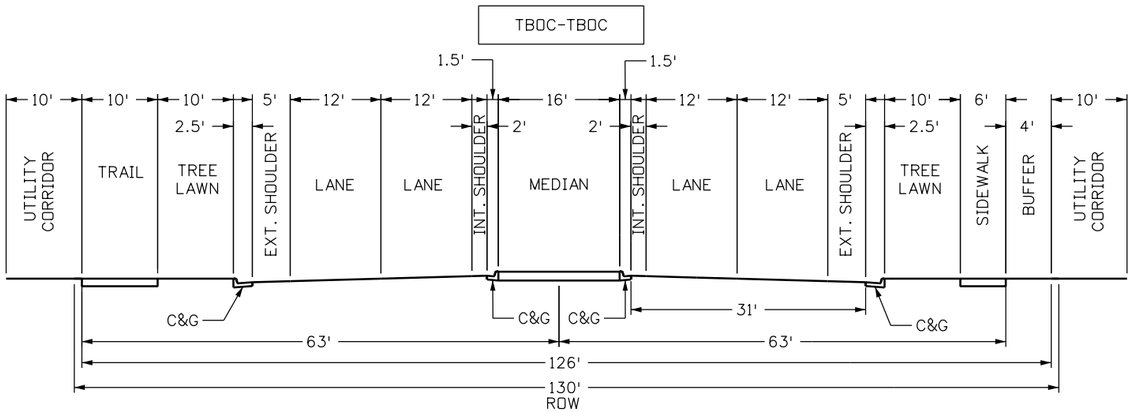

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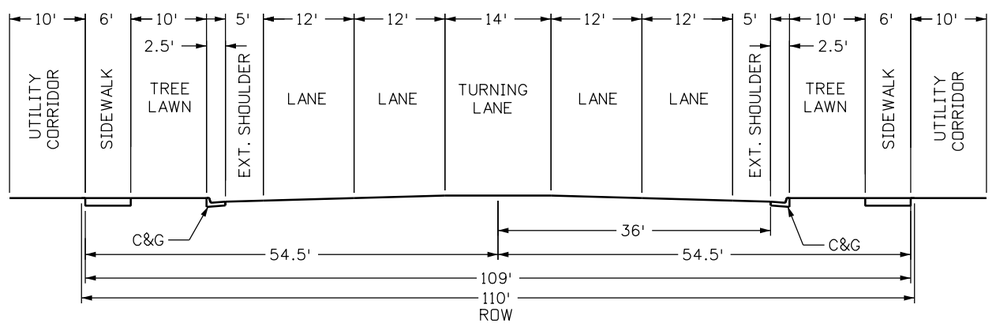

MINOR ARTERIAL

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Unit Information Unit Leader			

WILSON & COMPANY
5755 Mark Dabling Blvd.
Suite 220
Colorado Springs, CO 80919
Phone: 719-520-5800
FAX: 719-520-0108

No Revisions:

Revised:

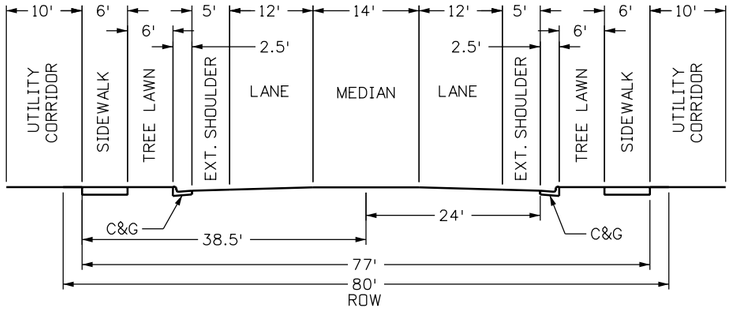
Void:

TYPICAL SECTIONS

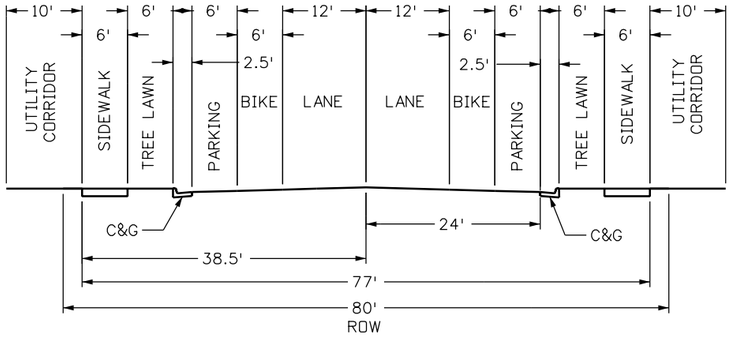
Designer:	CCH	Structure Numbers	
Detailer:	KJM		
Sheet Subset:	TYPSEC	Subset Sheets: 1 of 4	

Project No./Code

Sheet Number



COLLECTOR



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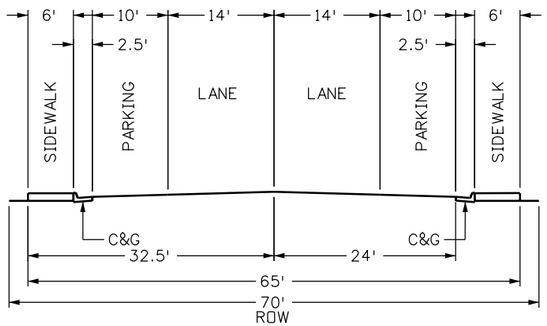

INDUSTRIAL COMERCIAL COLLECTOR

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Horiz. Scale: 1:20 Vert. Scale:						Revised:	Designer: CCH / Structure Numbers	
Unit Information Unit Leader							Detailer: KJM	
						Void:	Sheet Subset: TYPSEC / Subset Sheets: 2 of 4	Sheet Number

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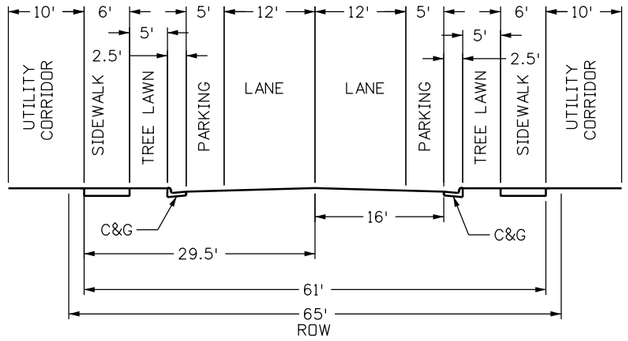

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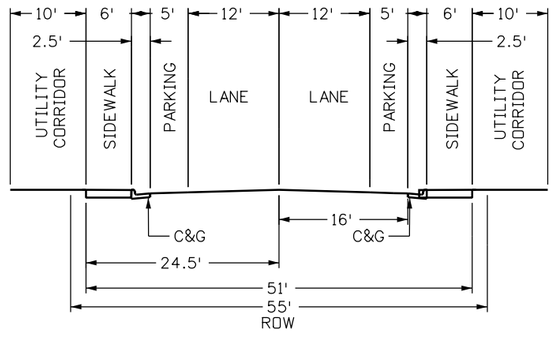
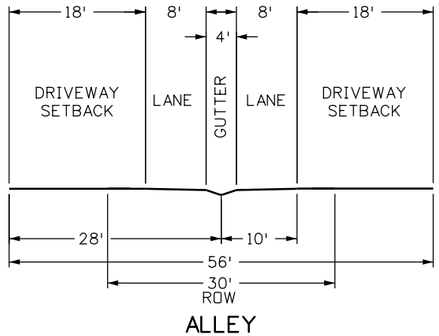


RESIDENTIAL ATTACHED SIDEWALK



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Unit Information	Unit Leader					Detailer: KJM	
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							Sheet Number

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FAX: 719-520-0108

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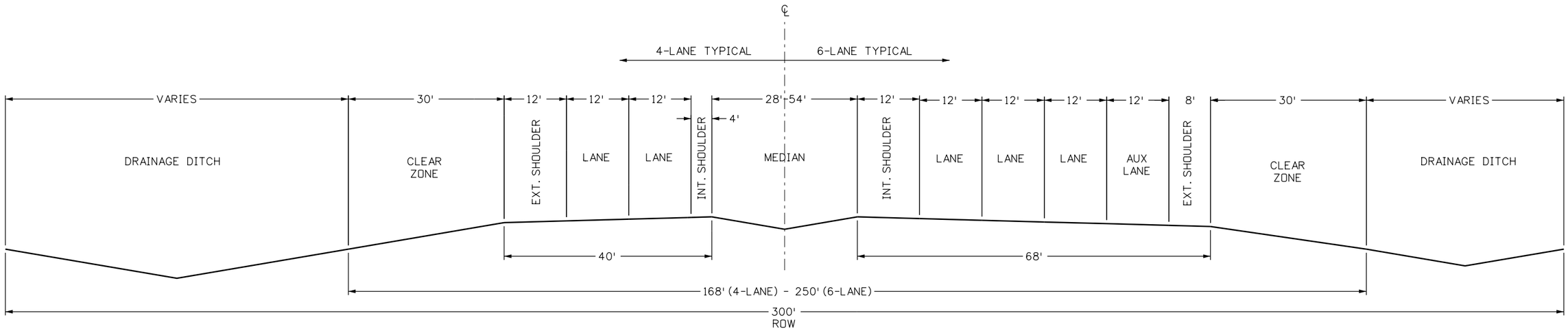

EXPRESSWAY 4 TO 6 LANES

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Unit Information	Unit Leader		

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Suite 220
Colorado Springs, CO 80919
Phone: 719-520-5800
FAX: 719-520-0108

No Revisions:
Revised:
Void:

TYPICAL SECTIONS

Designer: CCH
Detailer: KJM
Sheet Subset: TYPSEC
Structure Numbers:
Subset Sheets: 4 of 4

Project No./Code

Sheet Number

Appendix B – Basis of Costs

Project Name: City of Fountain Transportation Master Plan

Engineers Opinion of Probably Cost: 1-Mile Typical		
	Alternative:	**Expressway**
	Prepared By:	**S. Asher**
	Date Prepared:	**03/15/21**

Core Items

	Item	Unit	Unit Cost	Quantity	Extended Cost
1	Earthwork (Embankment)	CY	$ 30.00	146,667	$ 4,400,000.00
2					$ -
3	HBP	TON	$ 110.00	30,976	$ 3,407,400.00
4					$ -
5	ABC	CY	$ 70.00	13,037	$ 912,600.00
6					$ -
9	C&G	LF	$ 25.00	0	$ -
10					$ -
11	Concrete Sidewalk/Trail	SY	$ 50.00	0	$ -
12					$ -
13	Guardrail	LF	$ -		$ -
14					$ -
15	Median Cover Material	SF	$ 15.00	0	$ -
16					$ -
				Total Core Items:	$ 8,720,000.00

Miscellaneous Items	% of Core Items	Cost
Removals, Resets & Adjustments	2.0%	$ 174,400.00
Water Quality and Revegetation	8.0%	$ 697,600.00
Drainage (General)	20.0%	$ 1,744,000.00
Signing, Striping, Lighting	10.0%	$ 872,000.00
Construction Traffic Control	5.0%	$ 436,000.00
Utilities	5.0%	$ 436,000.00
	Total Miscellaneous Items	$ 4,360,000.00

Major Items (Project Dependent)

Item	Unit	Unit Cost	Quantity	Extended Cost
Bridges	SF	$ 150.00		$ -
Retaining Walls	SF	$ 90.00		$ -
Box Culverts	LF	$ 200.00		$ -
Major Channel Improvements	SF			$ -
Sound and Visual Barriers	SF	$ 30.00		$ -
Wetlands Mitigation				$ -
Landscape Enhancement	LS	$ -	1.00	$ -
			Total Major Items	$ -
			Subtotal of Construction Costs	$ 13,080,000.00

Other Construction Items (% of Subtotal of Construction Costs)

Mobilization	10.0%	$ 1,308,000.00
Contaminated Soils and Hazardous Materials Mitigation	0.0%	$ -
Contingency/Force Account	20.0%	$ 2,616,000.00
Railroad Flagging	Project Dependent	
	Total Other Construction Items	$ 3,924,000.00
	Total Construction Costs	$ 17,004,000.00

Engineering Costs (% of Subtotal of Construction Costs)

Design Engineering	10.0%	$ 1,308,000.00
Construction Engineering/Administration	10.0%	$ 1,308,000.00
	Total Engineering Costs	$ 2,616,000.00

Other Items

Right of Way	Project Dependent	

Total Project Cost (2021 Dollars) $ 19,620,000.00

03/15/21 22:01:41
Total Project Cost (2012 Dollars)

Project Name: City of Fountain Transportation Master Plan

Engineers Opinion of Probably Cost: 1-Mile Typical	**Alternative:**	**Major Arterial**
	Prepared By:	**S. Asher**
	Date Prepared:	**03/15/21**

Core Items

	Item	Unit	Unit Cost	Quantity	Extended Cost
1	Earthwork (Embankment)	CY	$ 30.00	6,000	$ 180,000.00
2					$ -
3	HBP	TON	$ 110.00	22,716	$ 2,498,700.00
4					$ -
5	ABC	CY	$ 70.00	14,341	$ 1,003,900.00
6					$ -
9	C&G	LF	$ 25.00	21,120	$ 528,000.00
10					$ -
11	Concrete Sidewalk/Trail	SY	$ 50.00	9,387	$ 469,300.00
12					$ -
13	Guardrail	LF	$ -		$ -
14					$ -
15	Median Cover Material	SF	$ 15.00	110,880	$ 1,663,200.00
16					$ -
				Total Core Items:	$ 6,343,100.00

Miscellaneous Items	% of Core Items	Cost
Removals, Resets & Adjustments	15.0%	$ 951,500.00
Water Quality and Revegetation	8.0%	$ 507,400.00
Drainage (General)	20.0%	$ 1,268,600.00
Signing, Striping, Lighting	10.0%	$ 634,300.00
Construction Traffic Control	15.0%	$ 951,500.00
Utilities	10.0%	$ 634,300.00
	Total Miscellaneous Items	$ 4,947,600.00

Major Items (Project Dependent)

Item	Unit	Unit Cost	Quantity	Extended Cost
Bridges	SF	$ 150.00		$ -
Retaining Walls	SF	$ 90.00		$ -
Box Culverts	LF	$ 200.00		$ -
Major Channel Improvements	SF			$ -
Sound and Visual Barriers	SF	$ 30.00		$ -
Wetlands Mitigation				$ -
Landscape Enhancement	LS	$ -	1.00	$ -
			Total Major Items	$ -
			Subtotal of Construction Costs	$ 11,290,700.00

Other Construction Items (% of Subtotal of Construction Costs)

Mobilization	10.0%	$ 1,129,100.00
Contaminated Soils and Hazardous Materials Mitigation	0.0%	$ -
Contingency/Force Account	20.0%	$ 2,258,100.00
Railroad Flagging	Project Dependent	
	Total Other Construction Items	$ 3,387,200.00
	Total Construction Costs	$ 14,677,900.00

Engineering Costs (% of Subtotal of Construction Costs)

Design Engineering	10.0%	$ 1,129,100.00
Construction Engineering/Administration	10.0%	$ 1,129,100.00
	Total Engineering Costs	$ 2,258,200.00

Other Items

Right of Way	Project Dependent	

Total Project Cost (2021 Dollars) $ 16,936,100.00

03/15/21 22:01:41
Total Project Cost (2012 Dollars)

Project Name: City of Fountain Transportation Master Plan

Engineers Opinion of Probably Cost: 1-Mile Typical		
	Alternative:	**Arterial**
	Prepared By:	**S. Asher**
	Date Prepared:	**03/15/21**

Core Items

	Item	Unit	Unit Cost	Quantity	Extended Cost
1	Earthwork (Embankment)	CY	$ 30.00	6,000	$ 180,000.00
2					$ -
3	HBP	TON	$ 110.00	16,004	$ 1,760,500.00
4					$ -
5	ABC	CY	$ 70.00	10,104	$ 707,300.00
6					$ -
9	C&G	LF	$ 25.00	21,120	$ 528,000.00
10					$ -
11	Concrete Sidewalk/Trail	SY	$ 50.00	9,387	$ 469,300.00
12					$ -
13	Guardrail	LF	$ -		$ -
14					$ -
15	Median Cover Material	SF	$ 15.00	63,360	$ 950,400.00
16					$ -
				Total Core Items:	$ 4,595,500.00

Miscellaneous Items	% of Core Items	Cost
Removals, Resets & Adjustments	15.0%	$ 689,300.00
Water Quality and Revegetation	8.0%	$ 367,600.00
Drainage (General)	20.0%	$ 919,100.00
Signing, Striping, Lighting	10.0%	$ 459,600.00
Construction Traffic Control	15.0%	$ 689,300.00
Utilities	10.0%	$ 459,600.00
	Total Miscellaneous Items	$ 3,584,500.00

Major Items (Project Dependent)

Item	Unit	Unit Cost	Quantity	Extended Cost
Bridges	SF	$ 150.00		$ -
Retaining Walls	SF	$ 90.00		$ -
Box Culverts	LF	$ 200.00		$ -
Major Channel Improvements	SF			$ -
Sound and Visual Barriers	SF	$ 30.00		$ -
Wetlands Mitigation				$ -
Landscape Enhancement	LS	$ -	1.00	$ -
			Total Major Items	$ -
			Subtotal of Construction Costs	$ 8,180,000.00

Other Construction Items (% of Subtotal of Construction Costs)

Mobilization	10.0%	$ 818,000.00
Contaminated Soils and Hazardous Materials Mitigation	0.0%	$ -
Contingency/Force Account	20.0%	$ 1,636,000.00
Railroad Flagging	Project Dependent	
	Total Other Construction Items	$ 2,454,000.00
	Total Construction Costs	$ 10,634,000.00

Engineering Costs (% of Subtotal of Construction Costs)

Design Engineering	10.0%	$ 818,000.00
Construction Engineering/Administration	10.0%	$ 818,000.00
	Total Engineering Costs	$ 1,636,000.00

Other Items

Right of Way	Project Dependent	

Total Project Cost (2021 Dollars) $ 12,270,000.00

03/15/21 22:01:41
Total Project Cost (2012 Dollars)

Project Name: City of Fountain Transportation Master Plan

Engineers Opinion of Probably Cost: 1-Mile Typical		
	Alternative:	**Minor Arterial**
	Prepared By:	**S. Asher**
	Date Prepared:	**03/15/21**

Core Items

	Item	Unit	Unit Cost	Quantity	Extended Cost
1	Earthwork (Embankment)	CY	$ 30.00	6,000	$ 180,000.00
2					$ -
3	HBP	TON	$ 110.00	18,586	$ 2,044,400.00
4					$ -
5	ABC	CY	$ 70.00	11,733	$ 821,300.00
6					$ -
9	C&G	LF	$ 25.00	10,560	$ 264,000.00
10					$ -
11	Concrete Sidewalk/Trail	SY	$ 50.00	7,040	$ 352,000.00
12					$ -
13	Guardrail	LF	$ -		$ -
14					$ -
15	Median Cover Material	SF	$ 15.00	0	$ -
16					$ -
				Total Core Items:	$ 3,661,700.00

Miscellaneous Items	% of Core Items	Cost
Removals, Resets & Adjustments	15.0%	$ 549,300.00
Water Quality and Revegetation	8.0%	$ 292,900.00
Drainage (General)	20.0%	$ 732,300.00
Signing, Striping, Lighting	10.0%	$ 366,200.00
Construction Traffic Control	15.0%	$ 549,300.00
Utilities	10.0%	$ 366,200.00
Total Miscellaneous Items		$ 2,856,200.00

Major Items (Project Dependent)

Item	Unit	Unit Cost	Quantity	Extended Cost
Bridges	SF	$ 150.00		$ -
Retaining Walls	SF	$ 90.00		$ -
Box Culverts	LF	$ 200.00		$ -
Major Channel Improvements	SF			$ -
Sound and Visual Barriers	SF	$ 30.00		$ -
Wetlands Mitigation				$ -
Landscape Enhancement	LS	$ -	1.00	$ -
			Total Major Items	$ -
			Subtotal of Construction Costs	$ 6,517,900.00

Other Construction Items (% of Subtotal of Construction Costs)

Mobilization	10.0%	$ 651,800.00
Contaminated Soils and Hazardous Materials Mitigation	0.0%	$ -
Contingency/Force Account	20.0%	$ 1,303,600.00
Railroad Flagging	Project Dependent	
Total Other Construction Items		$ 1,955,400.00
Total Construction Costs		$ 8,473,300.00

Engineering Costs (% of Subtotal of Construction Costs)

Design Engineering	10.0%	$ 651,800.00
Construction Engineering/Administration	10.0%	$ 651,800.00
Total Engineering Costs		$ 1,303,600.00

Other Items

Right of Way	Project Dependent	

Total Project Cost (2021 Dollars) $ 9,776,900.00

03/15/21 22:01:41
Total Project Cost (2012 Dollars)

Project Name: City of Fountain Transportation Master Plan

Engineers Opinion of Probably Cost: 1-Mile Typical		
	Alternative:	**Collector**
	Prepared By:	**S. Asher**
	Date Prepared:	**03/15/21**

Core Items

	Item	Unit	Unit Cost	Quantity	Extended Cost
1	Earthwork (Embankment)	CY	$ 30.00	6,000	$ 180,000.00
2					$ -
3	HBP	TON	$ 110.00	11,874	$ 1,306,200.00
4					$ -
5	ABC	CY	$ 70.00	7,496	$ 524,700.00
6					$ -
9	C&G	LF	$ 25.00	10,560	$ 264,000.00
10					$ -
11	Concrete Sidewalk/Trail	SY	$ 50.00	7,040	$ 352,000.00
12					$ -
13	Guardrail	LF	$ -		$ -
14					$ -
15	Median Cover Material	SF	$ 15.00	0	$ -
16					$ -
				Total Core Items:	$ 2,626,900.00

Miscellaneous Items

	% of Core Items	Cost
Removals, Resets & Adjustments	15.0%	$ 394,000.00
Water Quality and Revegetation	8.0%	$ 210,200.00
Drainage (General)	20.0%	$ 525,400.00
Signing, Striping, Lighting	10.0%	$ 262,700.00
Construction Traffic Control	15.0%	$ 394,000.00
Utilities	10.0%	$ 262,700.00
Total Miscellaneous Items		$ 2,049,000.00

Major Items (Project Dependent)

Item	Unit	Unit Cost	Quantity	Extended Cost
Bridges	SF	$ 150.00		$ -
Retaining Walls	SF	$ 90.00		$ -
Box Culverts	LF	$ 200.00		$ -
Major Channel Improvements	SF			$ -
Sound and Visual Barriers	SF	$ 30.00		$ -
Wetlands Mitigation				$ -
Landscape Enhancement	LS	$ -	1.00	$ -
			Total Major Items	$ -
			Subtotal of Construction Costs	$ 4,675,900.00

Other Construction Items (% of Subtotal of Construction Costs)

Mobilization	10.0%	$ 467,600.00
Contaminated Soils and Hazardous Materials Mitigation	0.0%	$ -
Contingency/Force Account	20.0%	$ 935,200.00
Railroad Flagging	Project Dependent	
Total Other Construction Items		$ 1,402,800.00
Total Construction Costs		$ 6,078,700.00

Engineering Costs (% of Subtotal of Construction Costs)

Design Engineering	10.0%	$ 467,600.00
Construction Engineering/Administration	10.0%	$ 467,600.00
Total Engineering Costs		$ 935,200.00

Other Items

Right of Way	Project Dependent	

Total Project Cost (2021 Dollars) $ 7,013,900.00

03/15/21 22:01:41
Total Project Cost (2012 Dollars)

Project Name: City of Fountain Transportation Master Plan

Engineers Opinion of Probably Cost: 1-Mile Typical		
	Alternative:	**Minor Collector**
	Prepared By:	**S. Asher**
	Date Prepared:	**03/15/21**

Core Items

	Item	Unit	Unit Cost	Quantity	Extended Cost
1	Earthwork (Embankment)	CY	$ 30.00	6,000	$ 180,000.00
2					$ -
3	HBP	TON	$ 110.00	11,874	$ 1,306,200.00
4					$ -
5	ABC	CY	$ 70.00	7,496	$ 524,700.00
6					$ -
9	C&G	LF	$ 25.00	10,560	$ 264,000.00
10					$ -
11	Concrete Sidewalk/Trail	SY	$ 50.00	7,040	$ 352,000.00
12					$ -
13	Guardrail	LF	$ -		$ -
14					$ -
15	Median Cover Material	SF	$ 15.00	0	$ -
16					$ -
				Total Core Items:	$ 2,626,900.00

Miscellaneous Items	% of Core Items	Cost
Removals, Resets & Adjustments	15.0%	$ 394,000.00
Water Quality and Revegetation	8.0%	$ 210,200.00
Drainage (General)	20.0%	$ 525,400.00
Signing, Striping, Lighting	10.0%	$ 262,700.00
Construction Traffic Control	15.0%	$ 394,000.00
Utilities	10.0%	$ 262,700.00
	Total Miscellaneous Items	$ 2,049,000.00

Major Items (Project Dependent)

Item	Unit	Unit Cost	Quantity	Extended Cost
Bridges	SF	$ 150.00		$ -
Retaining Walls	SF	$ 90.00		$ -
Box Culverts	LF	$ 200.00		$ -
Major Channel Improvements	SF			$ -
Sound and Visual Barriers	SF	$ 30.00		$ -
Wetlands Mitigation				$ -
Landscape Enhancement	LS	$ -	1.00	$ -
			Total Major Items	$ -
			Subtotal of Construction Costs	$ 4,675,900.00

Other Construction Items (% of Subtotal of Construction Costs)

Mobilization	10.0%	$ 467,600.00
Contaminated Soils and Hazardous Materials Mitigation	0.0%	$ -
Contingency/Force Account	20.0%	$ 935,200.00
Railroad Flagging	Project Dependent	
	Total Other Construction Items	$ 1,402,800.00
	Total Construction Costs	$ 6,078,700.00

Engineering Costs (% of Subtotal of Construction Costs)

Design Engineering	10.0%	$ 467,600.00
Construction Engineering/Administration	10.0%	$ 467,600.00
	Total Engineering Costs	$ 935,200.00

Other Items

Right of Way	Project Dependent	

Total Project Cost (2021 Dollars) $ 7,013,900.00

03/15/21 22:01:41
Total Project Cost (2012 Dollars)

Project Name: City of Fountain Transportation Master Plan

Engineers Opinion of Probably Cost: Signalized Intersection Reconstruction		
	Alternative:	**Signalized Intersection-Arterial**
	Prepared By:	**S. Asher**
	Date Prepared:	**03/15/21**

Core Items

	Item	Unit	Unit Cost	Quantity	Extended Cost
1	Earthwork (Embankment)	CY	$ 30.00	6,000	$ 180,000.00
2					$ -
3	HBP	TON	$ 110.00	4,156	$ 457,100.00
4					$ -
5	ABC	CY	$ 70.00	2,623	$ 183,600.00
6					$ -
9	C&G	LF	$ 25.00	2,000	$ 50,000.00
10					$ -
11	Concrete Sidewalk/Trail	SY	$ 50.00	1,333	$ 66,700.00
12					$ -
13	Guardrail	LF	$ -		$ -
14					$ -
15	Median Cover Material	SF	$ 15.00	0	$ -
16					$ -
				Total Core Items:	$ 937,400.00

Miscellaneous Items

	% of Core Items	Cost
Removals, Resets & Adjustments	15.0%	$ 140,600.00
Water Quality and Revegetation	8.0%	$ 75,000.00
Drainage (General)	10.0%	$ 93,700.00
Signing, Striping, Lighting	10.0%	$ 93,700.00
Construction Traffic Control	10.0%	$ 93,700.00
Utilities	10.0%	$ 93,700.00
Total Miscellaneous Items		$ 590,400.00

Major Items (Project Dependent)

Item	Unit	Unit Cost	Quantity	Extended Cost
Bridges	SF	$ 150.00		$ -
Retaining Walls	SF	$ 90.00		$ -
Box Culverts	LF	$ 200.00		$ -
Major Channel Improvements	SF			$ -
Sound and Visual Barriers	SF	$ 30.00		$ -
Traffic Signal	EA	$ 400,000.00	1.00	$ 400,000.00
Landscape Enhancement	LS	$ -	1.00	$ -
			Total Major Items	$ 400,000.00
			Subtotal of Construction Costs	$ 1,927,800.00

Other Construction Items (% of Subtotal of Construction Costs)

Mobilization	10.0%	$ 192,800.00
Contaminated Soils and Hazardous Materials Mitigation	0.0%	$ -
Contingency/Force Account	20.0%	$ 385,600.00
Railroad Flagging	Project Dependent	
Total Other Construction Items		$ 578,400.00
Total Construction Costs		$ 2,506,200.00

Engineering Costs (% of Subtotal of Construction Costs)

Design Engineering	10.0%	$ 192,800.00
Construction Engineering/Administration	10.0%	$ 192,800.00
Total Engineering Costs		$ 385,600.00

Other Items

Right of Way	Project Dependent	

Total Project Cost (2021 Dollars)	$ 2,891,800.00

03/15/21 22:01:41
Total Project Cost (2012 Dollars)

Project Name: City of Fountain Transportation Master Plan

Engineers Opinion of Probably Cost: Bridge 200'		
	Alternative:	**Arterial**
	Prepared By:	**S. Asher**
	Date Prepared:	**03/15/21**

Core Items

	Item	Unit	Unit Cost	Quantity	Extended Cost
1	Earthwork (Embankment)	CY	$ 30.00	6,000	$ 180,000.00
2					$ -
3	HBP	TON	$ 110.00	2,078	$ 228,600.00
4					$ -
5	ABC	CY	$ 70.00	1,312	$ 91,800.00
6					$ -
9	C&G	LF	$ 25.00	2,000	$ 50,000.00
10					$ -
11	Concrete Sidewalk/Trail	SY	$ 50.00	667	$ 33,300.00
12					$ -
13	Guardrail	LF	$ -		$ -
14					$ -
15	Median Cover Material	SF	$ 15.00	0	$ -
16					$ -
				Total Core Items:	$ 583,700.00

Miscellaneous Items	% of Core Items	Cost
Removals, Resets & Adjustments	15.0%	$ 87,600.00
Water Quality and Revegetation	8.0%	$ 46,700.00
Drainage (General)	10.0%	$ 58,400.00
Signing, Striping, Lighting	10.0%	$ 58,400.00
Construction Traffic Control	10.0%	$ 58,400.00
Utilities	10.0%	$ 58,400.00
Total Miscellaneous Items		$ 367,900.00

Major Items (Project Dependent)

Item	Unit	Unit Cost	Quantity	Extended Cost
Bridges	SF	$ 250.00	18,400.00	$ 4,600,000.00
Retaining Walls	SF	$ 90.00		$ -
Box Culverts	LF	$ 200.00		$ -
Major Channel Improvements	SF			$ -
Sound and Visual Barriers	SF	$ 30.00		$ -
Traffic Signal	EA	$ 400,000.00	-	$ -
Landscape Enhancement	LS	$ -	1.00	$ -
			Total Major Items	$ 4,600,000.00
			Subtotal of Construction Costs	$ 5,551,600.00

Other Construction Items (% of Subtotal of Construction Costs)

Mobilization	10.0%	$ 555,200.00
Contaminated Soils and Hazardous Materials Mitigation	0.0%	$ -
Contingency/Force Account	20.0%	$ 1,110,300.00
Railroad Flagging	Project Dependent	
Total Other Construction Items		$ 1,665,500.00
Total Construction Costs		$ 7,217,100.00

Engineering Costs (% of Subtotal of Construction Costs)

Design Engineering	10.0%	$ 555,200.00
Construction Engineering/Administration	10.0%	$ 555,200.00
Total Engineering Costs		$ 1,110,400.00

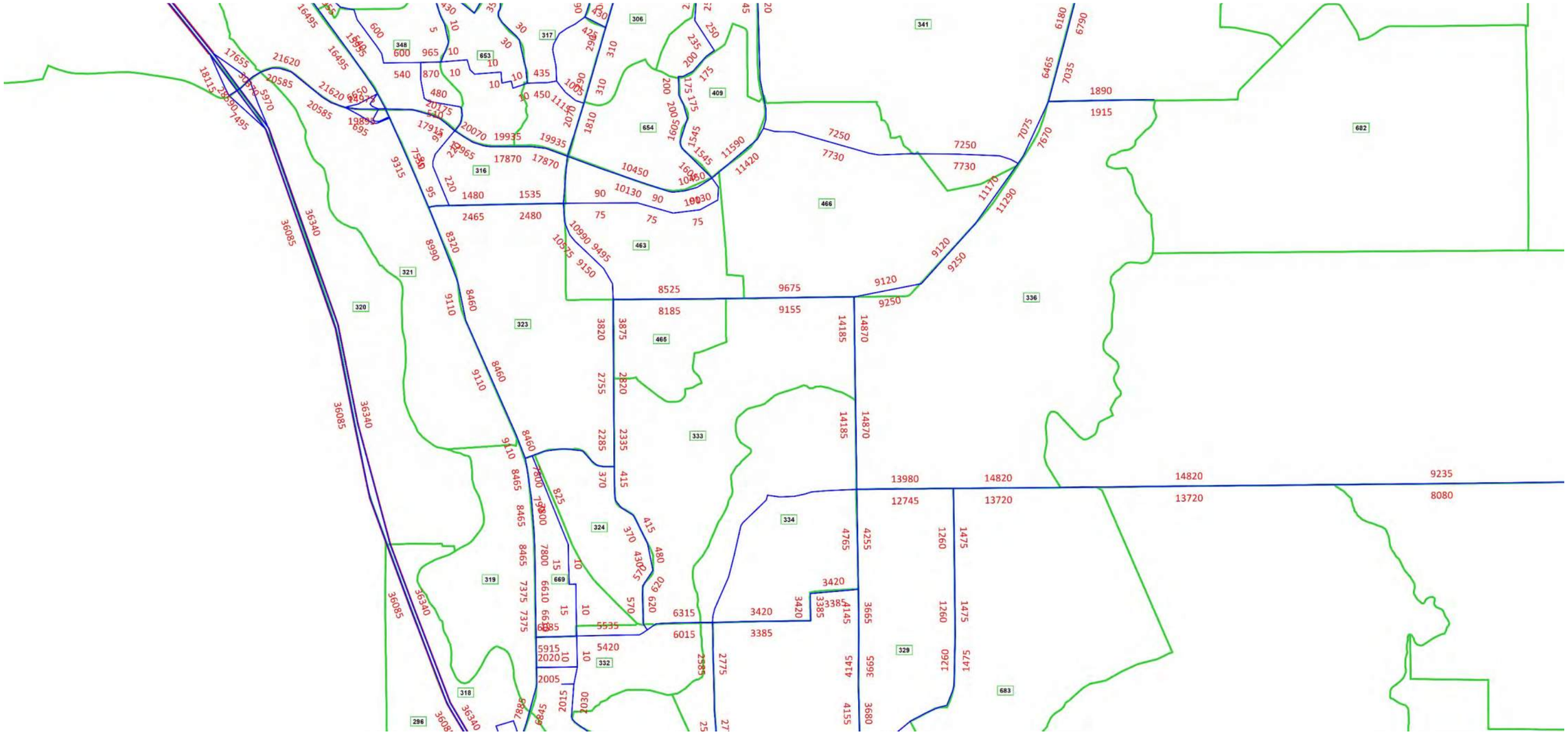
Other Items

Right of Way	Project Dependent	

Total Project Cost (2021 Dollars) $ 8,327,500.00

03/15/21 22:01:41
Total Project Cost (2012 Dollars)

Appendix C – Mobility Analysis Summary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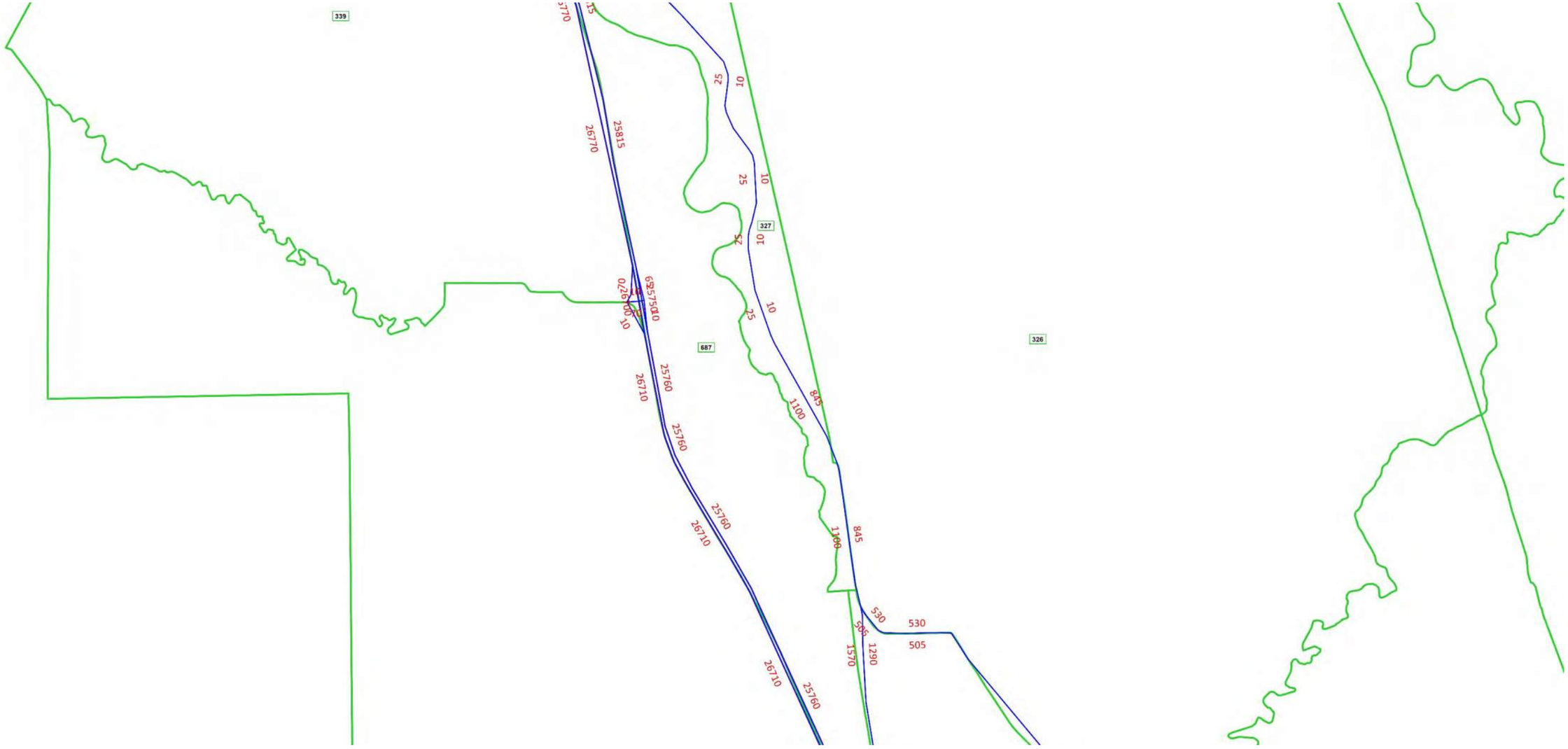
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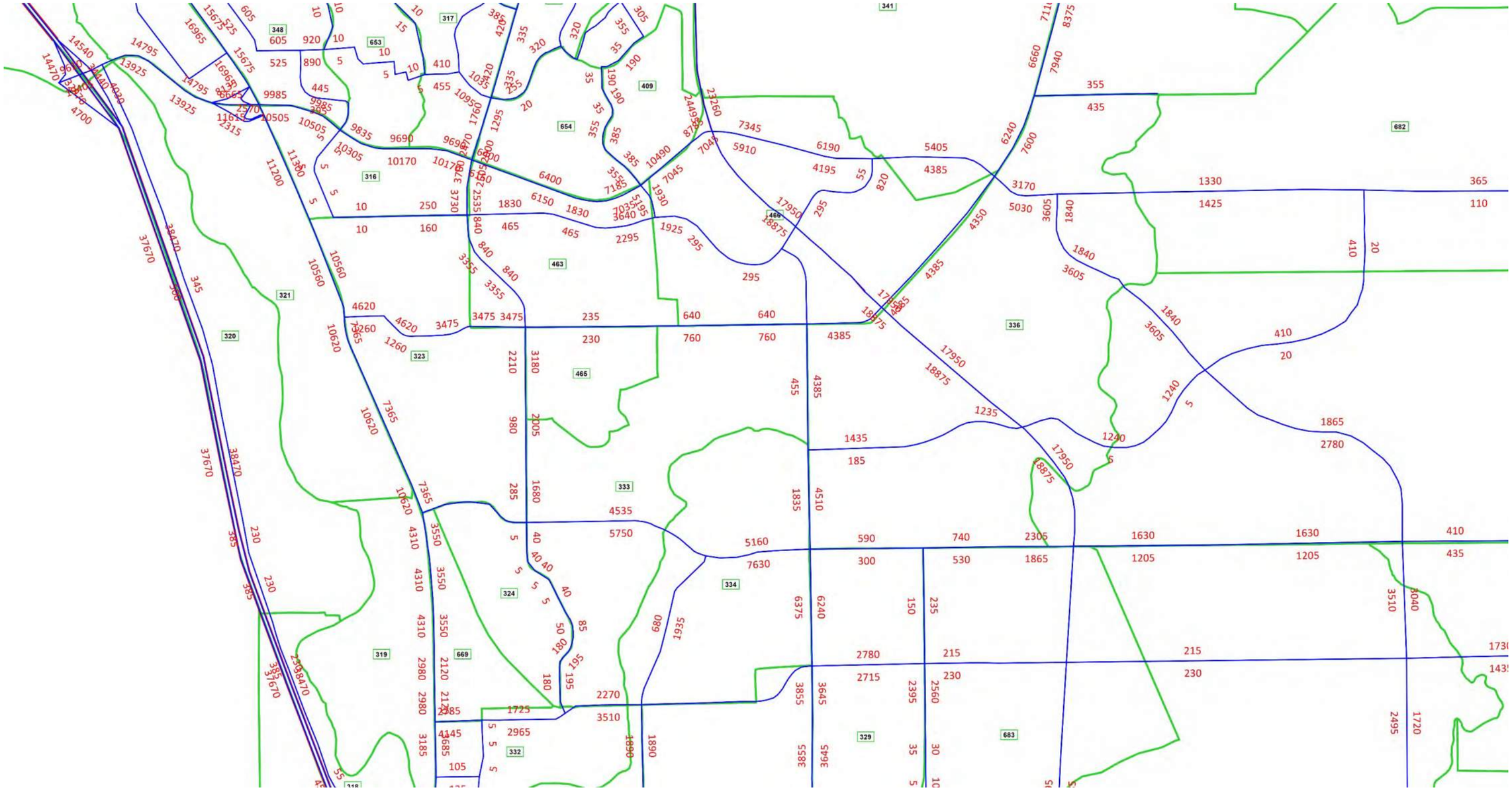
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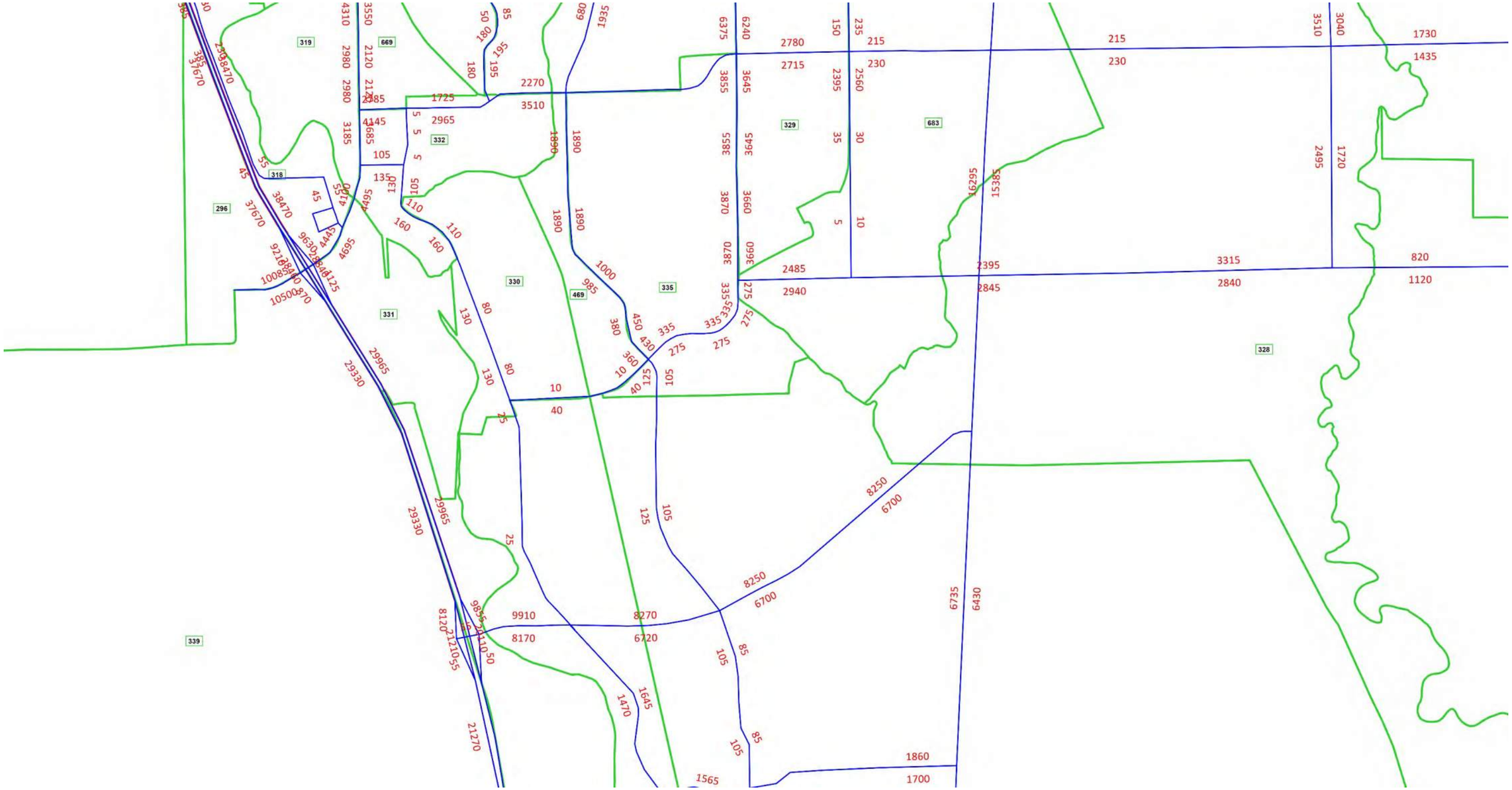
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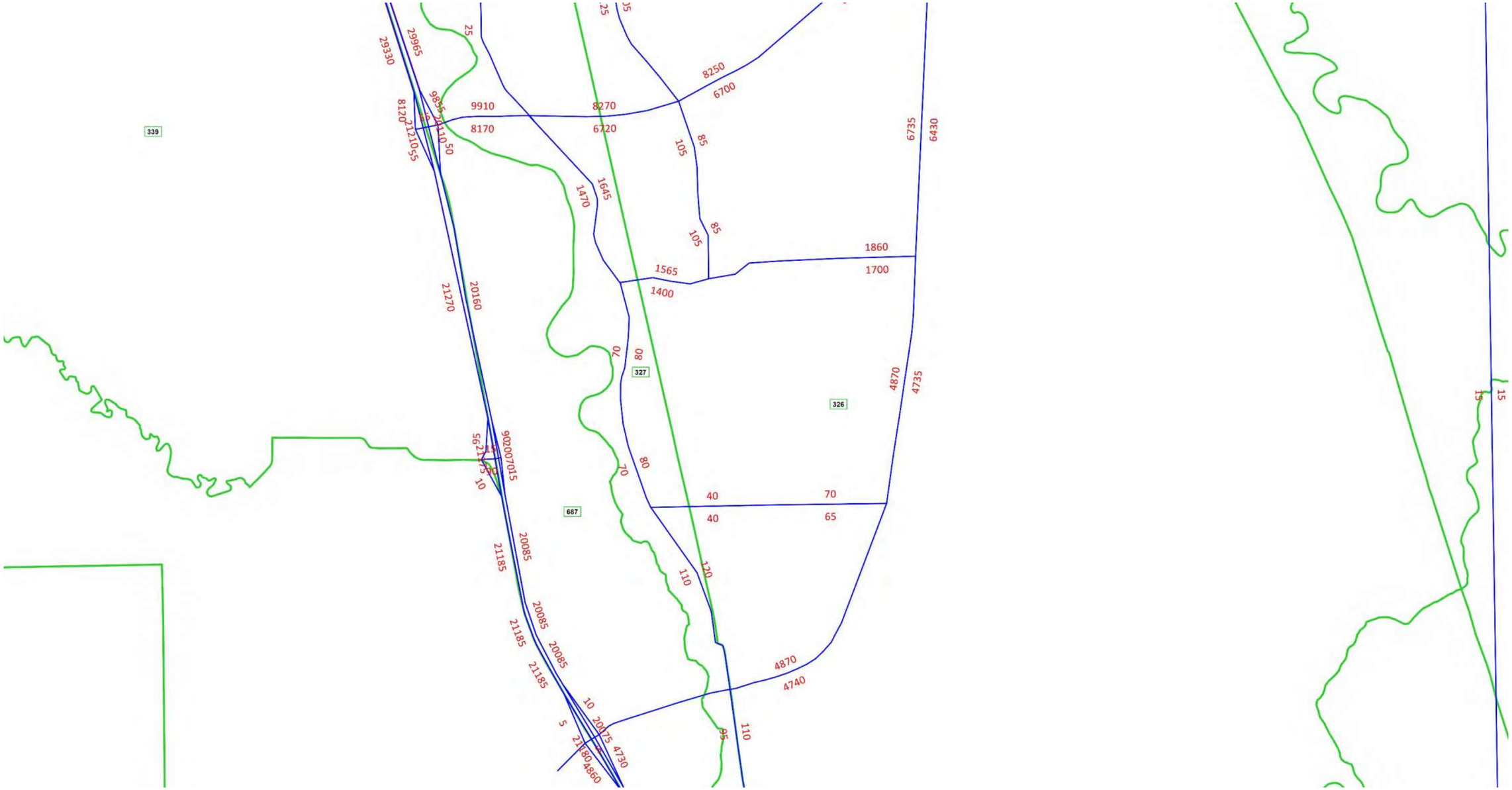
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Appendix D – Public/Stakeholder Outreach

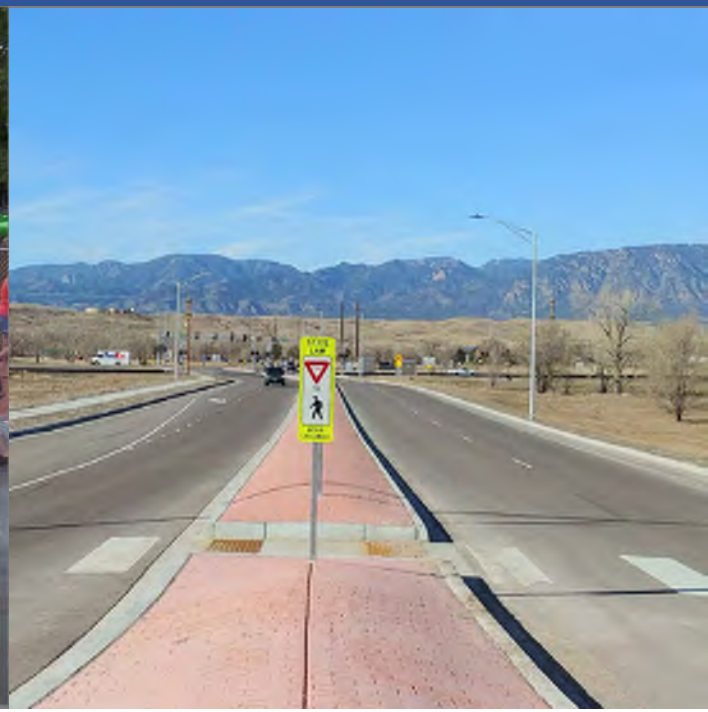
Stakeholder Meeting Slides - December 2, 2020

Presentation of Needs Analysis & 2045 Transportation Network

City of Fountain Transportation Master Plan

Stakeholder Conceptual Planning Briefing

9:00 AM – 11:00 AM | December 2, 2020
City of Fountain – Transportation Master Plan



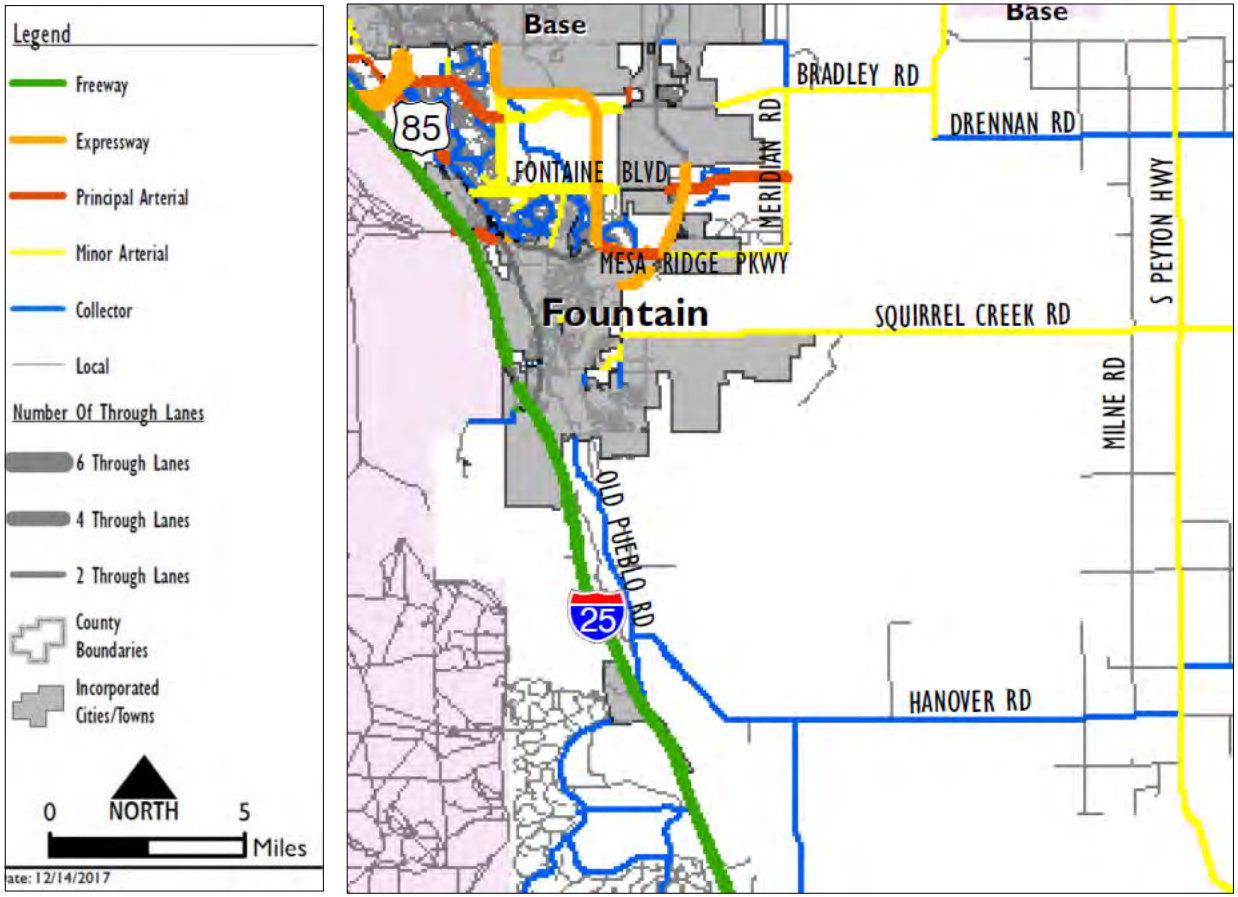
Agenda

- Welcome and Ground Rules
- Transportation Network Context
- PPACG Socioeconomic Forecasts
- Traffic Forecasts – 2030, 2045
- Transportation Master Plan Network
- Next Steps

Context

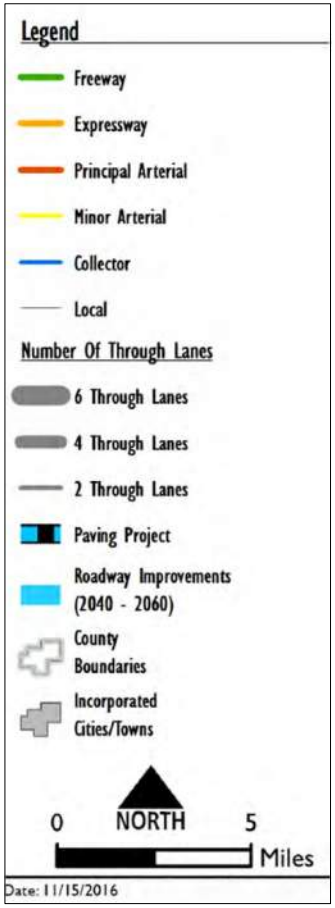
- EPC 2016 Major Transportation Corridor Plan
- PPACG 2045 Regional Transportation Plan
- CDOT On-System Functional Classifications
- Fountain Transportation Master Plan (2002)
- Fountain Annexation Plan/Comprehensive Plan
- Growth/Development Build-out

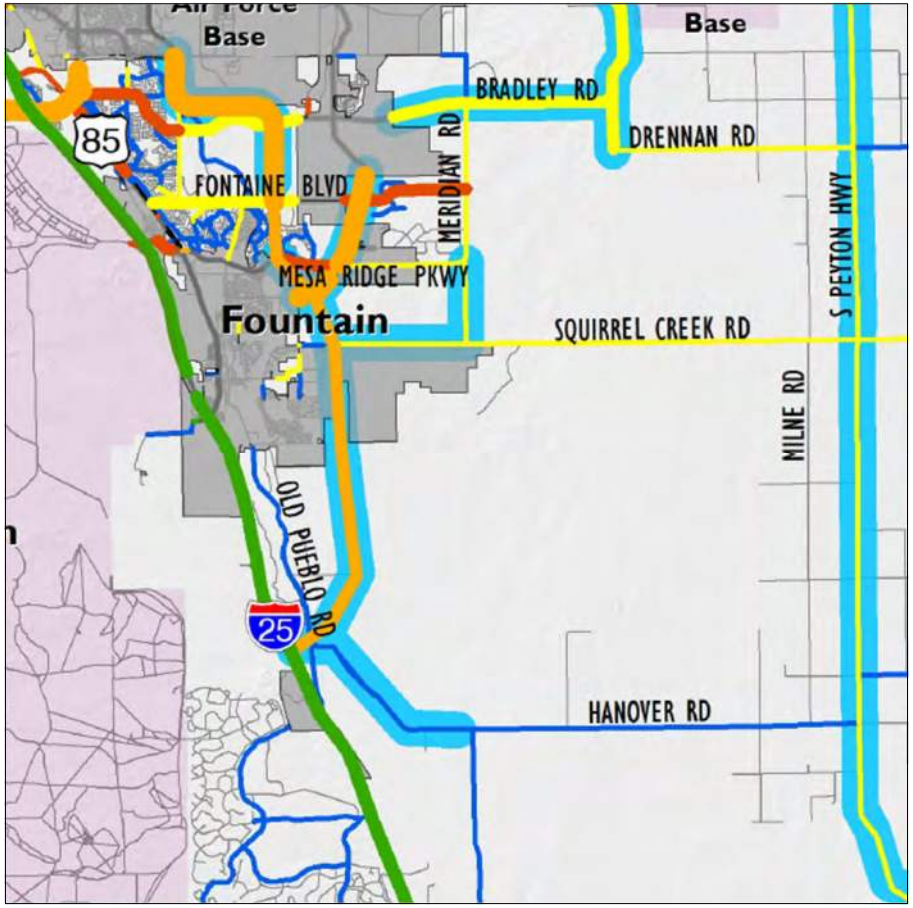
EPC Major Transportation Corridors Plan – 2040 Roadways



- 2040 Network
- Adopted by El Paso County in 2016
- Constrained by 2040 Funding

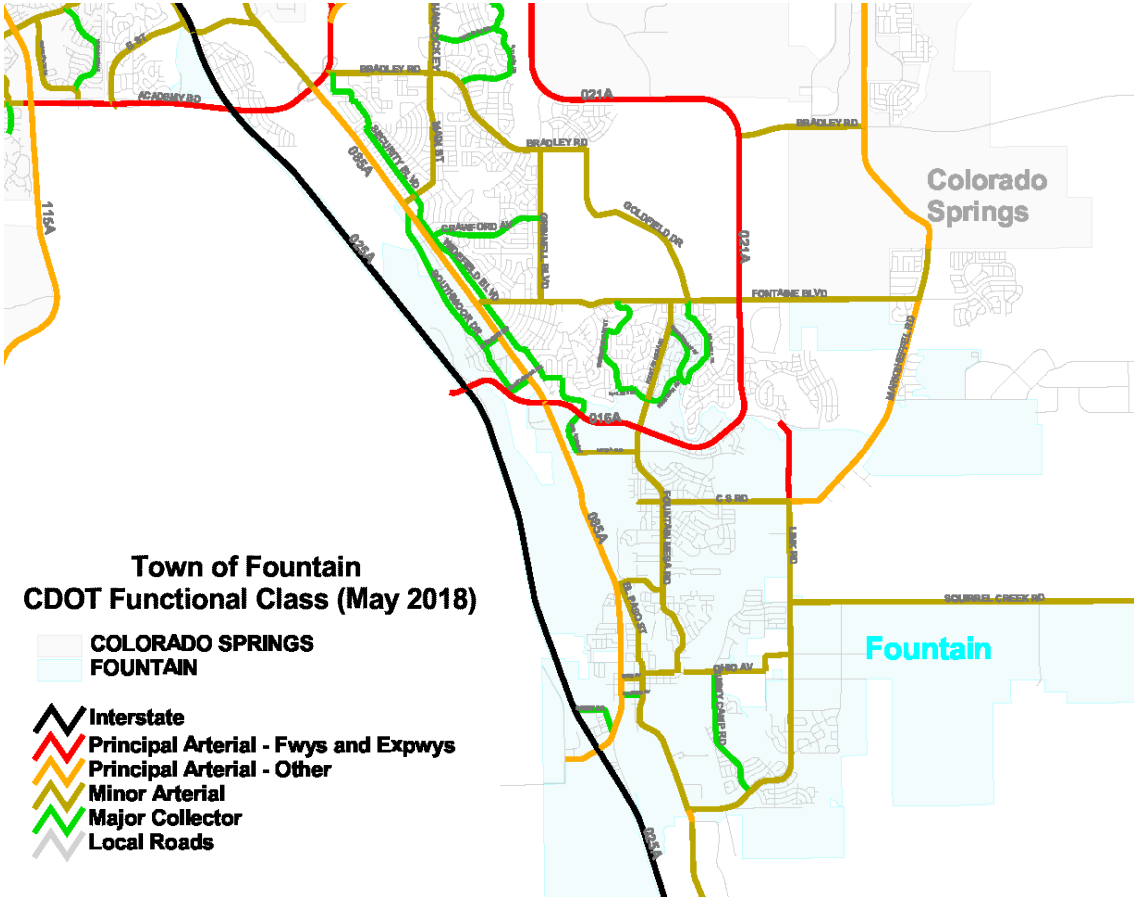
EPC Major Transportation Corridors Plan – CPP (2060)





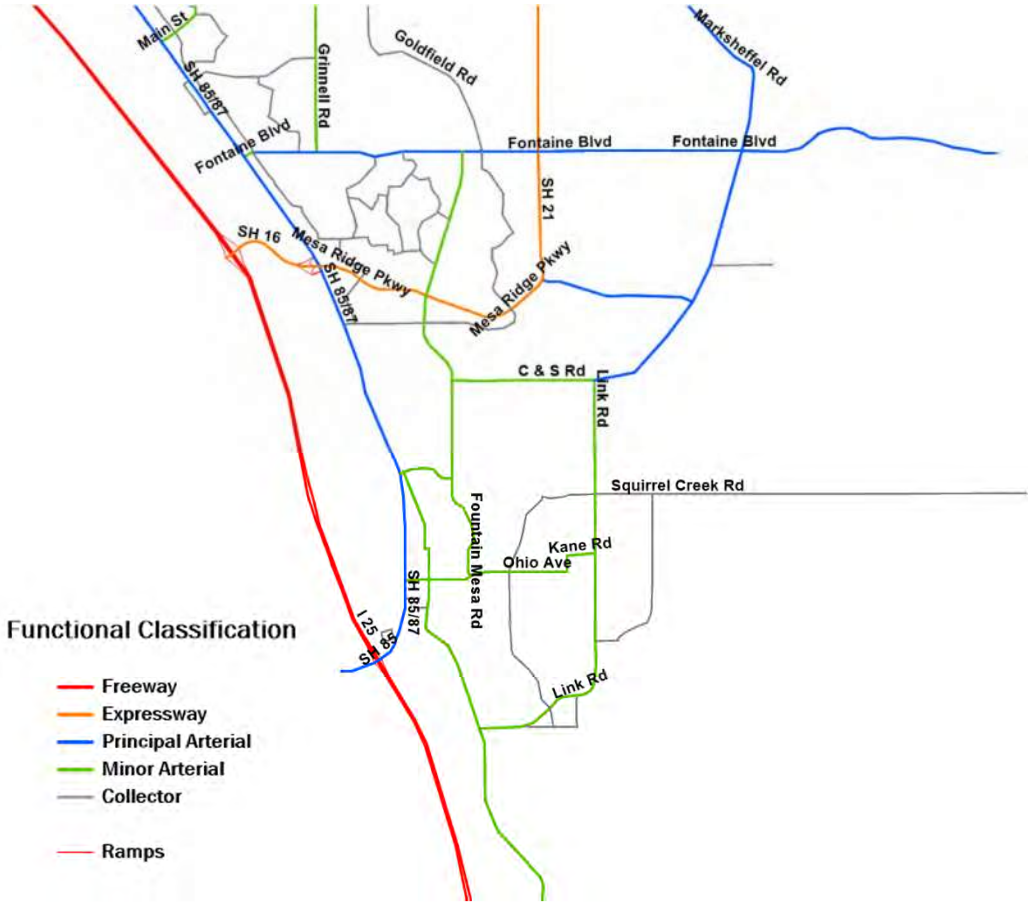
- "Needs Based" Vision Plan
- Blueprint for ROW reservation and acquisition
- Projects to be Implemented as Funding / Opportunities Permit

CDOT Fountain Functional Classifications



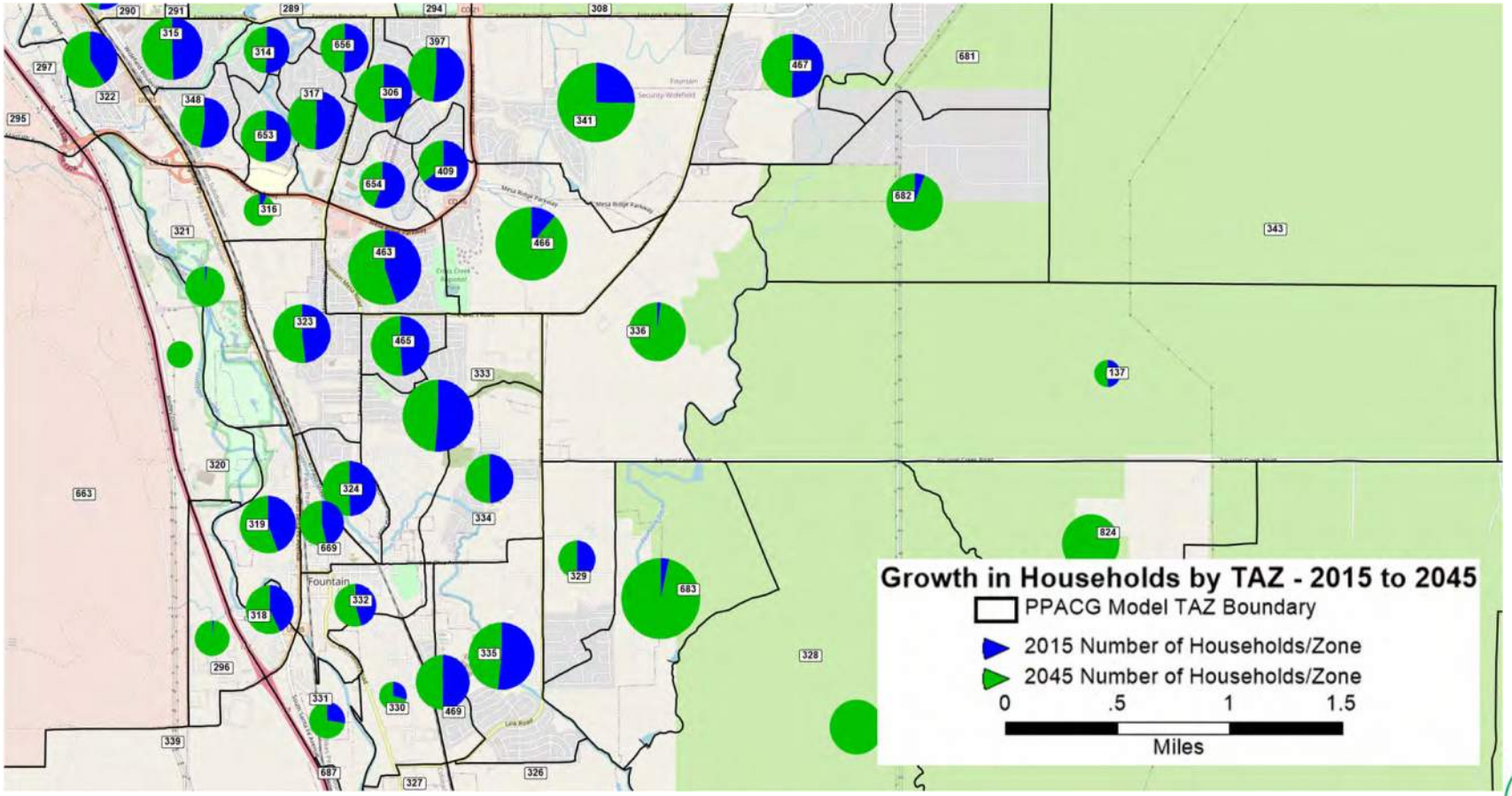
- CDOT/FHWA Functional Classifications
- Identifies Funding Eligibility for Federal and State funding

PPACG 2045 Fiscally Constrained Network



- 2045 Network
- Adopted by PPACG
- Includes Only Projects "funded" by 2045
- Includes Federal, State, PPRTA, Local, Privately Funded Projects
- Developed by 3-C Federally Mandated (for funding eligibility) Planning Process
- Model/Forecasts adopted by PPACG and Constrained to State Demographer County Control Totals

2015 – 2045 PPACG Household Growth Forecasts



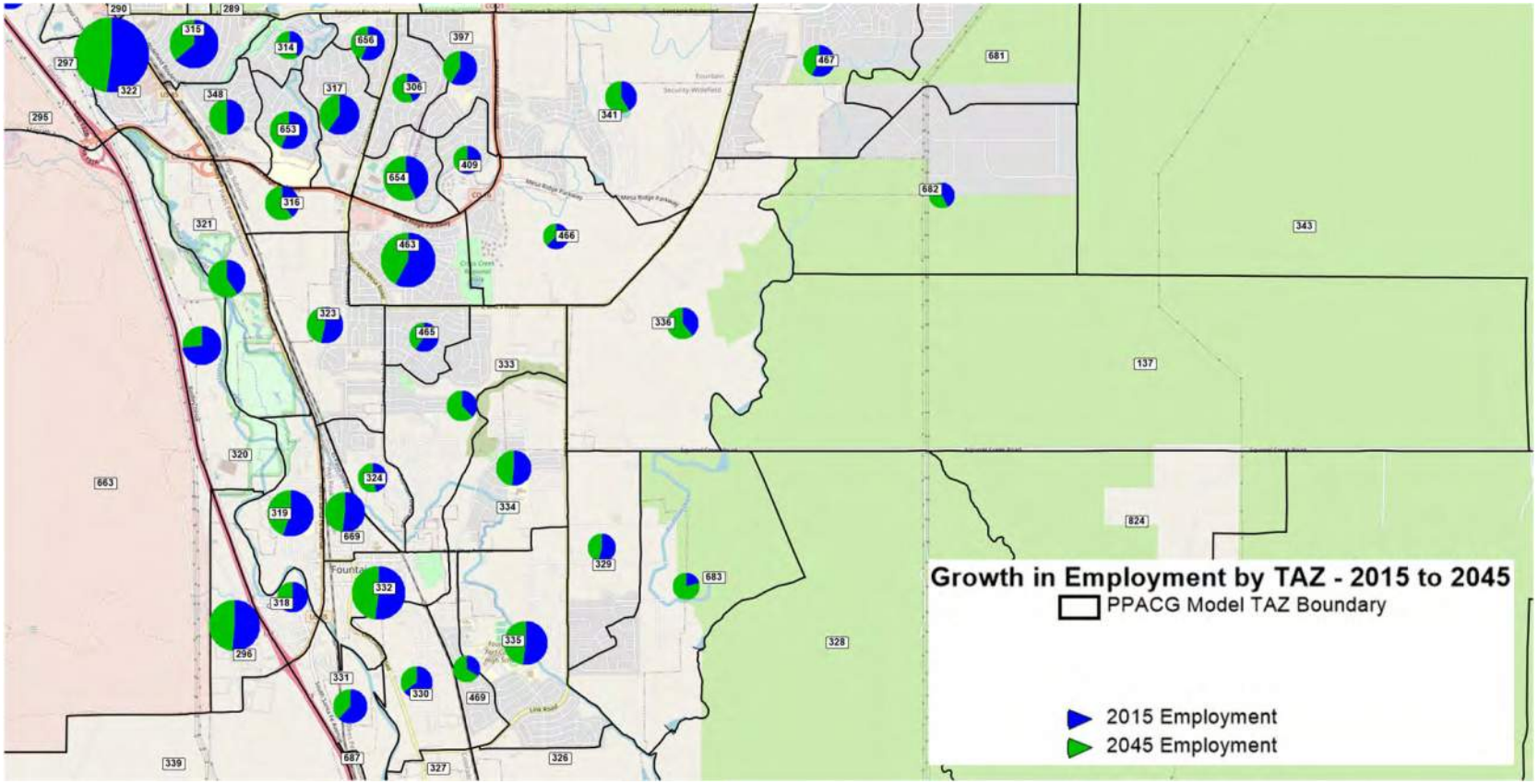
2015 – 2045 PPACG Household Growth Forecasts

TAZ	2015 HH	2045 HH	Increase	% Increase
321	6	312	306	5100%
326	32	1037	1,005	3140%
328	0	1052	1,052	--
336	24	1247	1,223	5095%
341	762	2260	1,498	197%
463	1145	1417	272	24%
466	270	2096	1,826	676%
682	66	1080	1,014	1536%
683	101	2978	2,877	2848%
824	0	1231	1,231	--
All	**14,072**	**26,764**	**12,692**	**90%**

HIGH GROWTH IN HOUSEHOLDS:

- Number of households in the study area increases by 90% from 2015 to 2045
- Increase of 12,692 households from 2015 to 2045
- The forecast average increase in households for the top 10 (of 44) growth TAZs is 1,230 households.
- The forecast average percentage increase in households for the top 10 (of 44) growth TAZs is over 2000%.

2015 – 2045 PPACG Employment Growth Forecasts



2015 – 2045 PPACG Employment Growth Forecasts

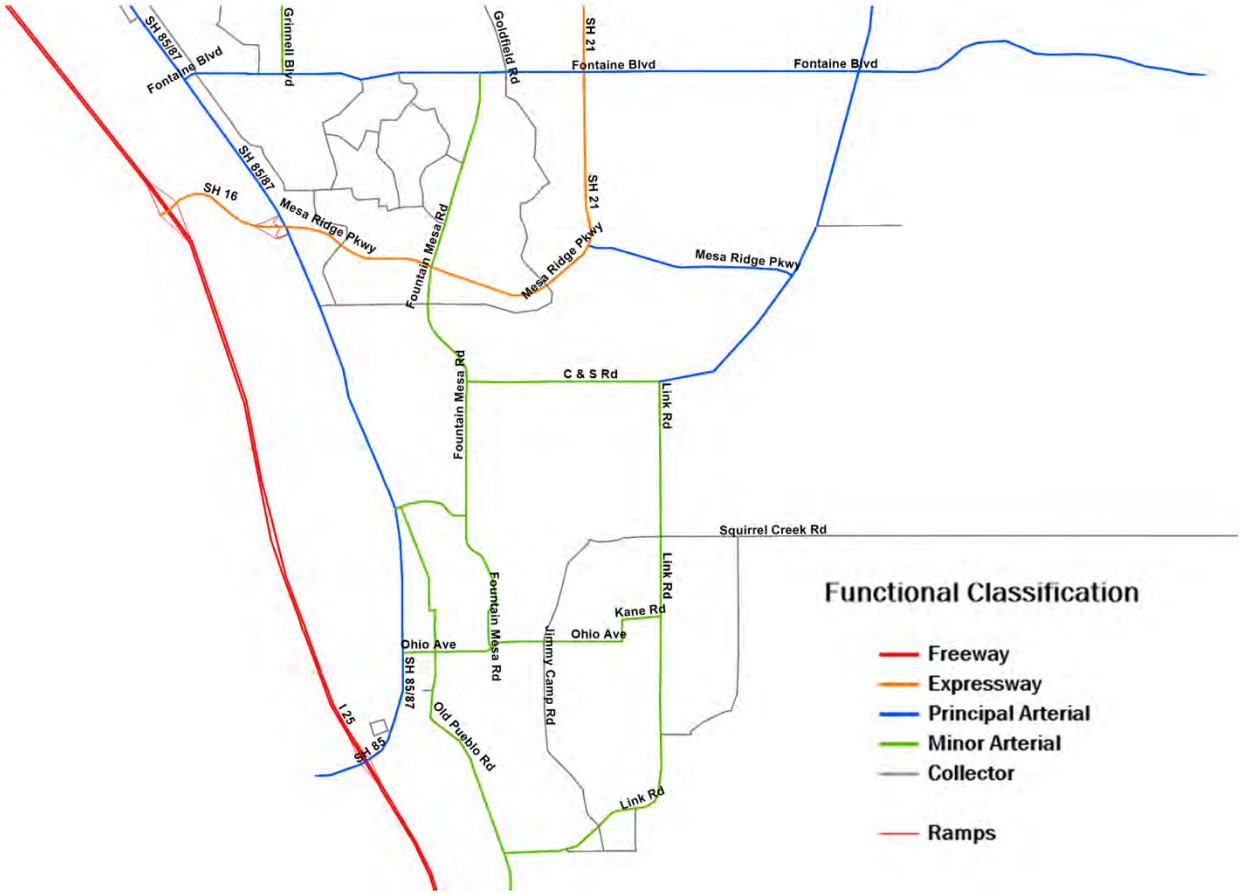
TAZ	2015 EMP	2045 EMP	Increase	% Increase
683	4	15	11	275%
654	243	329	86	35%
469	4	8	4	100%
348	92	94	2	2%
343	6	22	16	266%
341	33	47	14	42%
336	33	51	18	55%
333	28	46	18	64%
326	15	604	589	3926%
321	105	155	50	47%
316	53	80	27	51%
314	8	12	4	50%
306	20	26	6	30%
All	**6,310**	**6,064**	**-246**	**-4%**

STABLE LEVELS OF EMPLOYMENT:

- Employment within the 44 study area TAZs is forecast to drop by 4% - net zero.
- This represents a decrease in employment of 246 – net zero.
- The forecast average increase in employment for the top 10 (of 44) growth TAZs is 85.
- The forecast average percentage increase in employment for the top 10 (of 44) growth TAZs is over 495%.

SOME AREAS ARE GAINING EMPLOYMENT – NET ZERO CHANGE

PPACG 2045 Network - Functional Class

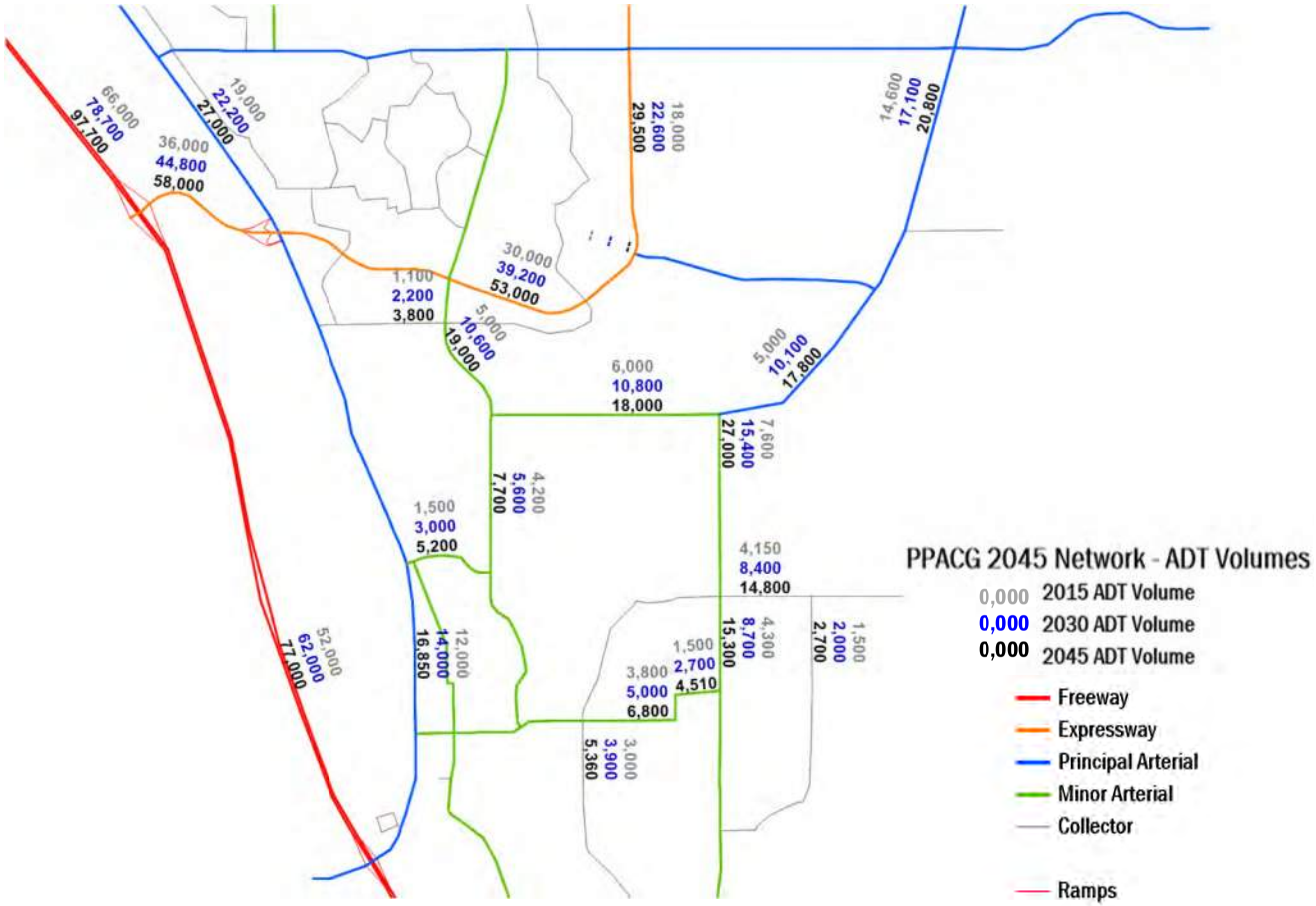


North Area Only

GROWTH – MORE TRAFFIC

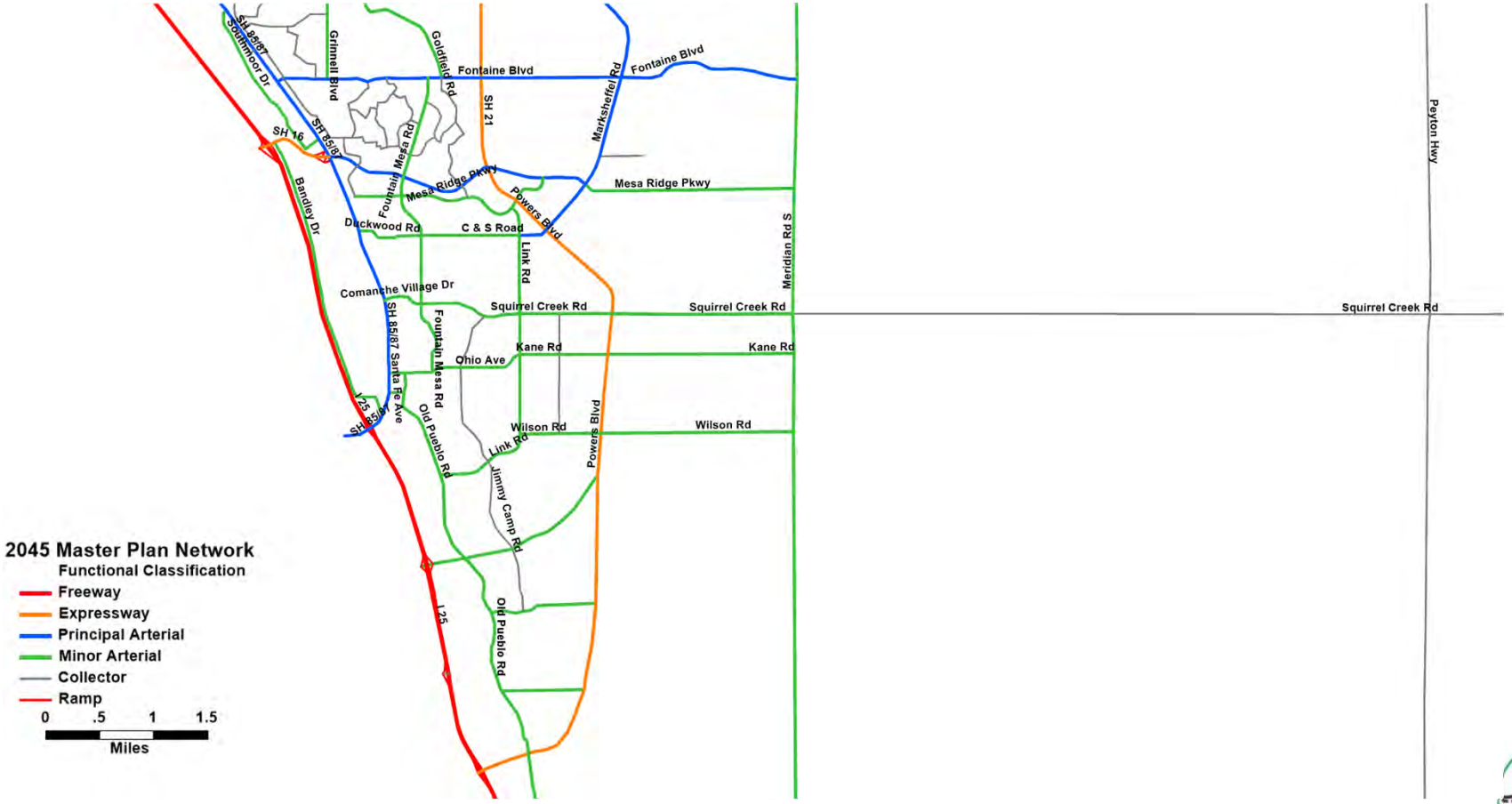
- This is the PPACG 2045 Network with no new capacity in study area
- 2045 Network provides limited regional travel corridors

PPACG 2045 Network – North Area Forecast ADT

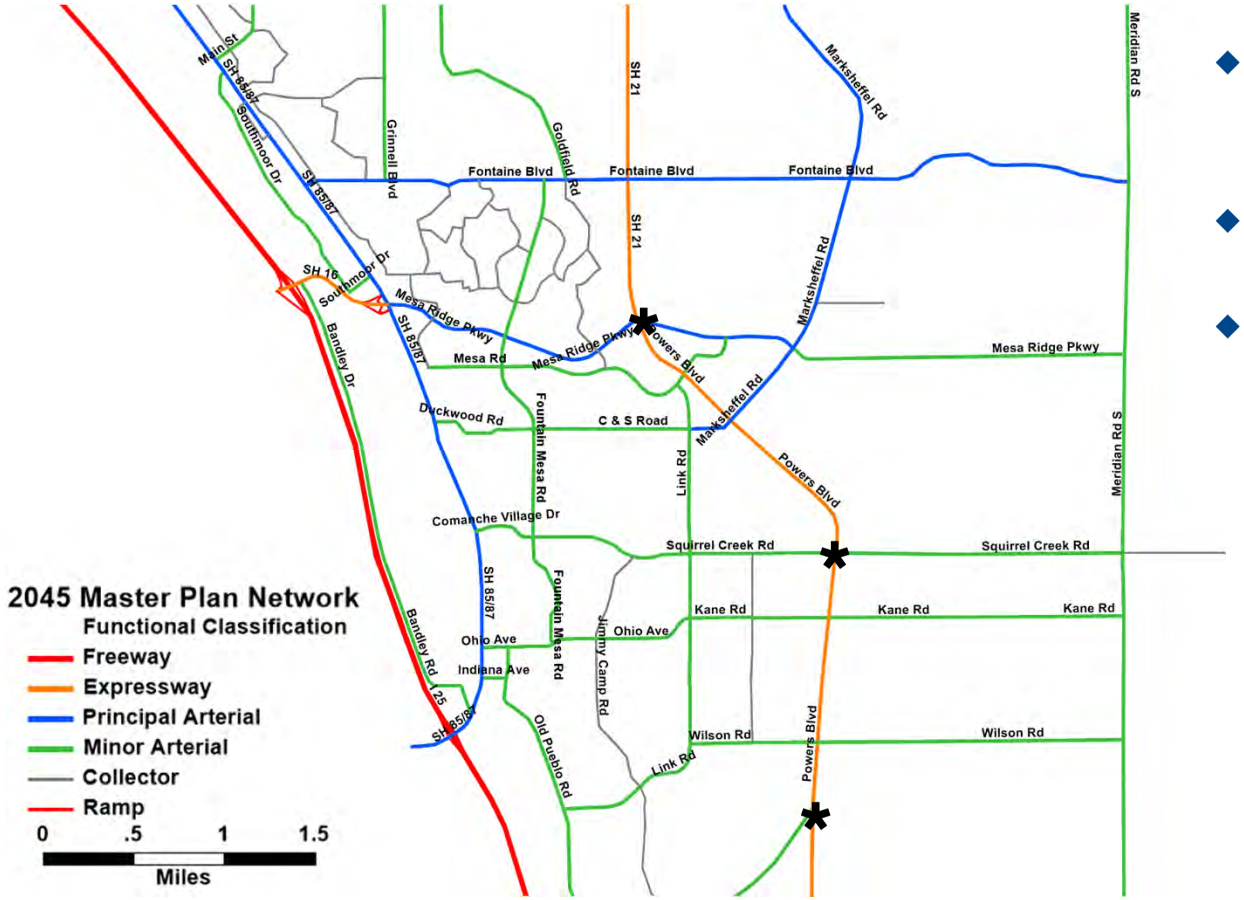


- 2020 - Traffic accommodated by PPACG 2045 fiscally constrained network
- 2030 - Traffic begins to exceed network capacity in some locations
- 2045 – Traffic exceeds capacity of many links and nodes

Proposed Transportation Master Plan Network

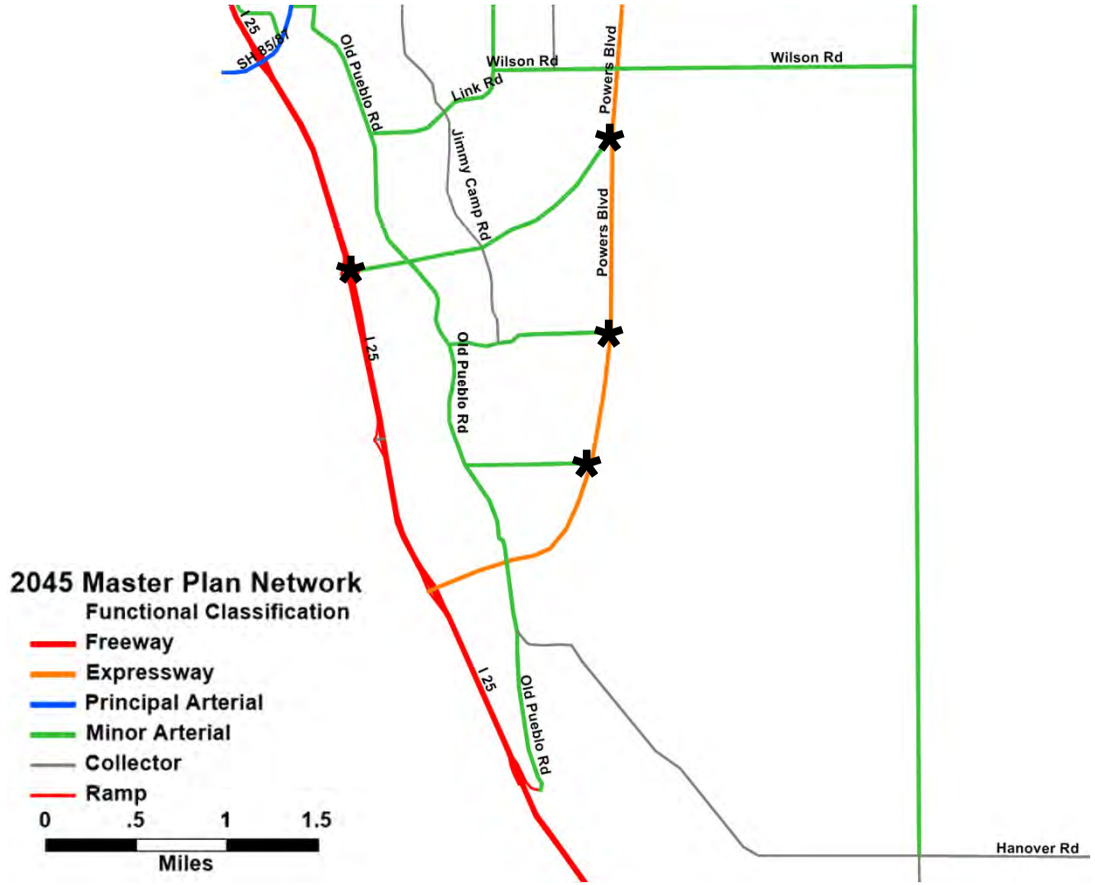


Master Plan Network – North Area Concept



- Powers Boulevard extension relieves congestion on Link Road and other routes
- Link Road north connection provides another reliever
- Marksheffel Road south connection "unresolved"
  - Option 1: Terminate at Mesa Ridge Parkway
  - Option 2: Add Interchange at Powers
  - Option 3: Extend Marksheffel Road south

Master Plan Network – South Area Concept



- Multiple Connections to Powers
- New I-25 Interchange Connection

Next Steps

- Update Design Standards
- Finalize Transportation Network
- Define ROW Reservation Requirements
- Adopt Implementation Strategies
  - Create Funding Framework
  - Prioritize Phased Implementation

Thank You

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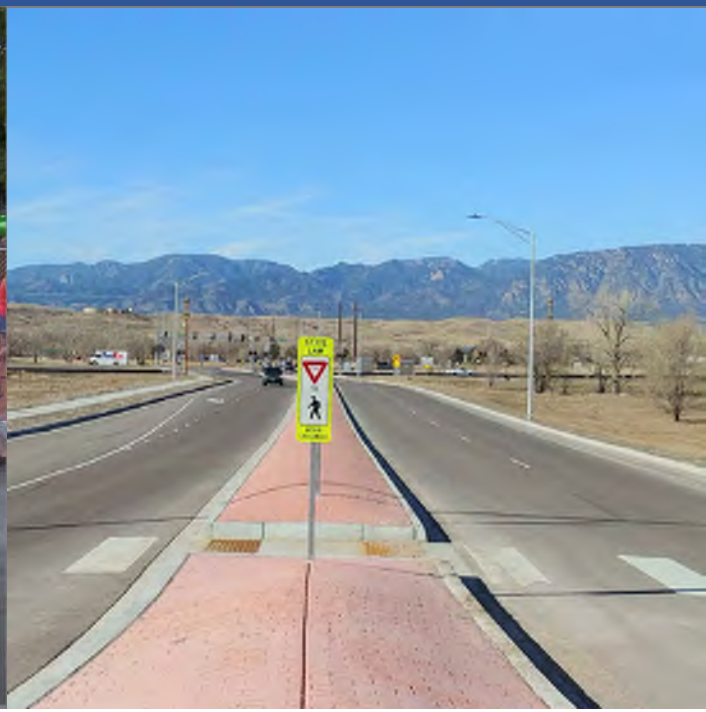
Stakeholder Meeting Slides - January 20, 2021

Presentation of Transportation Master Plan Network & Functional Classification Criteria

City of Fountain Transportation Master Plan

Stakeholder Conceptual Planning Briefing

9:00 AM – 11:00 AM | January 20, 2021
City of Fountain – Transportation Master Plan



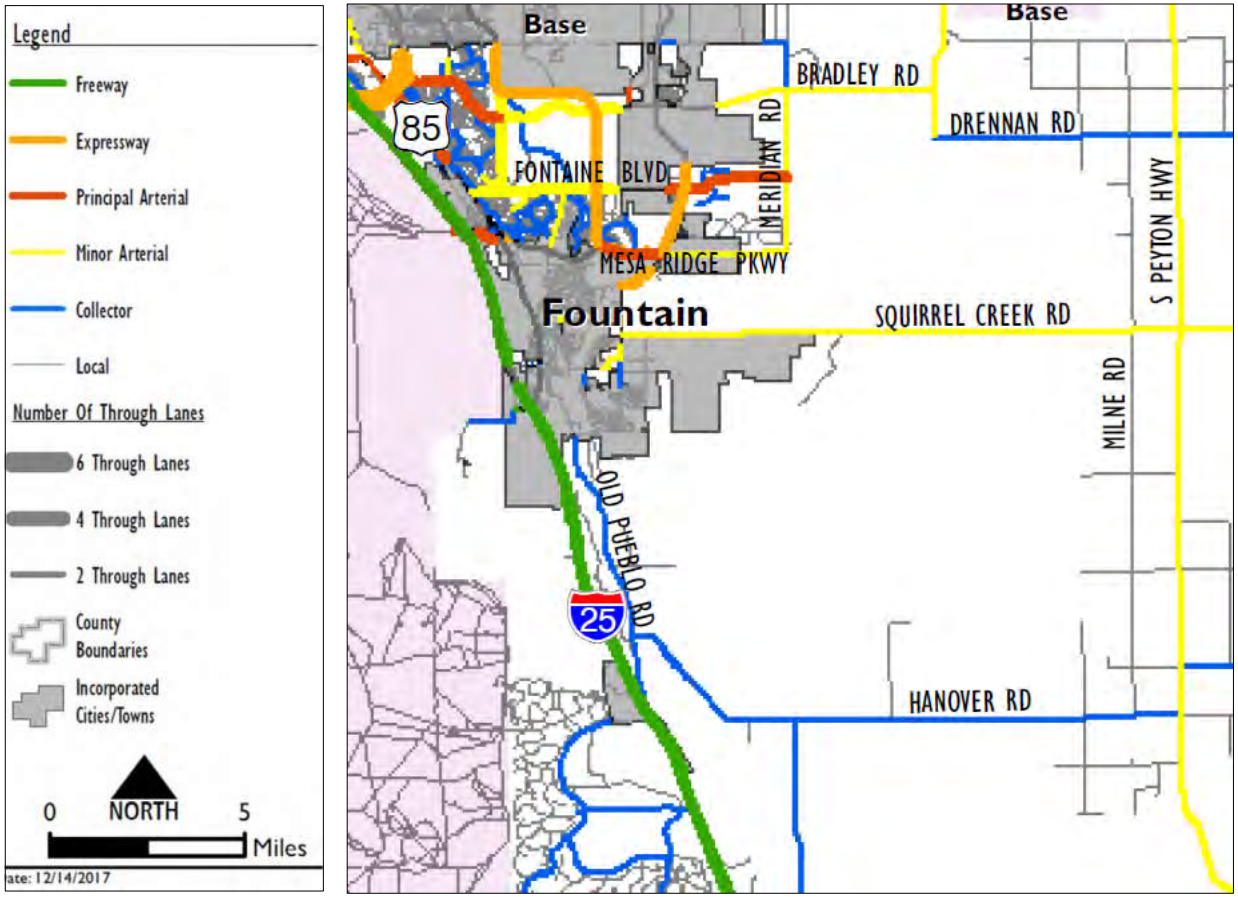
Agenda

- Welcome and Ground Rules
- Transportation Master Plan Network
- Functional Classification
- Traffic Forecasts – PPACG 2045 Land Uses
- Next Steps

Transportation Master Plan Network - Context

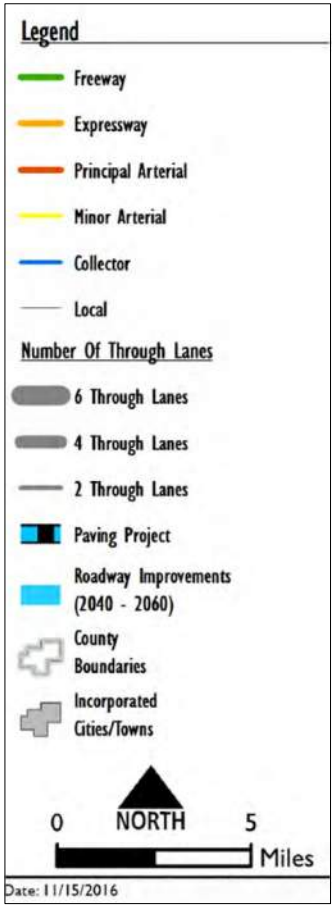
- El Paso County MTCP – Continuity
- CDOT Functional Classification – Funding
- PPACG 2045 RTP – Continuity & Funding
- Forecast Growth – Likely greater than PPACG forecasts

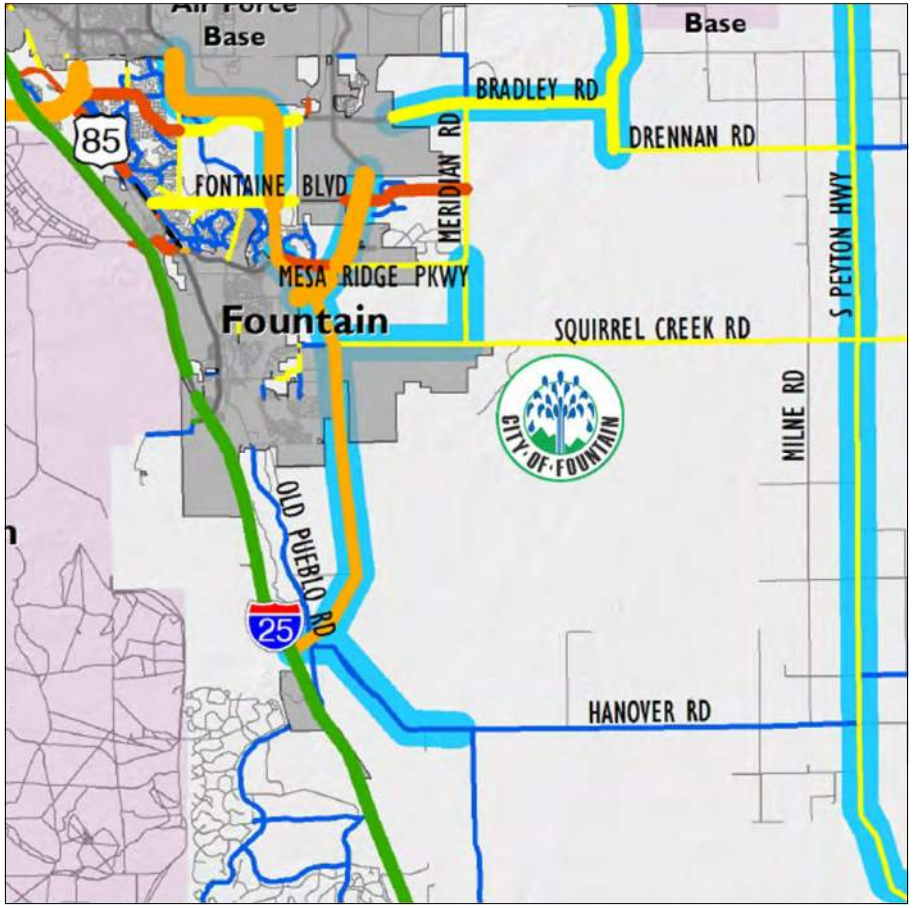
EPC Major Transportation Corridors Plan – 2040 Roadways



- 2040 Network
- Adopted by El Paso County in 2016
- Constrained by 2040 Funding

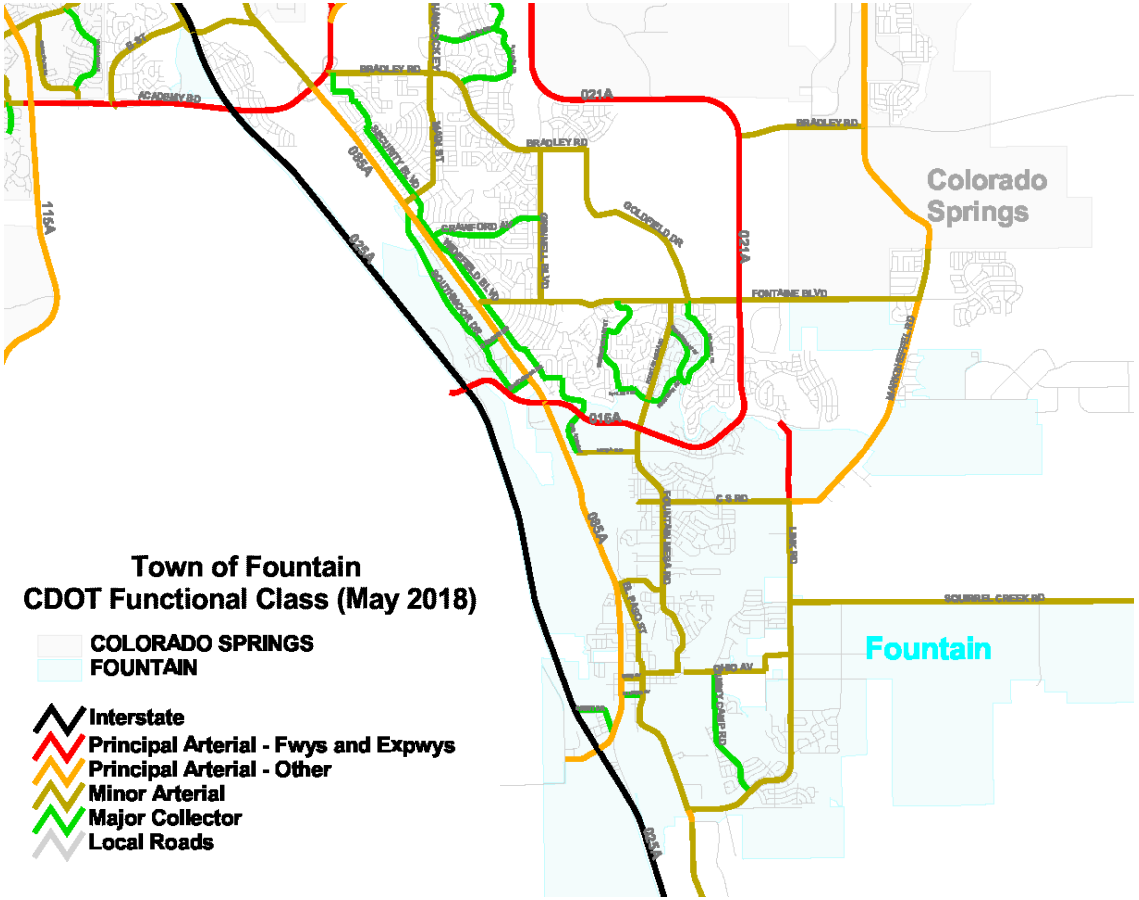
EPC Major Transportation Corridors Plan – CPP (2060)





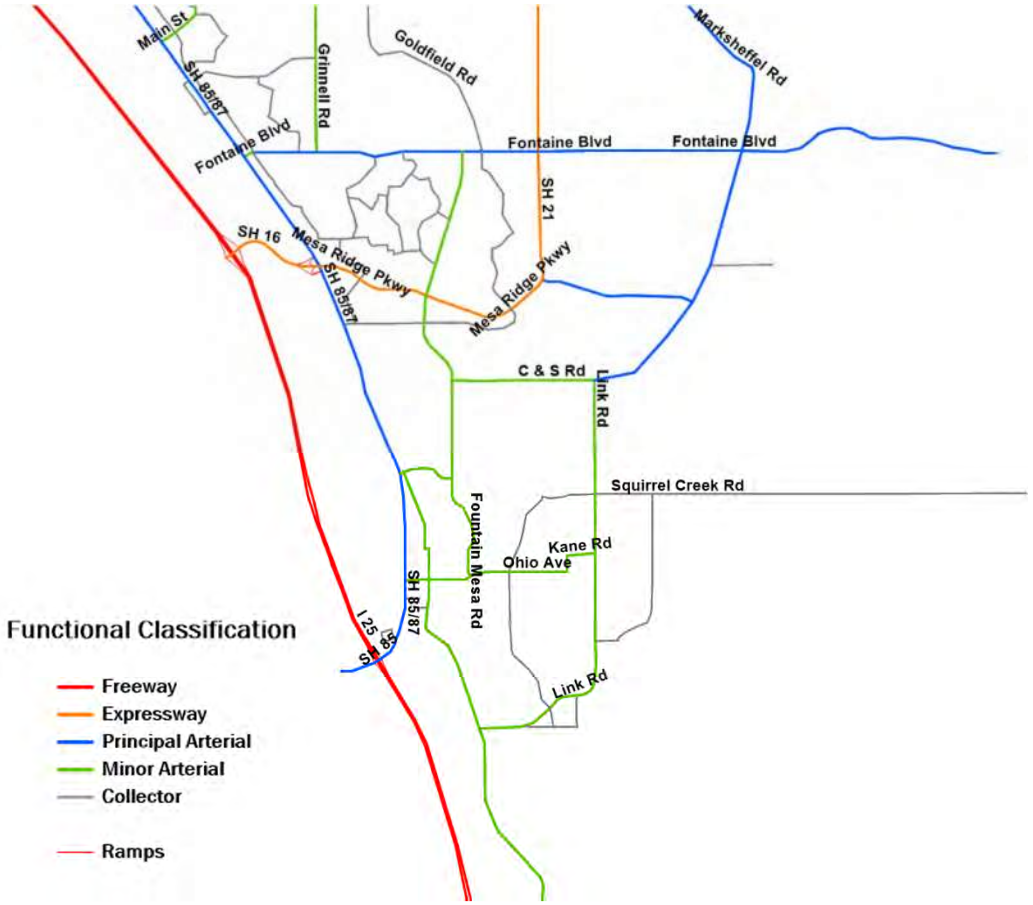
- "Needs Based" Vision Plan
- Blueprint for ROW reservation and acquisition
- Projects to be Implemented as Funding / Opportunities Permit

CDOT Fountain Functional Classifications



- CDOT/FHWA Functional Classifications
- Identifies Funding Eligibility for Federal and State funding

PPACG 2045 Fiscally Constrained Network



- 2045 Network
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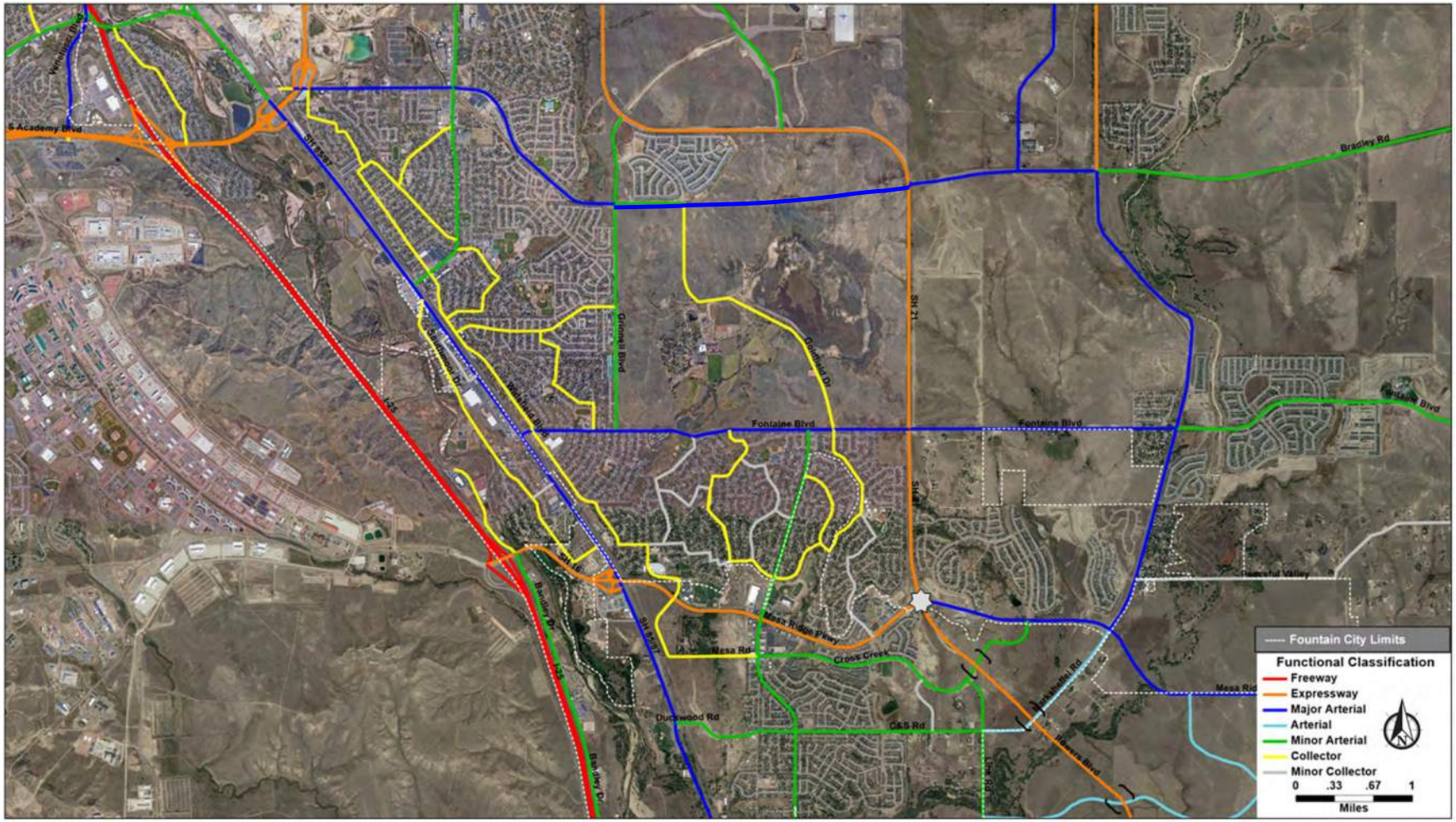
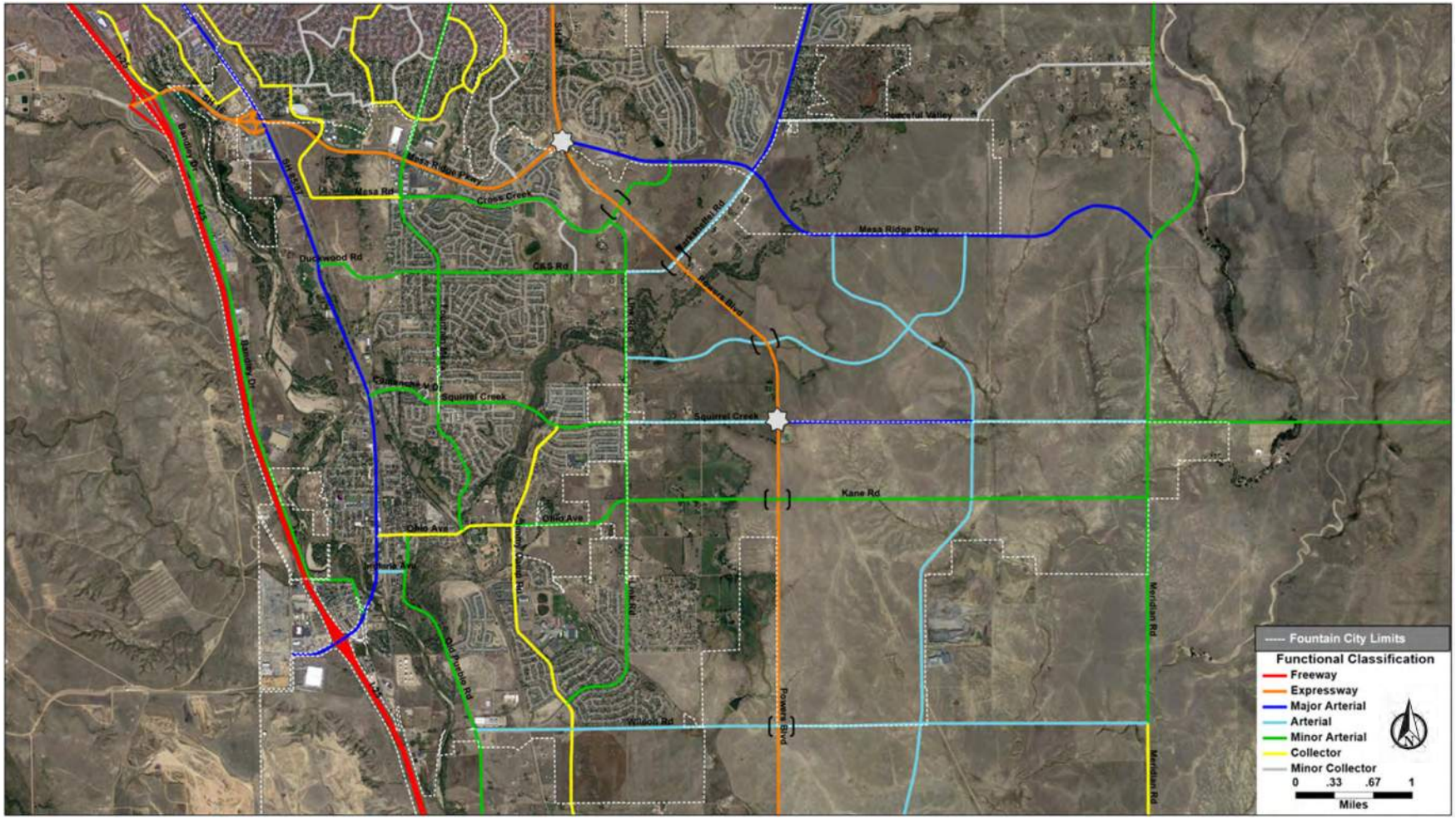
Transportation Master Plan Network - North

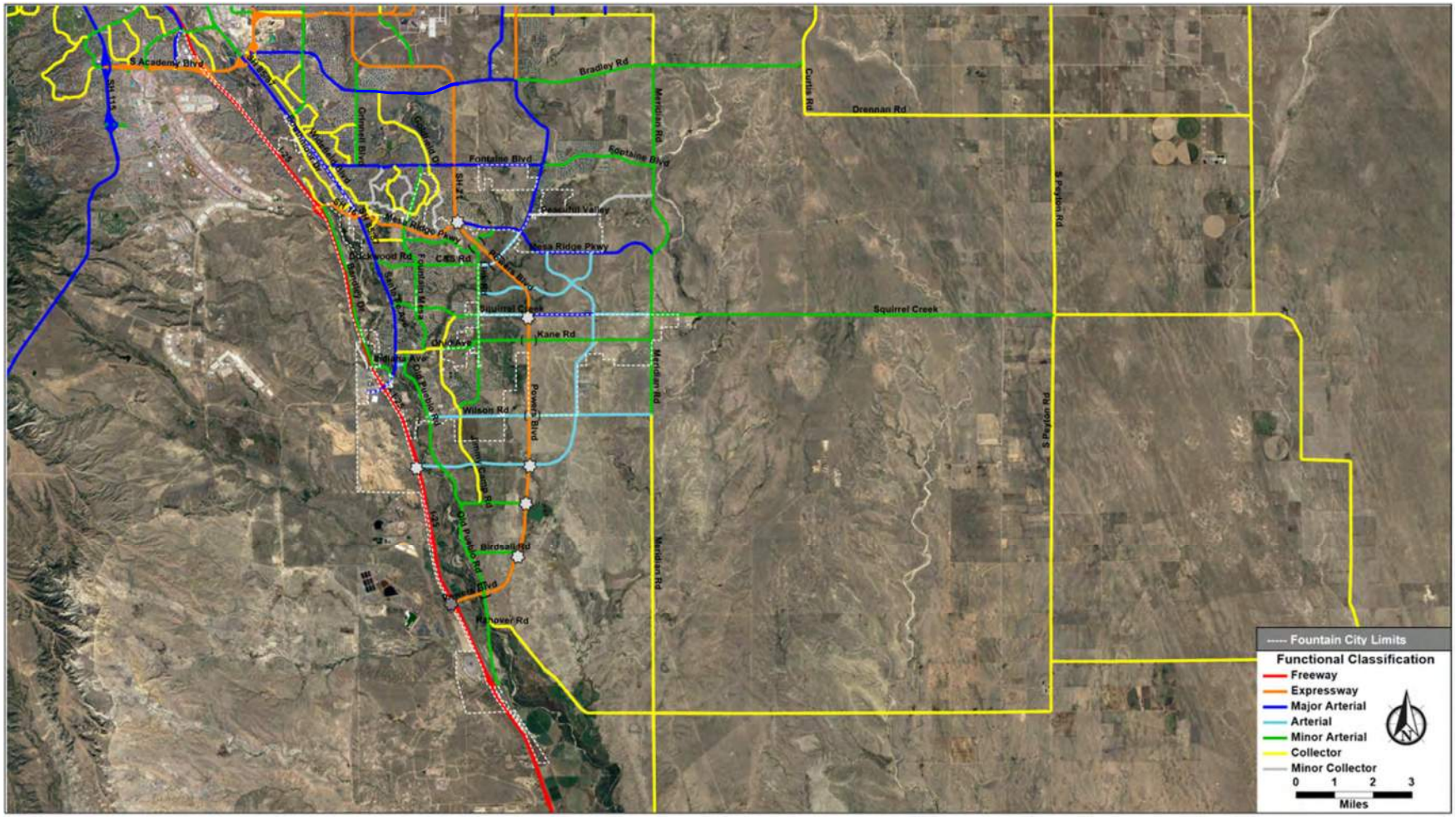


Transportation Master Plan Network - Central



Transportation Master Plan Network - South

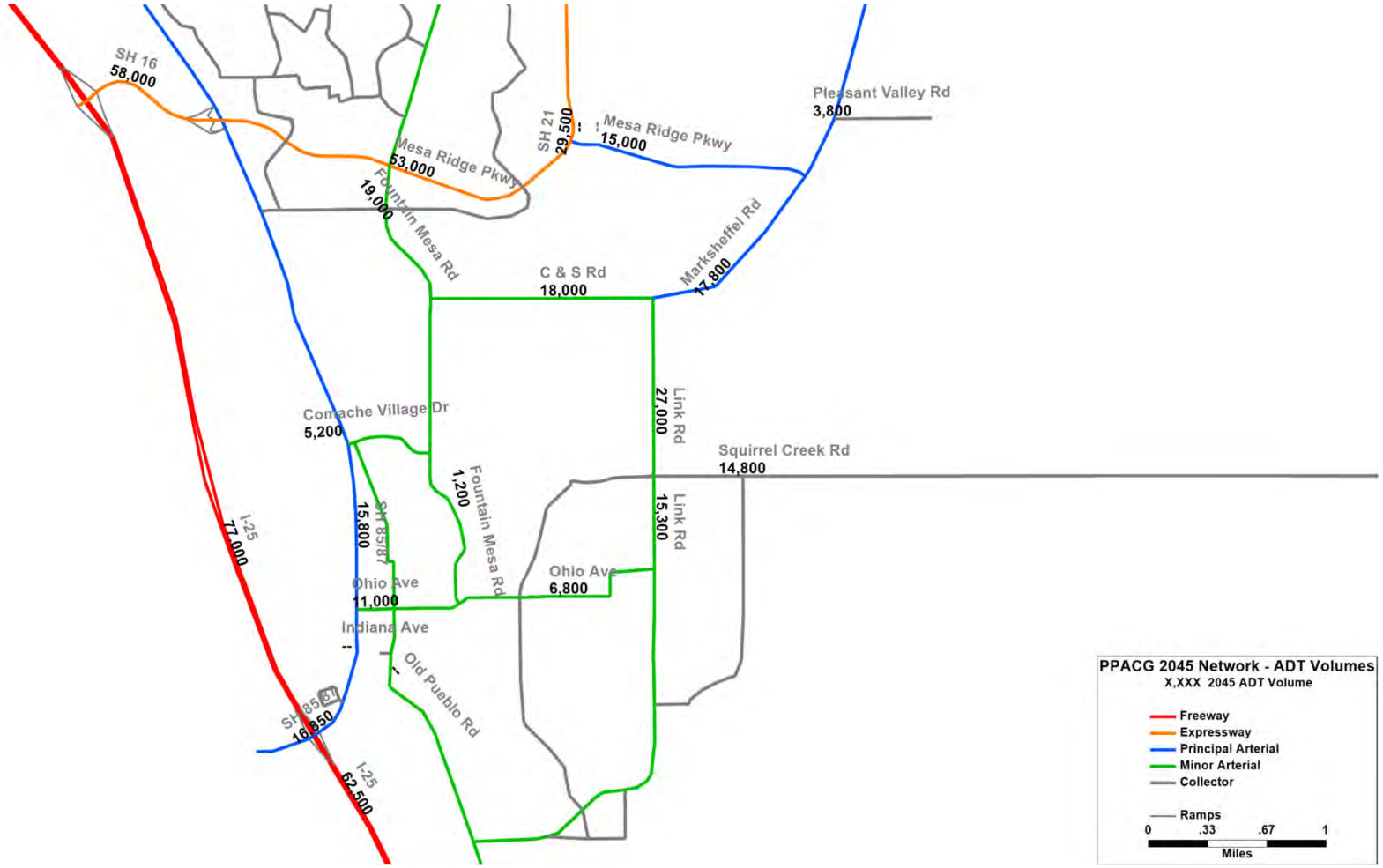
Transportation Master Plan Network - Overall



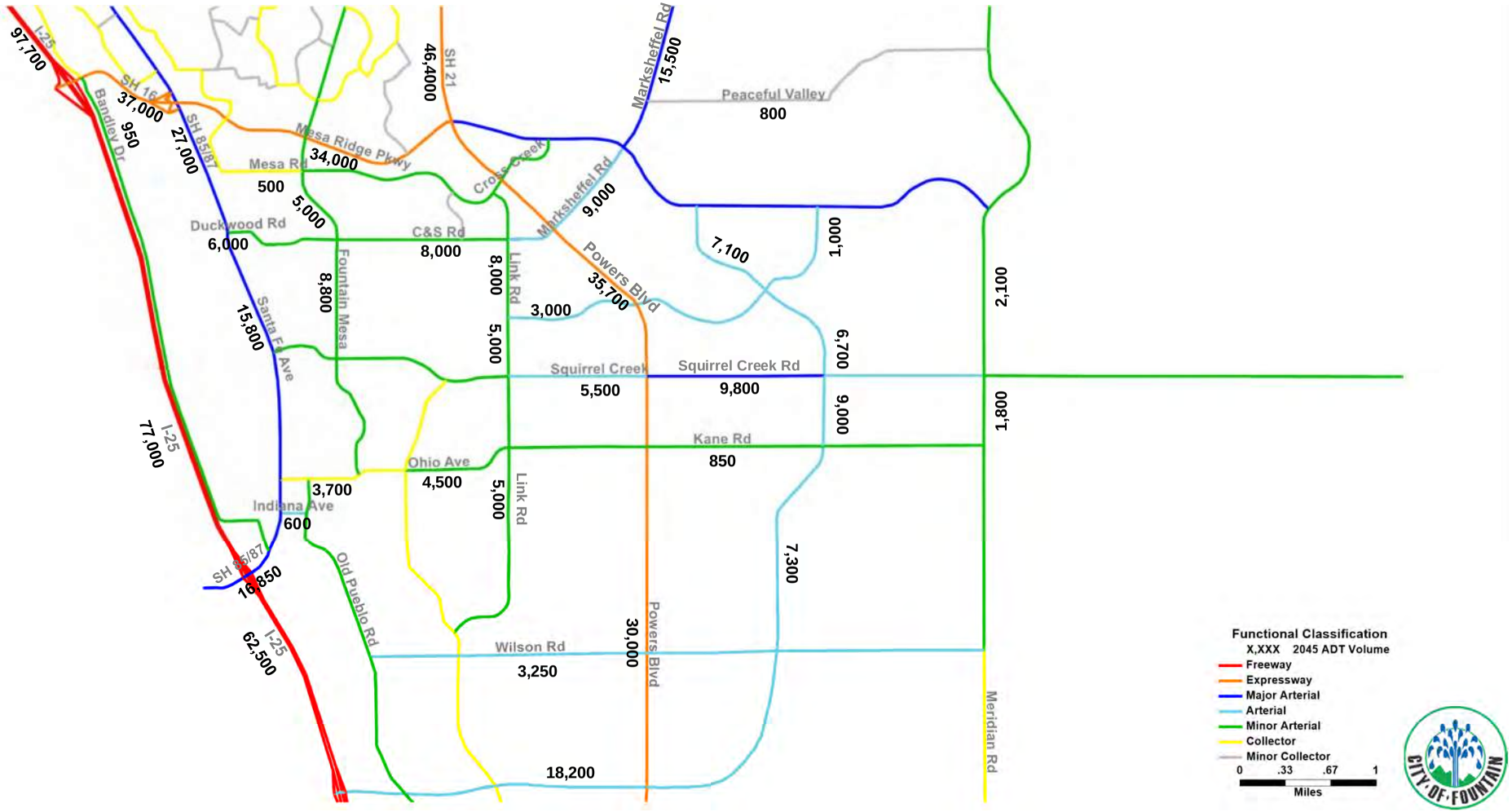
Functional Classification Criteria

	Expressway	Major Arterial	Arterial	Minor Arterial	Collector	Minor Collector
Design/Posted Speed	60/55	50/45	50/45	45/40	45/40	40/35
Suggested ADT	60,000 - 80,000	25,000 - 60,000	10,000 - 25,000	5,000 - 10,000	3,000 - 5,000	1,500 - 3,000
Right of Way Width	210’	170’	140’	120’	80’	80’
Pavement Width	2 – 50’	2 – 44’	2 – 32’	60’	48’	48’
Number of Lanes	4 - 6	6	4	4	3	2
Lane Width	12’	12’	12’	12’	12’	12’
Shoulder Width (Ext./Int.)	8’or12’ / 4’or12’	2-6’ Multi-Use	2-6’ Multi-Use	2-6’ Multi-Use	2-6’ Multi-Use	NA
Median	28’ Swale	28’ - TBC to TBC	16’ - TBC to TCB	NA	Painted – 14’	NA
Curb & Gutter Type	NA	Type 1 Type 3 (median)	Type 1 Type 3 (median)	Type 1	Type 1	Type 1
Sidewalk Requirement	NA	6’ Detached (on one side)	6’ Detached (on one side)	6’ Detached (on one side)	6’ Detached	6’ Detached
Bicycle Accommodations	NA	12’ Off-Street Trail (on other side)	12’ Off-Street Trail (on other side)	12’ Off-Street Trail (on other side)	Multi-Use Shoulder	6’ Bike Lanes
Tree Lawn Width	NA	10’	10’	10’	6’	6’
10’ Utility Corridor	NA	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk
Parking	No	No	No	No	No	Yes; 2-6’
Access Spacing (Signal)	1 Mile	½ Mile	½ Mile	½ Mile	NA	NA
Access Spacing (Unsignalized)	1 Mile	½ Mile	½ Mile	½ Mile	600’	600’

PPACG 2045 Network – North Area Forecast ADT



Master Plan Network – North Area Forecast ADT



PPACG 2045 Network – South Area Forecast ADT

PPACG 2045 Network - ADT Volumes
X,XXX 2045 ADT Volume

- Freeway
- Expressway
- Principal Arterial
- Minor Arterial
- Collector
- Ramps

0 .33 .67 1
Miles

Master Plan Network – South Area Forecast ADT

Next Steps

- Evaluate Carrying Capacity for Buildout Traffic
  - Develop Buildout Land Use Forecasts for Fountain
  - Model Master Plan Network with Buildout Traffic
  - Complete Carrying Capacity Assessment
- Develop Roadway Improvement Cost Estimates
- Create Funding Framework
  - Prioritize Improvements
  - Identify Diversified Funding Opportunities

Thank You

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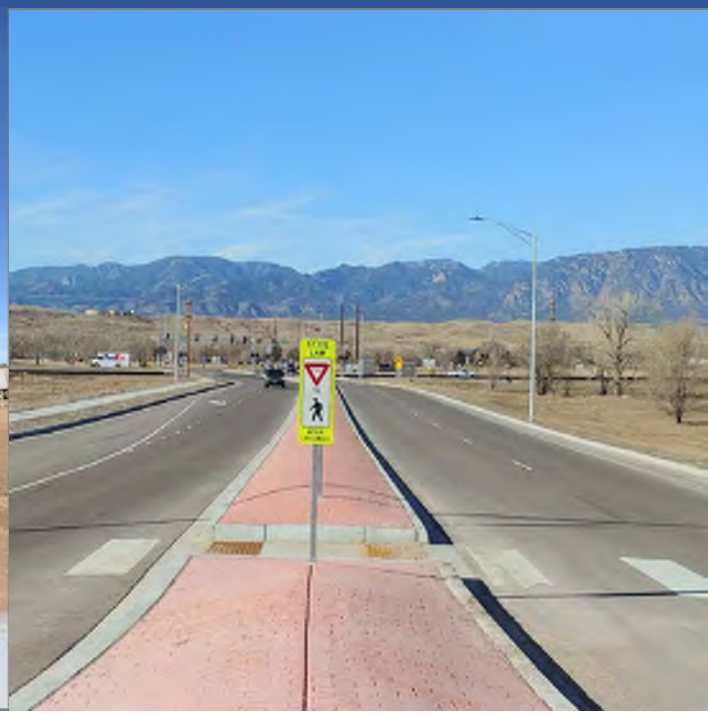
Presentation to the City of Fountain Economic Development Commission

City of Fountain Transportation Master Plan

Stakeholder Conceptual Planning Briefing

5:30 PM – 7:00 PM | April 12, 2021
City of Fountain – Transportation Master Plan



Welcome & Agenda

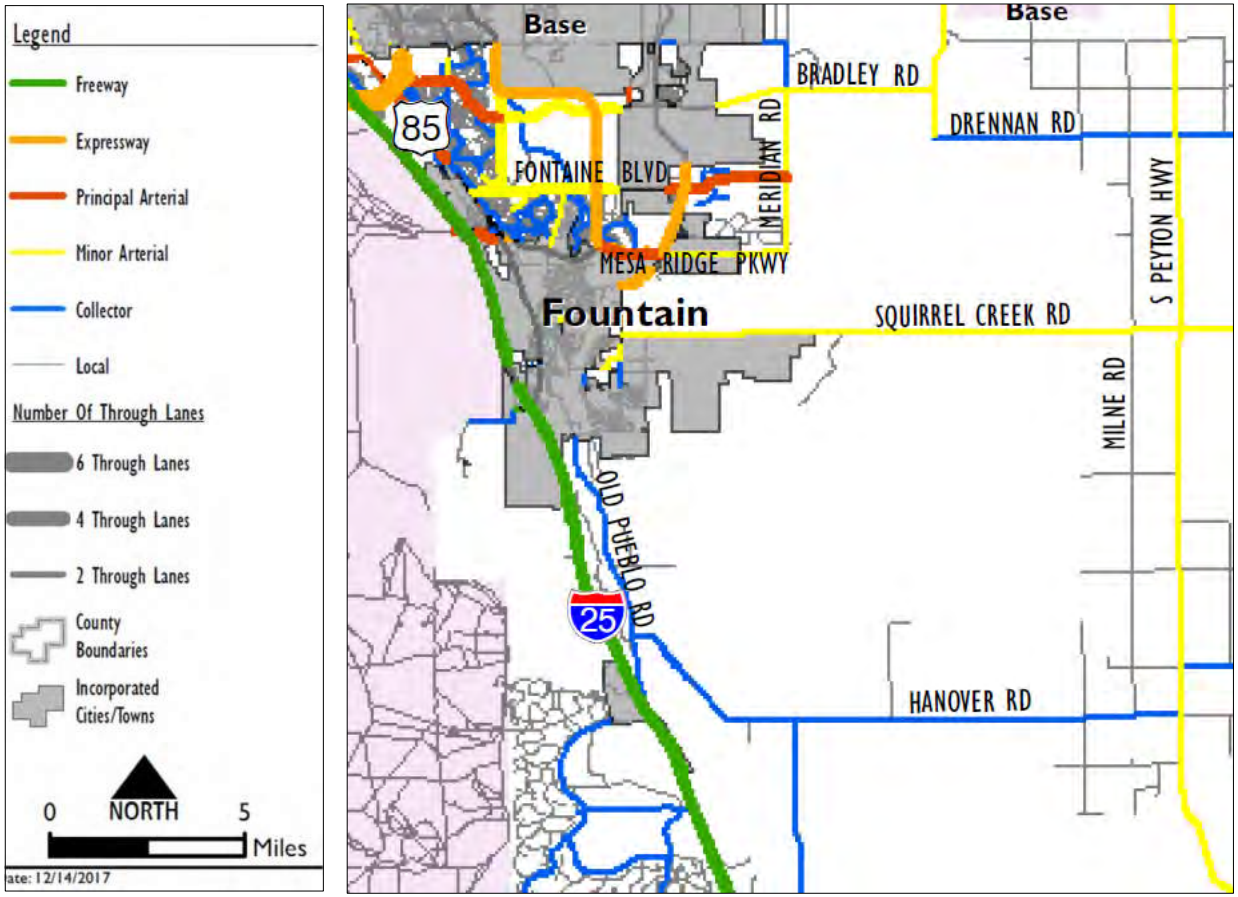
- Introduction
- Regional Planning Context
- Transportation System Needs
- Transportation Master Plan Network
- Design Criteria, Guidelines & Standards
- Cost and Funding Strategies
- Next Steps

Regional Planning Context / Consistency

TMP 2021 Builds on Regional Planning:

- El Paso County 2040 MTCP
  - 2040 Roadway Improvements
  - 2060 Corridor Preservation Plan (CPP)
- PPACG 2045 Fiscally Constrained RTP
- State/Federal Functional Classifications

Regional Context - EPC 2040 MTCP – 2040 Roadways



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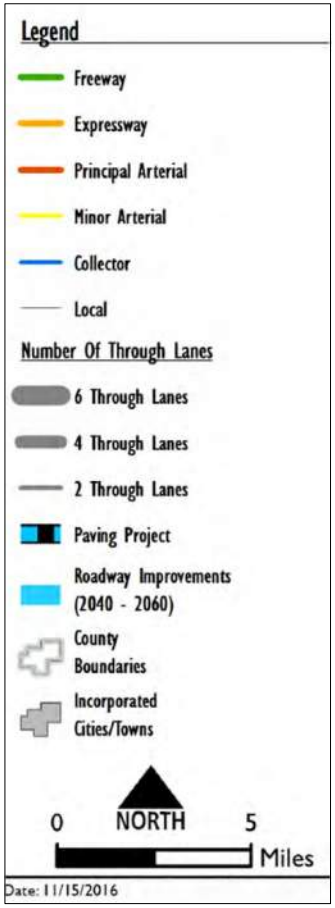
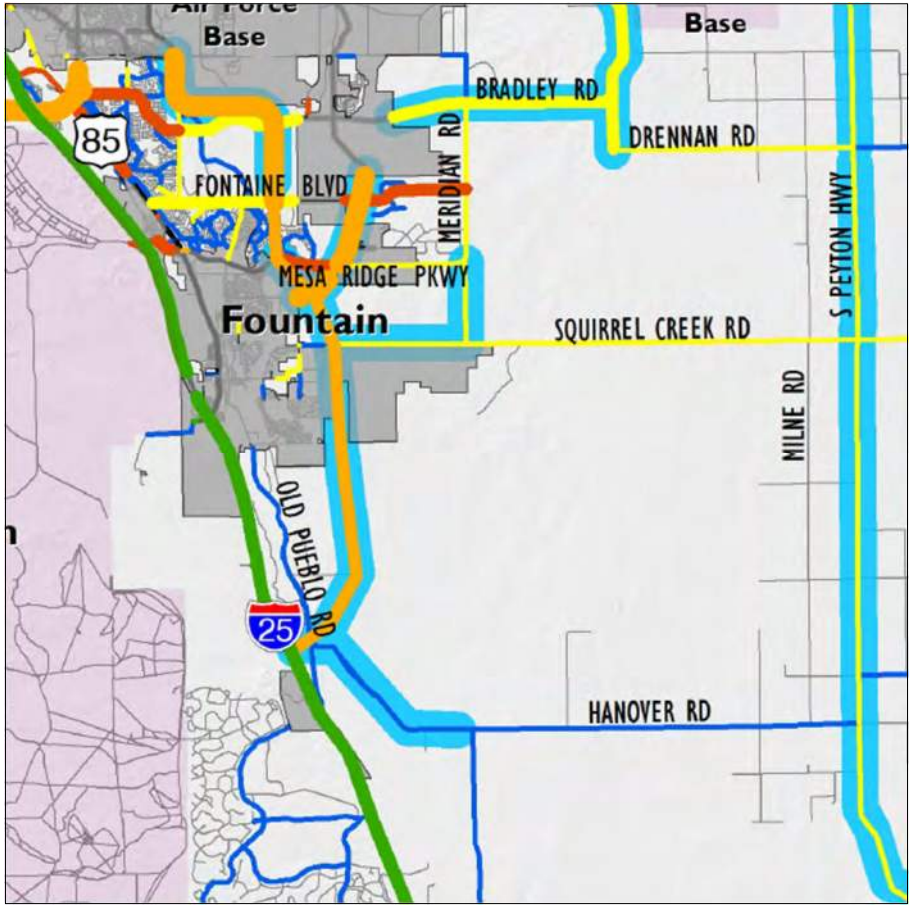
Regional Context - EPC 2040 MTCP – CPP (2060)





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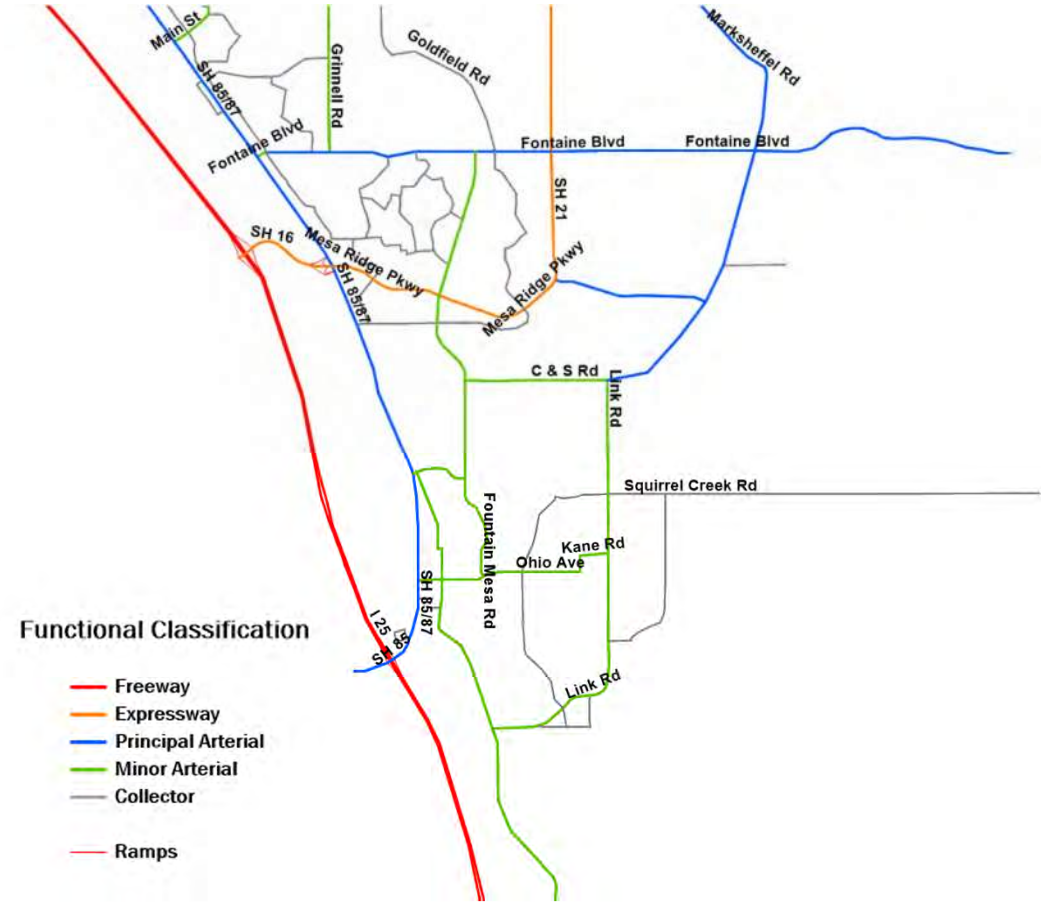
Regional Context - PPACG 2045 Fiscally Constrained RTP



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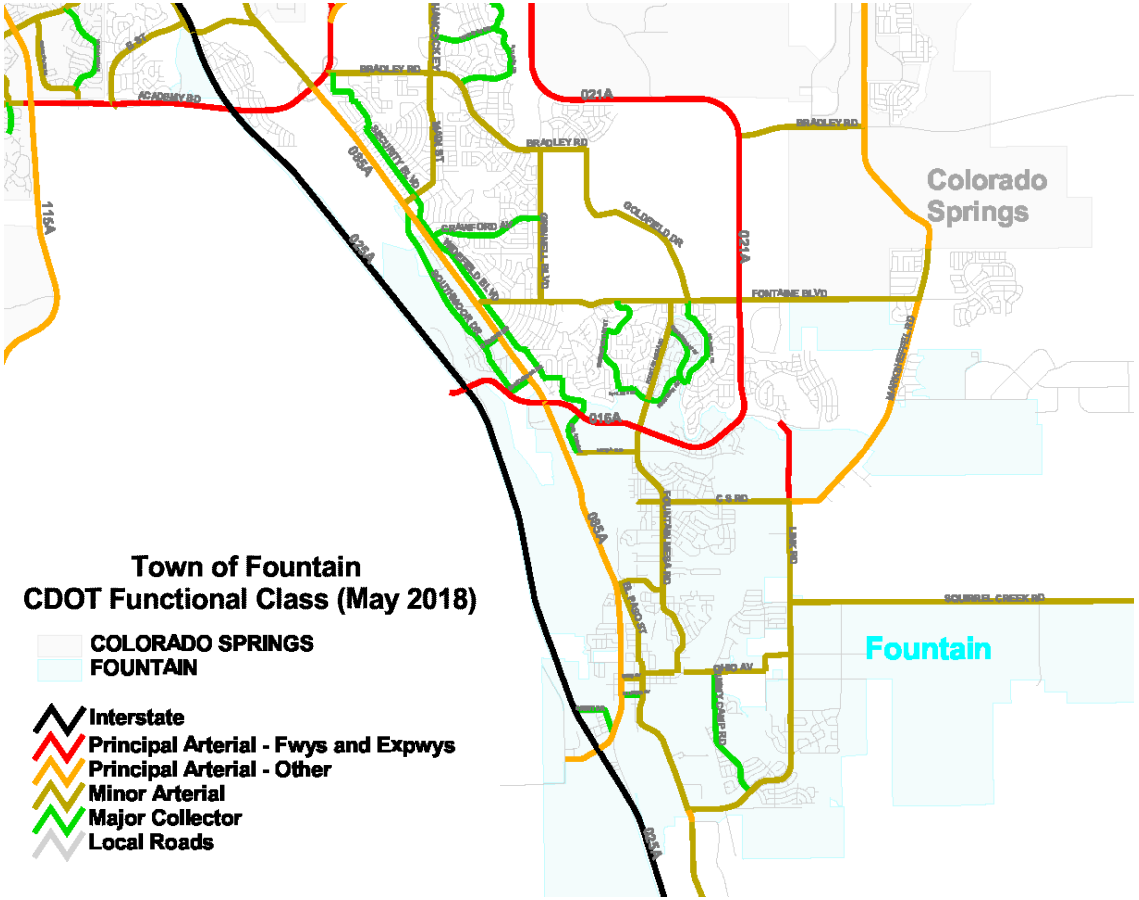
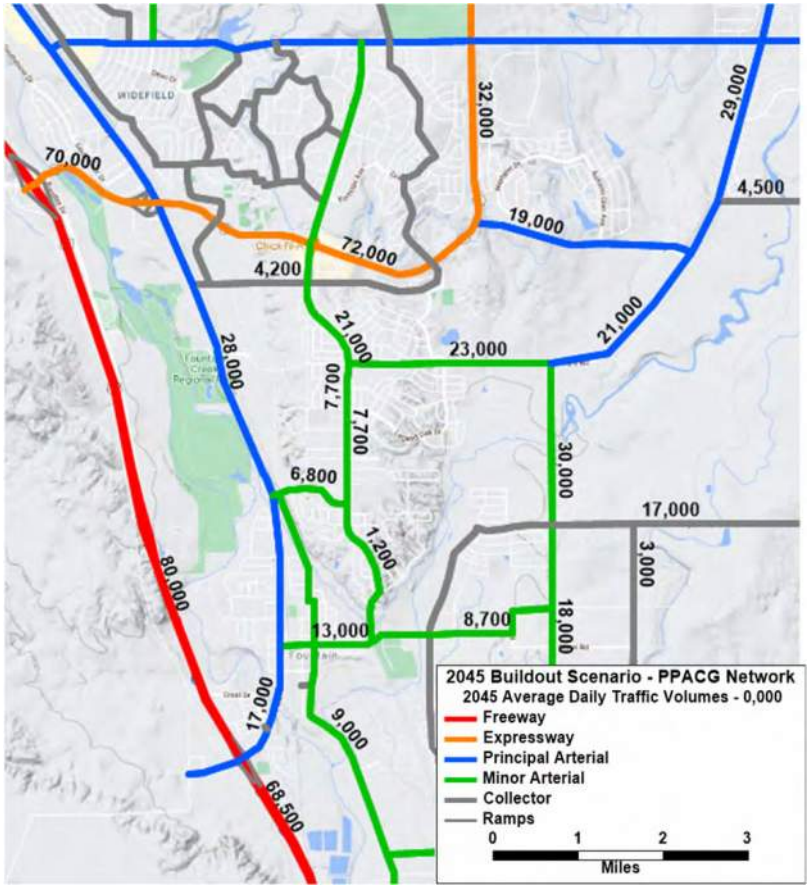
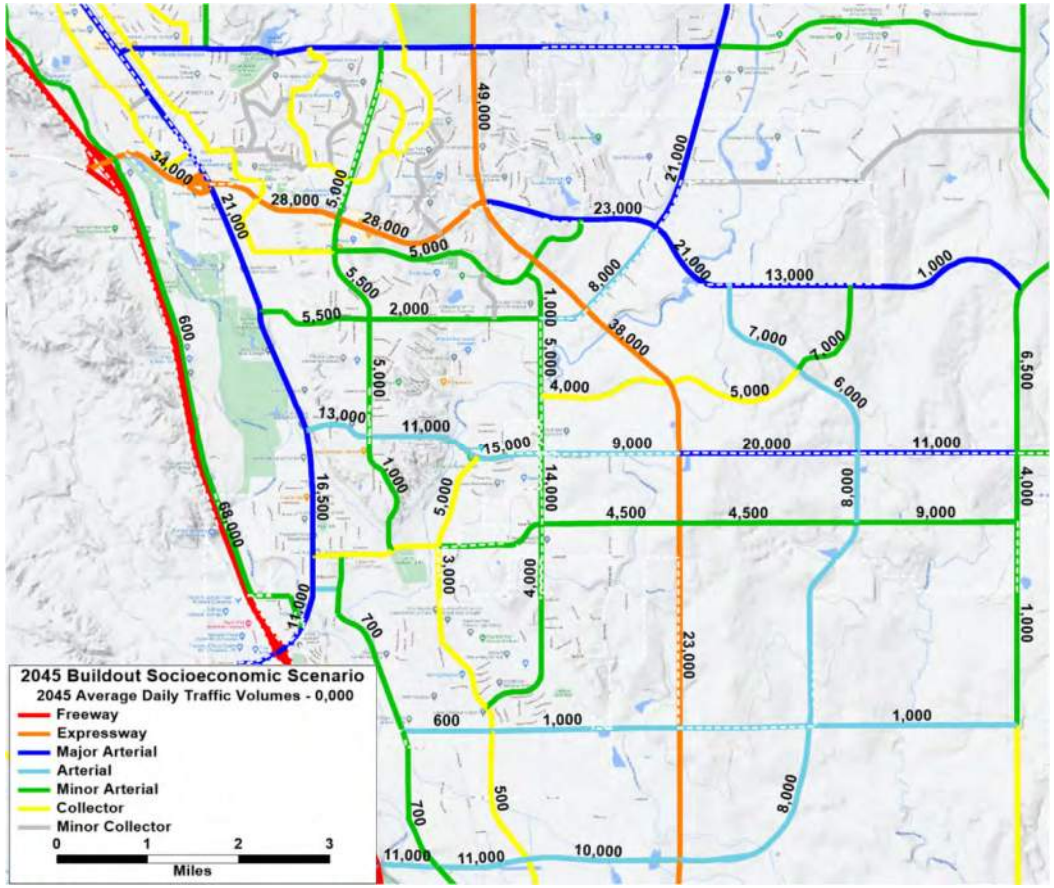
Regional Context - State/Federal Funding Eligibility



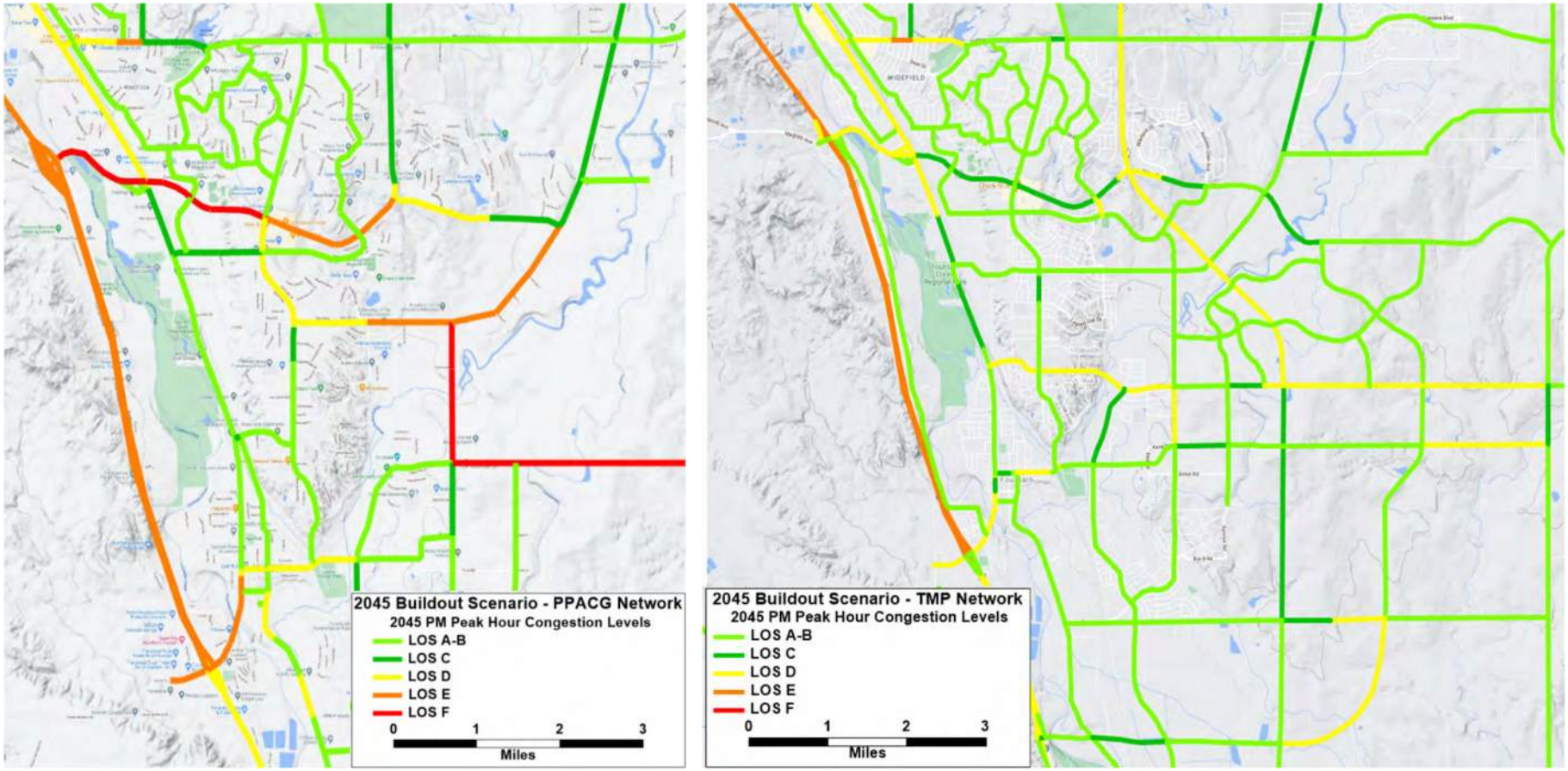
- CDOT/FHWA Functional Classifications
- Identifies Funding Eligibility for Federal and State funding

Transportation System Needs – Forecast Daily Traffic

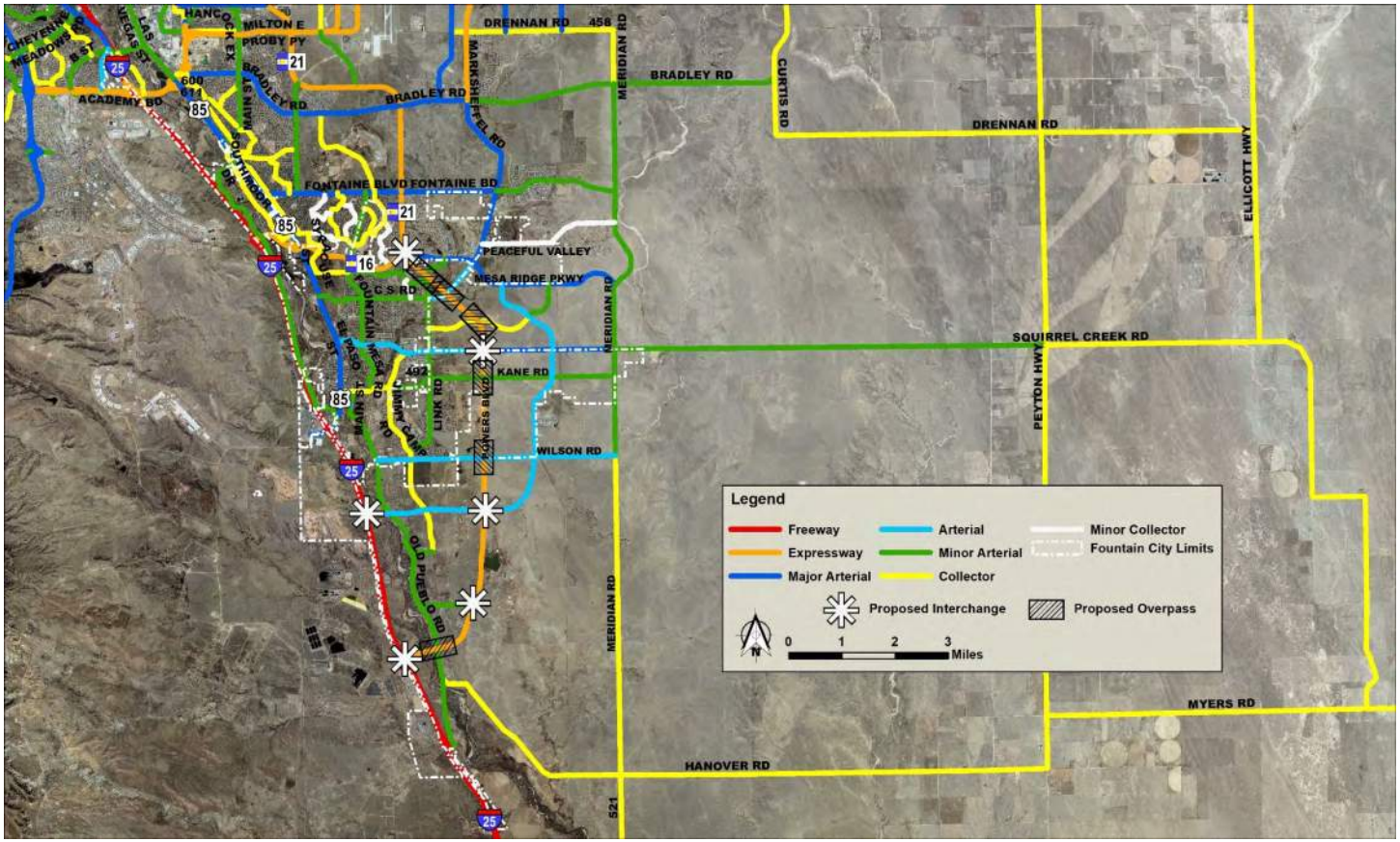




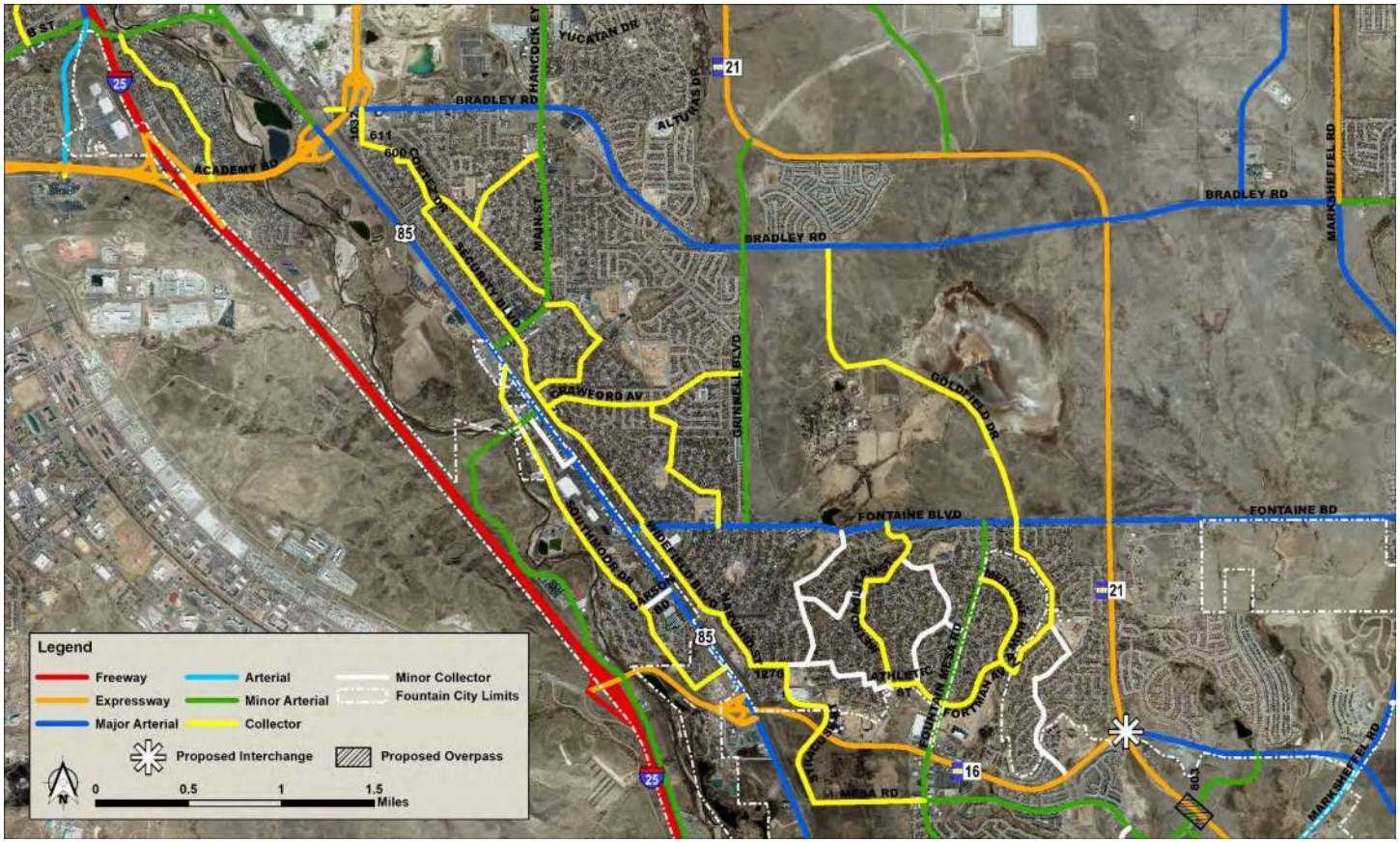
Transportation System Needs – Peak Hour Congestion



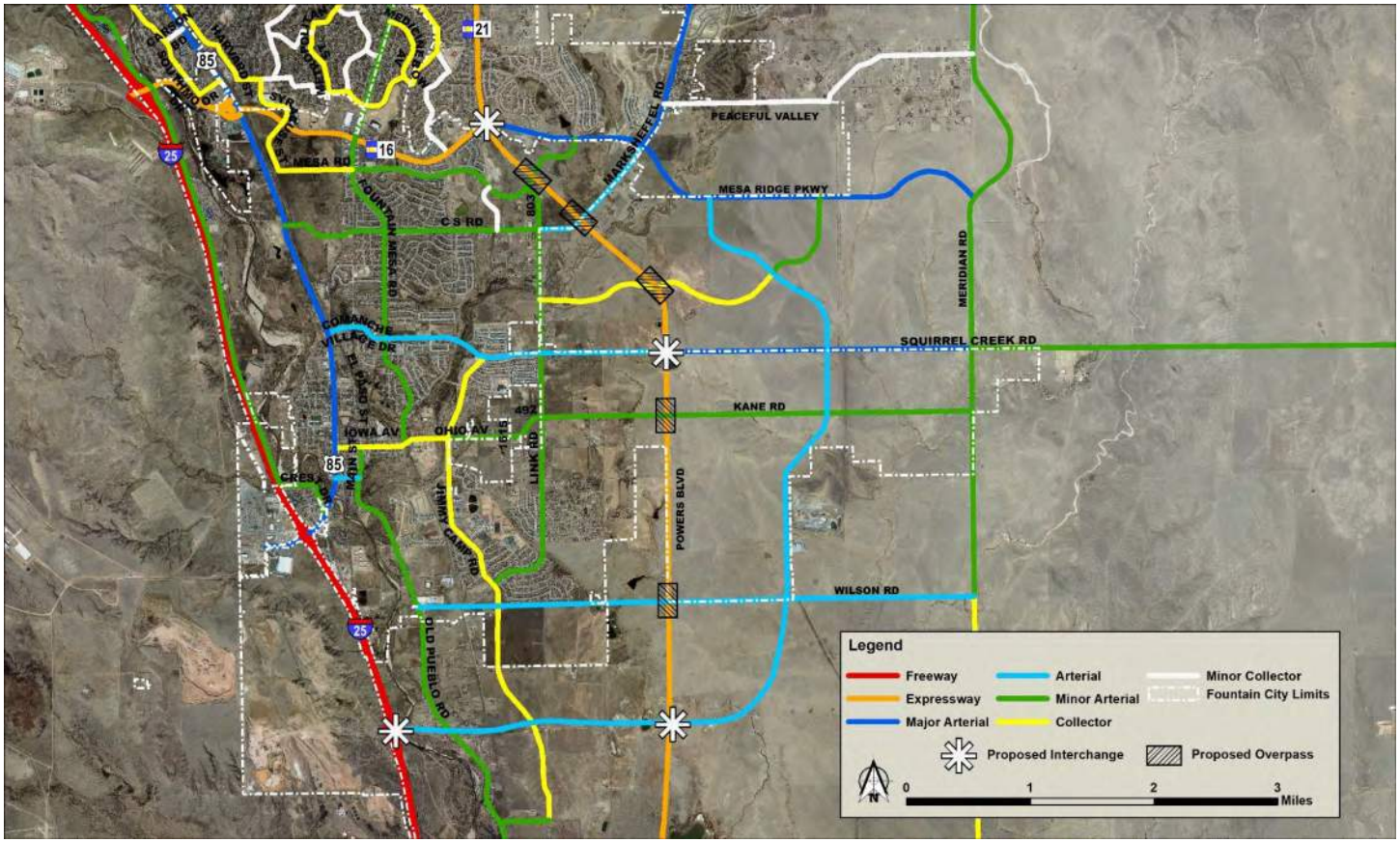
Transportation Master Plan – Overall Network



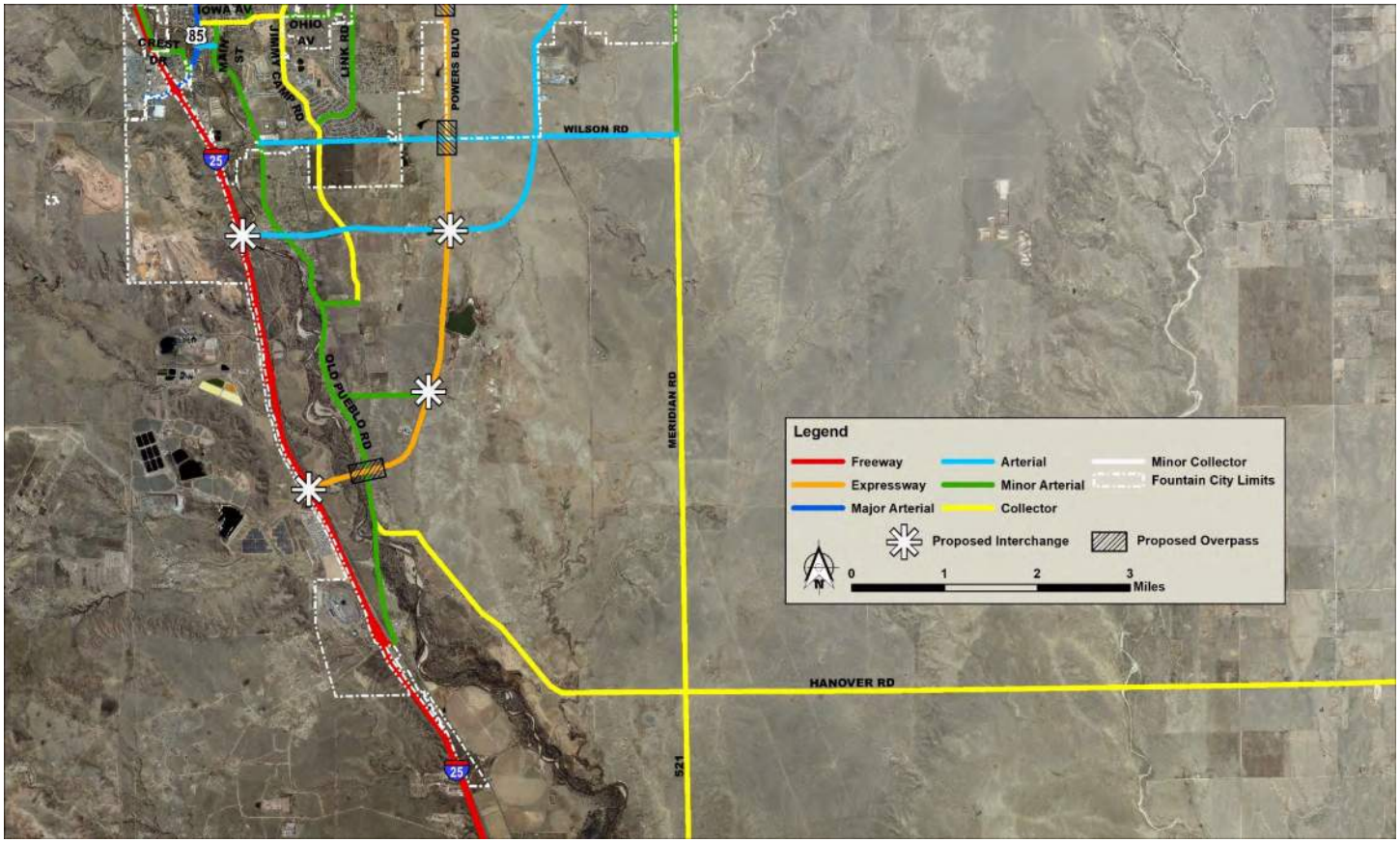
Transportation Master Plan Network - North Area



Transportation Master Plan Network – Central Area



Transportation Master Plan Network – South Area



Design Criteria, Guidelines & Standards

- New Street Standards
- Adopted Off-Street Trail Standards
- City of Colorado Spring General Design Criteria
- ASHTO Design Guidelines
- State Access Code
- Manual on Uniform Traffic Control Devices (MUTCD)

Off-Street Trail Design Standards

Design Criteria	Primary Off-Street Trail	Secondary Off-Street Trail
Right-of-Way	50’ Min	30’ Min
Trail Width	10’	8’
Trail Surface	Concrete. No openings greater than ½ inch per ADA.	Concrete. No openings greater than ½ inch per ADA.
Parallel Trail Width	3’ if present.	NA
Parallel Trail Surface	Crushed gravel non-equestrian; natural equestrian.	NA
Sight Distance	130’ Min or provide signage.	90’ Min or provide signage.
Grades	5% Max. Exception to 8.55% for 200’ Max.	5% Max. Exception to 8.55% for 200’ Max.
Cross Slope	1-2 % typical. 3% maximum.	1-2 % typical. 3% maximum.
Vertical Clearance	12 feet preferable, 10 feet minimum.	12 feet preferable, 10 feet minimum.
Shoulders	3 feet mowed and clear of hazards on each side of trail.	3 feet mowed and clear of hazards on each side of trail.
Trail Centerline Radius	40’ at tight corners/switchbacks. 100’ elsewhere.	30’ at tight corners/switchbacks. 100’ elsewhere.
Radius at Trail Intersections	15’ to accommodate maintenance vehicles or 8’ Min.	8’ Min
Separation from Roadway	20’ Min where feasible.	8’ Min where feasible.
Stripping		None
Underpass Width	12’ Min; 14’ Preferred.	10’ Min; 12’ Preferred.
Bridges	10’ Min	8’ Min
Guardrails	Guardrails or fencing along steep drops within 5’ of trail.	Guardrails or fencing along steep drops within 5’ of trail.

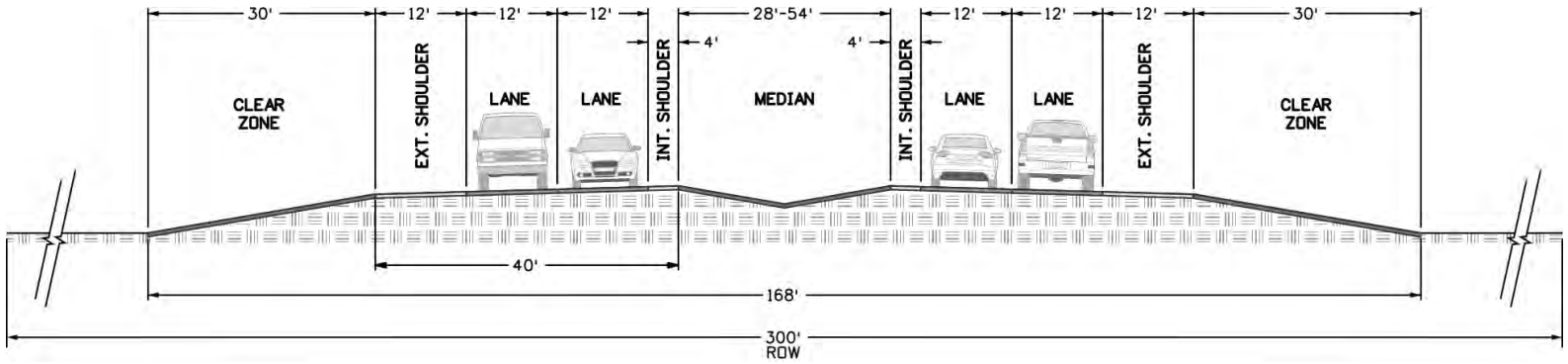
Street Design Standards – Expressway to Minor Collector

	Expressway	Major Arterial	Arterial	Minor Arterial	Collector	Minor Collector
Design/Posted Speed	60/55	50/45	50/45	45/40	40/35	40/35
Suggested ADT	60,000 - 80,000	25,000 - 60,000	10,000 - 25,000	5,000 - 10,000	3,000 - 5,000	1,500 - 3,000
Right of Way Width	300’	170’	130’	110’	80’	80’
Pavement Width	2 – 40’-60’	2 – 44’	2 – 31’	72’	48’	48’
Number of Lanes	4 - 6	6	4	5	3	2
Lane Width	12’	12’	12’	12’	12’	12’
Shoulder Width (Ext./Int.)	8’or12’ / 4’or12’	2-6’ Multi-Use	2-5’ Multi-Use	2-5’ Multi-Use	2-5’ Multi-Use	NA
Median	28’ Swale	28’ - TBC to TBC	16’ - TBC to TCB	NA	Painted – 14’	NA
Curb & Gutter Type	NA	Type 1 Type 3 (median)	Type 1 Type 3 (median)	Type 1	Type 1	Type 1
Sidewalk Requirement	NA	6’ Detached (on one side)	6’ Detached (on one side)	6’ Detached (on one side)	6’ Detached	6’ Detached
Bicycle Accommodations	NA	12’ Off-Street Trail (on other side)	10’ Off-Street Trail (on other side)	12’ Off-Street Trail (on other side)	Multi-Use Shoulder	6’ Bike Lanes
Tree Lawn Width	NA	10’	10’	10’	6’	6’
10’ Utility Corridor	NA	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk
Parking	No	No	No	No	No	Yes; 2-6’
Access Spacing (Signal)	1 Mile	½ Mile	½ Mile	½ Mile	NA	NA
Access Spacing (Unsignalized)	1 Mile	½ Mile	½ Mile	¼ Mile	600’	600’

Street Design Standards – Residential, Industrial Collector, Alley

	Residential – Detached Sidewalk	Residential – Attached Sidewalk	Industrial Collector	Public Alley
Design/Posted Speed	30/25	30/25	35/30	--
Suggested ADT	300 - 1,500	300 – 1,500	--	--
Right of Way Width	60’	50’	70’	30’
Pavement Width	32’	32’	48’	20’
Number of Lanes	2	2	2	2
Lane Width	11’	11’	14’	10’
Shoulder Width (Ext./Int.)	NA	NA	NA	NA
Median	NA	NA	NA	NA
Curb & Gutter Type	Type1/Type5	Type1/Type5	Type 1	Inverted Cross Pan
Sidewalk Requirement	2 – 6’ Detached	2 – 6’ - Attached	2 – 6’ Attached	NA
Bicycle Accommodations	No	No	No	NA
Tree Lawn Width	5’	NA	NA	NA
10’ Utility Corridor	10’ from back of sidewalk	10’ from back of sidewalk	NA	NA
Alley Driveway Setback				
Parking	Yes; 2 – 5’	Yes; 2 - 5’	Yes; 2 – 10’	Allowed only on 18’ driveways
Access Spacing (Signal)	NA	NA	NA	NA
Access Spacing (Unsignalized)	300’ Max	300’Max	600’	½ Adjacent Street Length

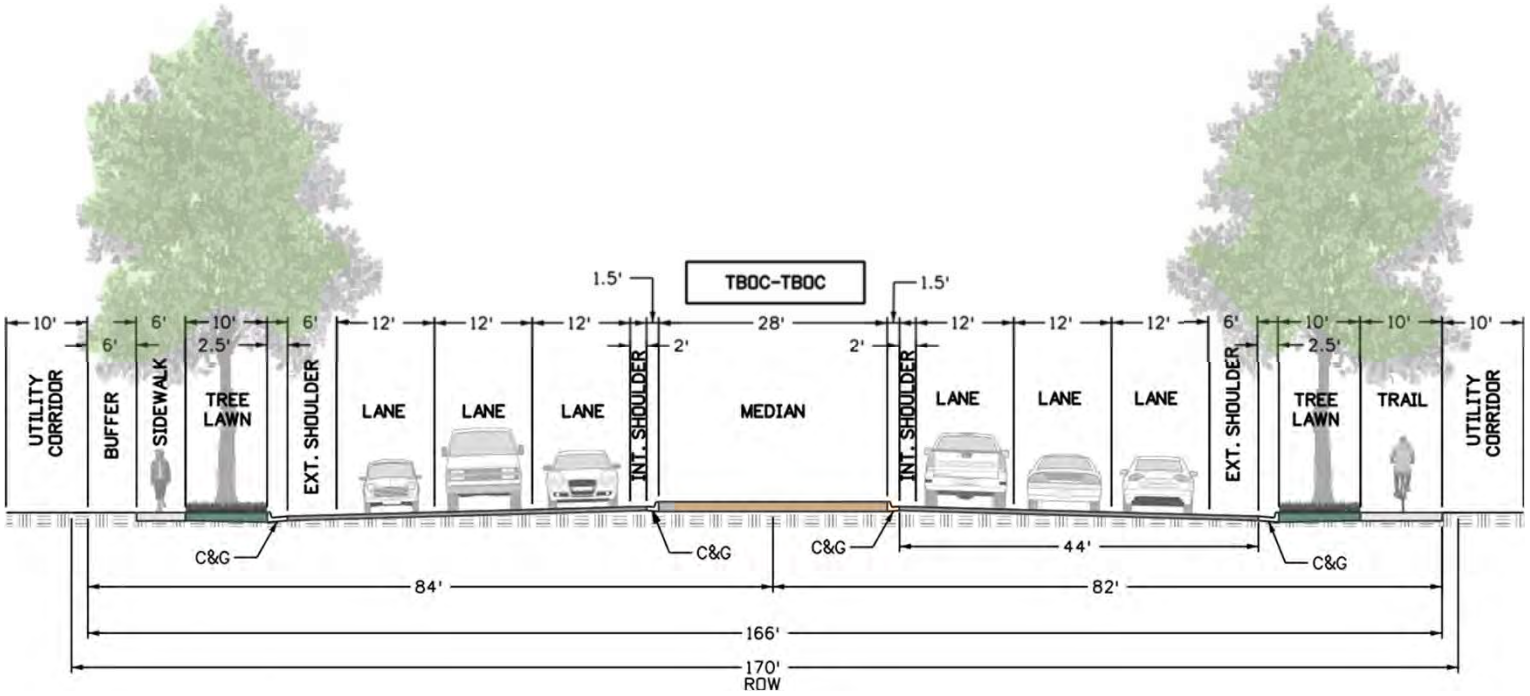
Design Standards - Street Typical Sections



Expressway Typical Section

- Max. ADT: 60,000–80,000
- Posted Speed: 55 mph
- Access Spacing: 1-Mile

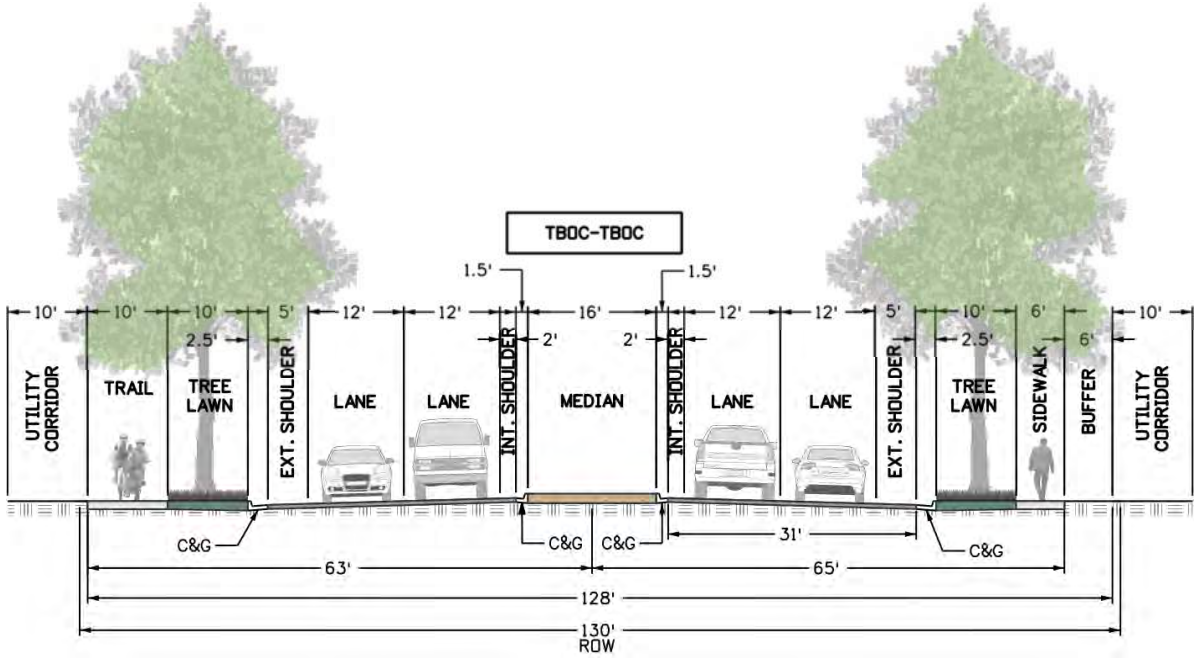
Design Standards - Street Typical Sections



Major Arterial Typical Section

- Max. ADT: 25,000–60,000
- Posted Speed: 45 mph
- Access Spacing: 1/2-Mile

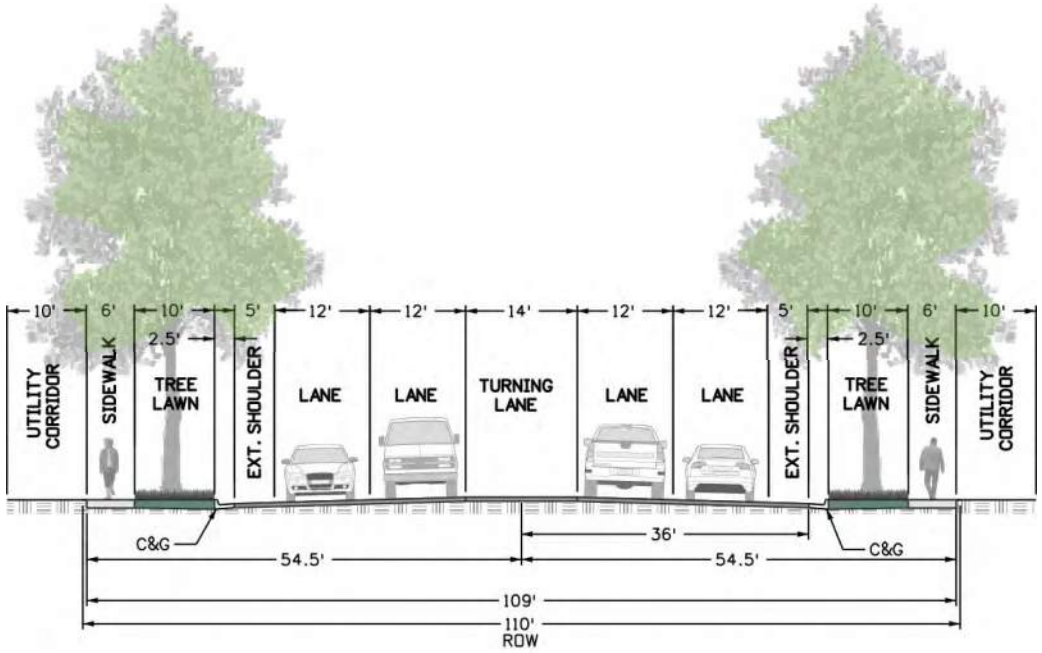
Design Standards - Street Typical Sections



Arterial Typical Section

- Max. ADT: 10,000–25,000
- Posted Speed: 55 mph
- Access Spacing: 1/2-Mile

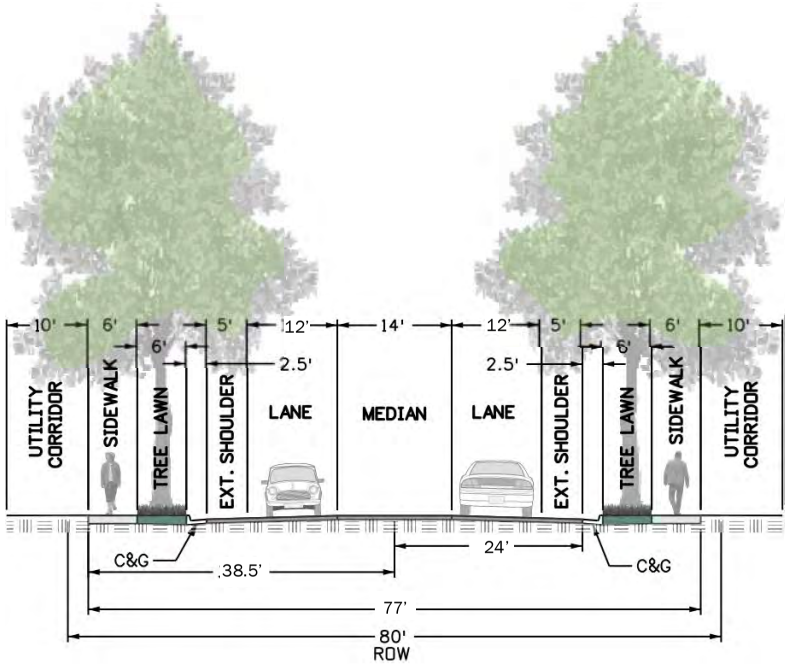
Design Standards - Street Typical Sections



Minor Arterial Typical Section

- Max. ADT: 5,000–10,000
- Posted Speed: 40 mph
- Access Spacing:
  - 1/2-Mile Signalized
  - 1/4-Mile Unsignalized

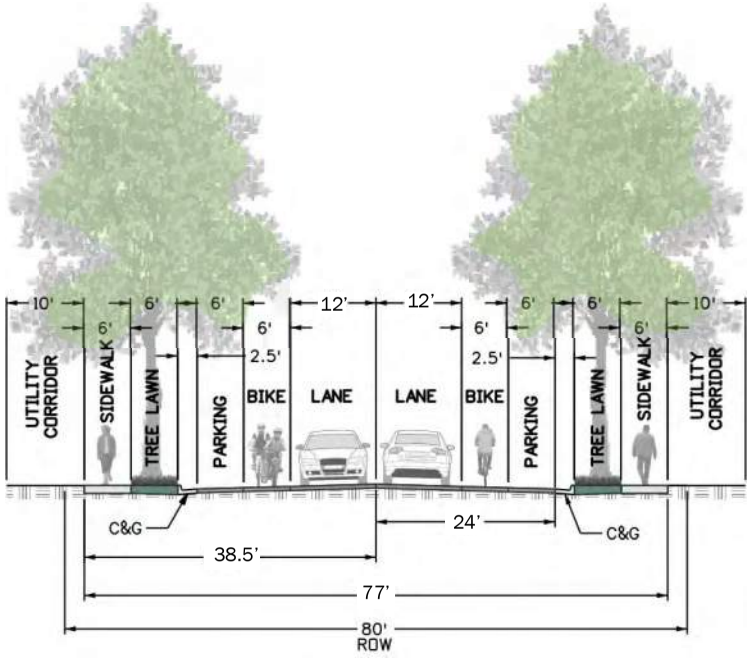
Design Standards - Street Typical Sections



Collector Typical Section

- Max. ADT: 3,000–5,000
- Posted Speed: 35 mph
- Access Spacing: 600’

Design Standards - Street Typical Sections



Minor Collector Typical Section

- Max. ADT: 1,500–3,000
- Posted Speed: 35 mph
- Access Spacing: 600’

Costs and Funding Strategies

Cost Opinion Assumptions

- Costs are total program costs and include: Construction, Design Engineering, and Construction Engineering
- Costs are based on current year and have not been escalated for future years.
- Costs assume full reconstruction of existing roadways that require expansion.
- Cost Summary includes all improvements shown in the Transportation Master Plan including regional facilities.

Costs and Funding Strategies

Cost Eligibility Breakdown:

- Regional Facilities Costs - $626 M over the next 20-40 years
  - State/Federal Eligible - $586 M
  - EPC - $40 M
- Fountain Facilities Costs: $580 M over the next 20-40 years
  - State/Federal Eligible - $115 M
  - Private/EPC - $465 M

Next Steps

- Finalize Impact Fee
- Develop Funding Forecasts
  - State/Federal
  - Funding by Others/Private/Local
  - Impact Fees
- Prioritize Improvements
- Monitor Implementation – 5-Year Cycle

Thank You

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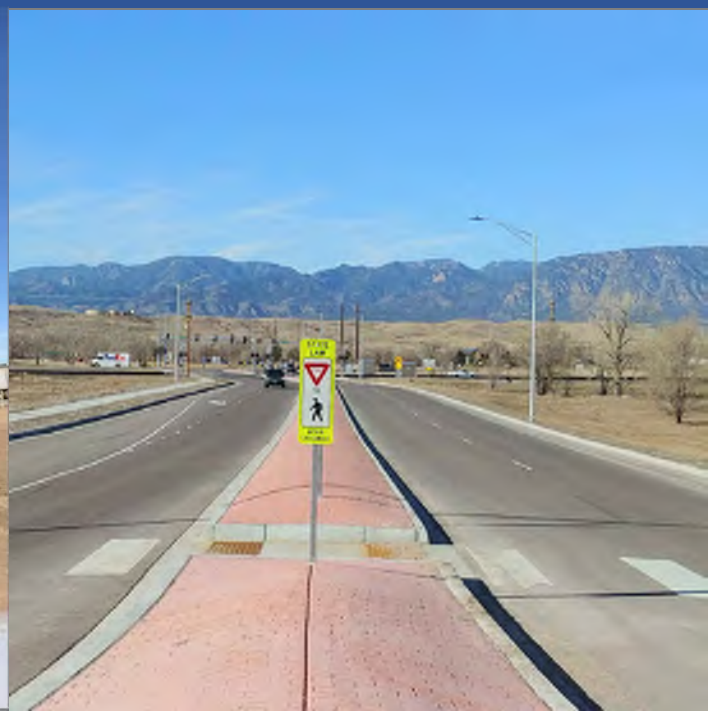
City Council Meeting Slides - April 27, 2021

Presentation to the El Paso County Home Builders Association

City of Fountain Transportation Master Plan

Stakeholder Conceptual Planning Briefing

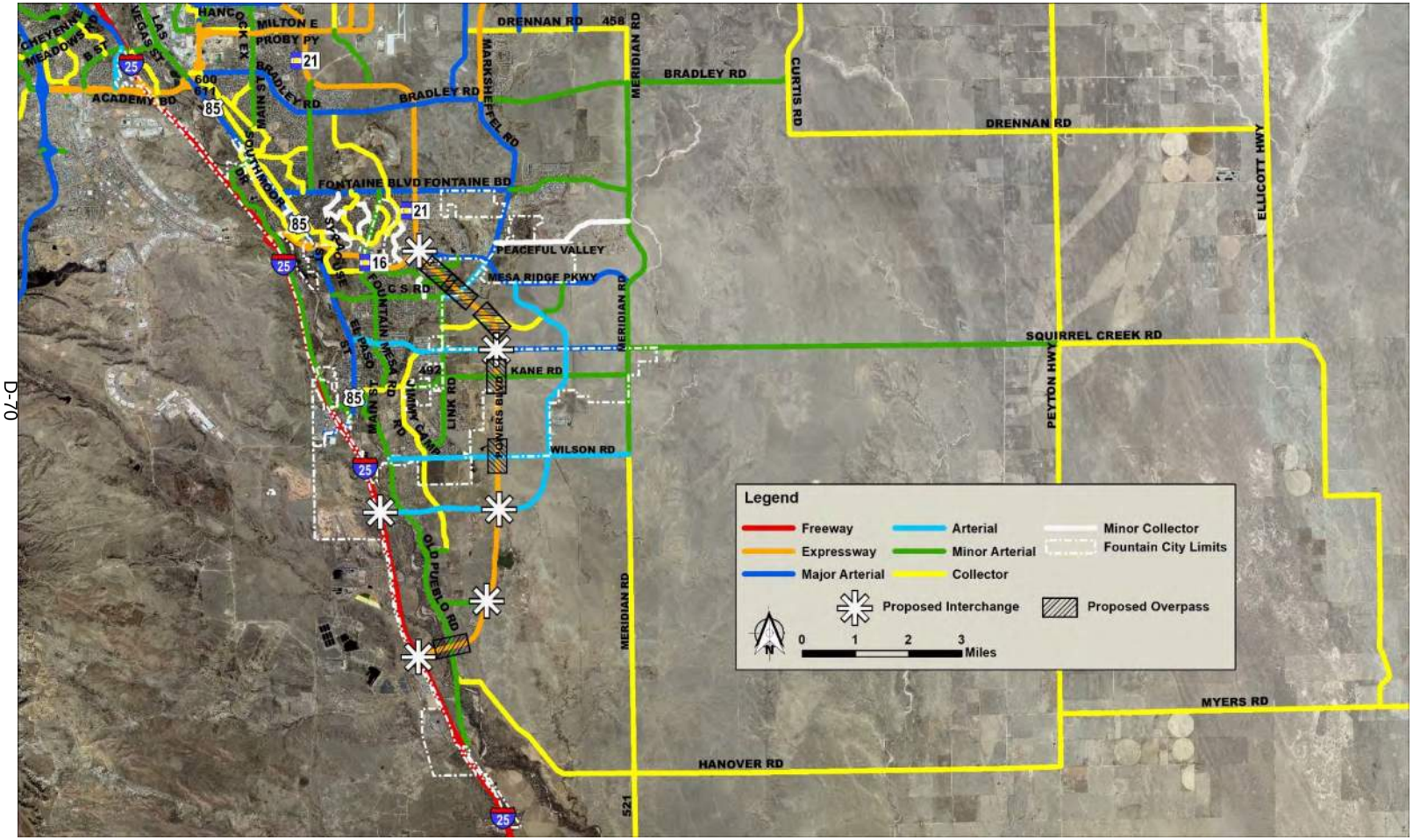
2:00 PM – 3:45 PM | April 16, 2021
City of Fountain – Transportation Master Plan



Welcome & Agenda

- Introduction
- Transportation Master Plan Functional Classifications
- Street Design Standards – Design Criteria
- Street Design Standards – Typical Sections
- Next Steps

Transportation Master Plan Functional Classifications



Street Design Standards – Expressway to Minor Collector Criteria

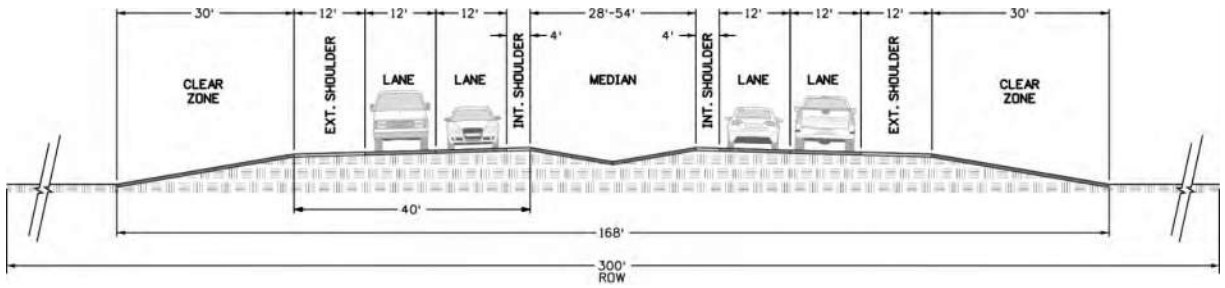
	Expressway	Major Arterial	Arterial	Minor Arterial	Collector	Minor Collector
Design/Posted Speed	60/55	50/45	50/45	45/40	40/35	40/35
Suggested ADT	60,000 - 80,000	25,000 - 60,000	10,000 - 25,000	5,000 - 10,000	3,000 - 5,000	1,500 - 3,000
Clear Zone	30’					
Right of Way Width	300’	170’	130’	110’	80’	80’
Pavement Width (pavement mat)	2 – 40’-60’	2 – 44’	2 – 31’	72’	48’	48’
Number of Lanes	4 - 6	6	4	5	3	2
Lane Widths	12’	12’	12’	12’	12’	12’
Shoulder Width (Ext., excluding C&G)	8’or12’	2-6’ Multi-Use	2-5’ Multi-Use	2-5’ Multi-Use	2-5’ Multi-Use	NA
Shoulder Width (Int, excluding (C&G)	4’or12’					
Median	28’ Swale	28’ - TBC to TBC	16’ - TBC to TCB	NA	Painted – 14’	NA
Curb & Gutter Type (required)	NA	Type 1 Type 3 (median)	Type 1 Type 3 (median)	Type 1	Type 1	Type 1
Sidewalk Requirement (required)	NA	6’ Detached (on one side)	6’ Detached (on one side)	2- 6’ Detached	2- 6’ Detached	2-6’ Detached
Bicycle Accommodations	NA	10’ Off-Street Trail (on other side)	10’ Off-Street Trail (on other side)	Multi-Use Shoulder	Multi-Use Shoulder	6’ Bike Lanes
Tree Lawn Width	NA	10’	10’	10’	6’	6’
10’ Utility Corridor	NA	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk
Alley Driveway Setback	NA	NA	NA	NA	NA	NA
Parking	No	No	No	No	No	Yes; 2-6’
Design Vehicle	WB 67	WB 67	WB 67	WB 67	WB 50	WB 50
Signalized Intersection Frequency	1 Mile	½ Mile	½ Mile	½ Mile	NA	NA
Unsignalized Intersection Frequency	1 Mile	½ Mile	½ Mile	¼ Mile	600’	600’
Access Distance to Cross Street (Minimum)	NA	115’	115’	115’	75’	75’
Vertical Alignment	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO
Horizontal Alignment Radius	3150’ w 6% Super of 8% Max Table	930’ *	930’ *	750’ *	550’ *	550’ *
Grade (Min-Max)	1% - 4%	1% - 4%	1% - 4%	1% - 4%	1% - 8%	1% - 8%
Intersection Grade	1% - 2%	1% - 3%	1% - 3%	1% - 3%	1% - 3%	1% - 3%
Intersection Sight Distance	CDOT Design - 2018	555’	555’	445’	445’	445’
Stopping Sight Distance	CDOT Design - 2018	425’	425’	305’	200’	200’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

Street Design Standards – Residential, Industrial/Commercial, Alley Criteria

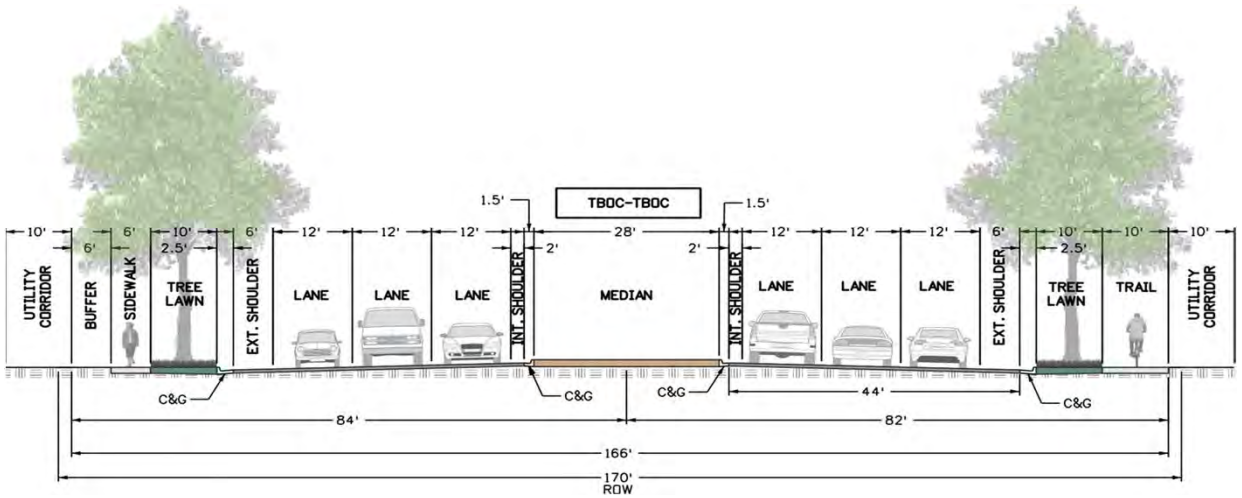
	Residential – Detached Sidewalk	Residential – Attached Sidewalk	Industrial/Commercial	Alley
Design/Posted Speed	30/25	30/25	30/25	--
Suggested ADT	300 - 1,500	300 – 1,500	--	--
Clear Zone	NA	NA	10’	NA
Right of Way Width	60’	50’	70’	30’
Pavement Width (pavement mat)	32’	32’	48’	20’
Number of Lanes	2	2	2	2
Lane Widths	11’	11’	14’	10’
Shoulder Width (Ext., excluding C&G)	NA	NA	NA	NA
Shoulder Width (Int, excluding (C&G)	NA	NA	NA	NA
Median	NA	NA	NA	NA
Curb & Gutter Type (required)	Type1/Type5	Type1/Type5	Type 1	Inverted Cross Pan
Sidewalk Requirement (required)	2-6’ Detached	2-6’ Attached	2-6’ Attached	NA
Bicycle Accommodations	No	No	No	NA
Tree Lawn Width	5’	NA	NA	NA
10’ Utility Corridor	10’ from back of sidewalk	10’ from back of sidewalk	NA	NA
Alley Driveway Setback	NA	NA	NA	18’ from edge of asphalt
Parking	Yes; 2 – 5’	Yes; 2 - 5’	Yes; 2 – 10’	Allowed only on 18’ driveways
Design Vehicle	SU 30	SU 30	WB 67	SU 30
Signalized Intersection Frequency	NA	NA	NA	NA
Unsignalized Intersection Frequency	300’ Max	300’Max	600’	½ Adjacent Street Length
Access Distance to Cross Street (Min)	25’	25’	75’	NA
Vertical Alignment	AASHTO	AASHTO	AASHTO	AASHTO
Horizontal Alignment Radius	200’	200’	200’	85’
Grade (Min-Max)	1% - 8%	1% - 8%	1% - 6%	1% - 8%
Intersection Grade	1% - 4%	1% - 4%	1% - 3%	1% - 4%
Intersection Sight Distance	280’	280’	445’	170’
Stopping Sight Distance	155’	155’	200’	80’

Street Design Standards - Expressway Section



	Expressway
Design/Posted Speed	60/55
Suggested ADT	60,000 - 80,000
Clear Zone	30'
Right of Way Width	300'
Pavement Width (pavement mat)	2 – 40'-60'
Number of Lanes	4 - 6
Lane Widths	12'
Shoulder Width (Ext., excluding C&G)	8' or12'
Shoulder Width (Int, excluding (C&G)	4' or12'
Median	28' Swale
Curb & Gutter Type (required)	NA
Sidewalk Requirement (required)	NA
Bicycle Accommodations	NA
Tree Lawn Width	NA
10' Utility Corridor	NA
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 67
Signalized Intersection Frequency	1 Mile
Unsignalized Intersection Frequency	1 Mile
Access Distance to Cross Street (Minimum)	NA
Vertical Alignment	AASHTO
Horizontal Alignment Radius	3150' w 6% Super of 8% Max Table
Grade (Min-Max)	1% - 4%
Intersection Grade	1% - 2%
Intersection Sight Distance	CDOT Design - 2018
Stopping Sight Distance	CDOT Design - 2018

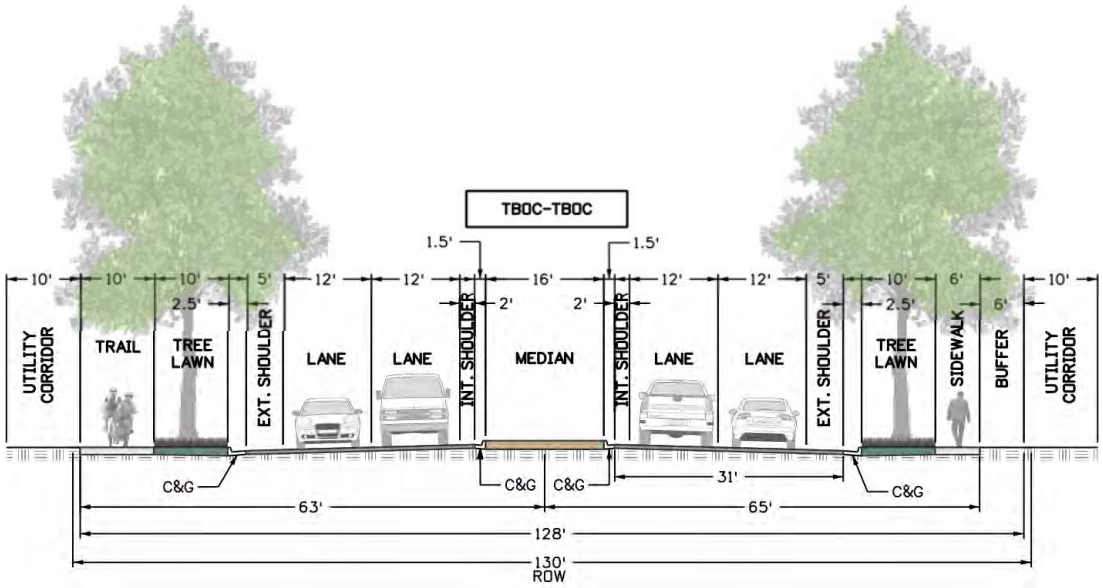
Street Design Standards – Major Arterial Section



	Major Arterial
Design/Posted Speed	50/45
Suggested ADT	25,000 - 60,000
Clear Zone	
Right of Way Width	170'
Pavement Width (pavement mat)	2 – 44'
Number of Lanes	6
Lane Widths	12'
Shoulder Width (Ext., excluding C&G)	2-6' Multi-Use
Shoulder Width (Int, excluding (C&G)	
Median	28' - TBC to TBC
Curb & Gutter Type (required)	Type 1 Type 3 (median)
Sidewalk Requirement (required)	6' Detached (on one side)
Bicycle Accommodations	10' Off-Street Trail (on other side)
Tree Lawn Width	10'
10' Utility Corridor	10'- from back of sidewalk
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 67
Signalized Intersection Frequency	½ Mile
Unsignalized Intersection Frequency	½ Mile
Access Distance to Cross Street (Minimum)	115'
Vertical Alignment	AASHTO
Horizontal Alignment Radius	930' *
Grade (Min-Max)	1% - 4%
Intersection Grade	1% - 3%
Intersection Sight Distance	555'
Stopping Sight Distance	425'

* Minimum Radius based upon 4% superelevation unless noted otherwise.

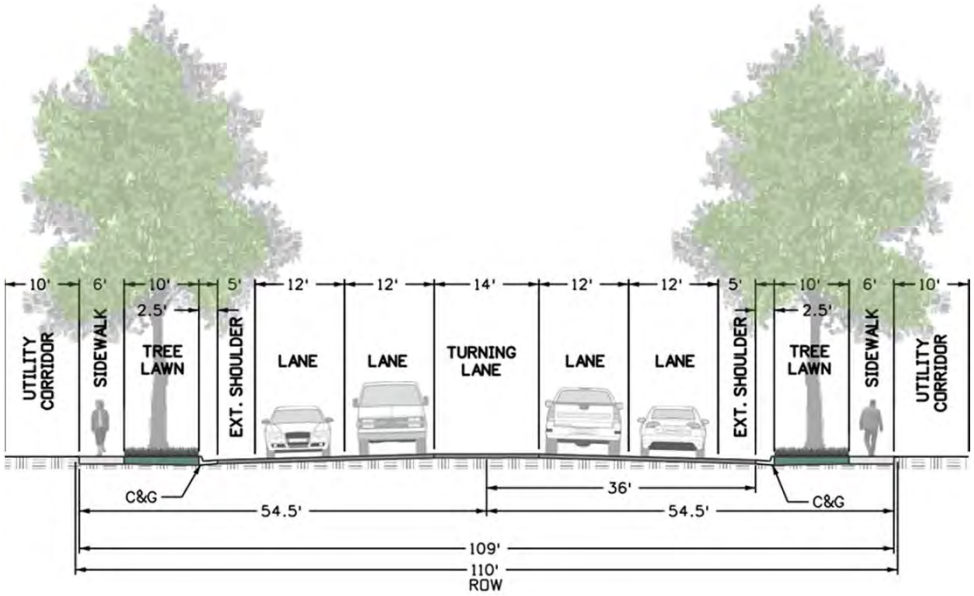
Street Design Standards – Arterial Section



	Arterial
Design/Posted Speed	50/45
Suggested ADT	10,000 - 25,000
Clear Zone	
Right of Way Width	130’
Pavement Width (pavement mat)	2 – 31’
Number of Lanes	4
Lane Widths	12’
Shoulder Width (Ext., excluding C&G)	2-5’ Multi-Use
Shoulder Width (Int, excluding (C&G)	
Median	16’ - TBC to TCB
Curb & Gutter Type (required)	Type 1 Type 3 (median)
Sidewalk Requirement (required)	6’ Detached (on one side)
Bicycle Accommodations	10’ Off-Street Trail (on other side)
Tree Lawn Width	10’
10’ Utility Corridor	10’- from back of sidewalk
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 67
Signalized Intersection Frequency	½ Mile
Unsignalized Intersection Frequency	½ Mile
Access Distance to Cross Street (Minimum)	115’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	930’ *
Grade (Min-Max)	1% - 4%
Intersection Grade	1% - 3%
Intersection Sight Distance	555’
Stopping Sight Distance	425’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

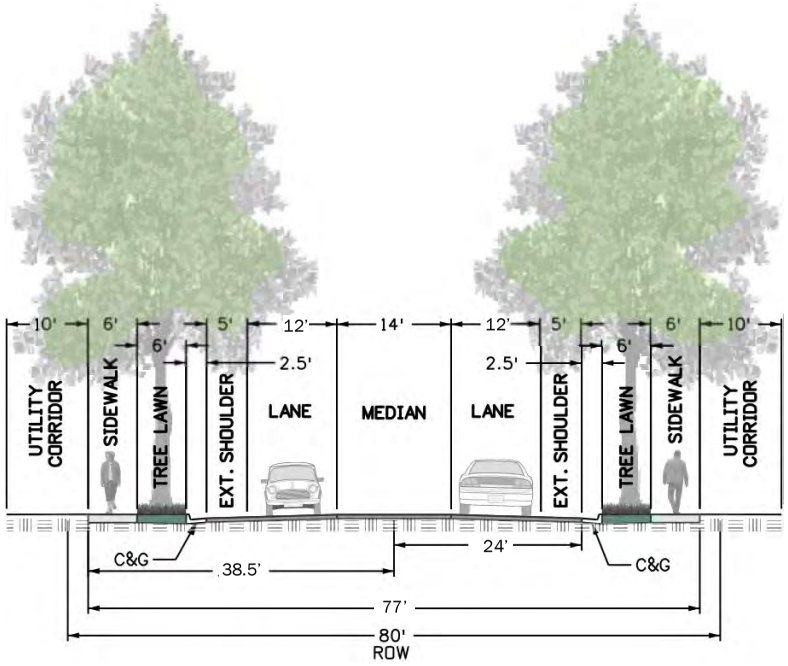
Street Design Standards – Minor Arterial Section



	Minor Arterial
Design/Posted Speed	45/40
Suggested ADT	5,000 - 10,000
Clear Zone	
Right of Way Width	110’
Pavement Width (pavement mat)	72’
Number of Lanes	5
Lane Widths	12’
Shoulder Width (Ext., excluding C&G)	2-5’ Multi-Use
Shoulder Width (Int, excluding (C&G)	
Median	NA
Curb & Gutter Type (required)	Type 1
Sidewalk Requirement (required)	2- 6’ Detached
Bicycle Accommodations	Multi-Use Shoulder
Tree Lawn Width	10’
10’ Utility Corridor	10’- from back of sidewalk
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 67
Signalized Intersection Frequency	½ Mile
Unsignalized Intersection Frequency	¼ Mile
Access Distance to Cross Street (Minimum)	115’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	750’ *
Grade (Min-Max)	1% - 4%
Intersection Grade	1% - 3%
Intersection Sight Distance	445’
Stopping Sight Distance	305’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

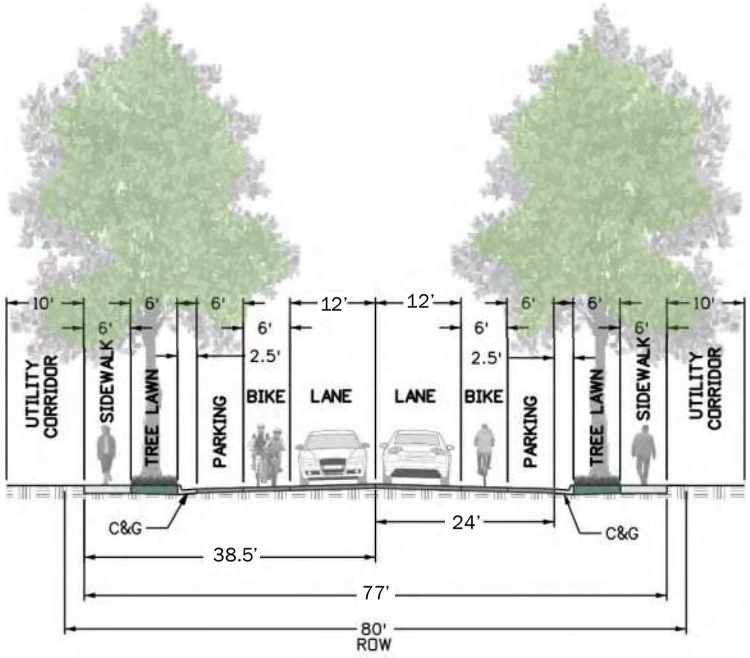
Street Design Standards – Collector Section



	Collector
Design/Posted Speed	40/35
Suggested ADT	3,000 - 5,000
Clear Zone	
Right of Way Width	80’
Pavement Width (pavement mat)	48’
Number of Lanes	3
Lane Widths	12’
Shoulder Width (Ext., excluding C&G)	2-5’ Multi-Use
Shoulder Width (Int, excluding (C&G)	
Median	Painted – 14’
Curb & Gutter Type (required)	Type 1
Sidewalk Requirement (required)	2- 6’ Detached
Bicycle Accommodations	Multi-Use Shoulder
Tree Lawn Width	6’
10’ Utility Corridor	10’- from back of sidewalk
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 50
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	600’
Access Distance to Cross Street (Minimum)	75’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	550’ *
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 3%
Intersection Sight Distance	445’
Stopping Sight Distance	200’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

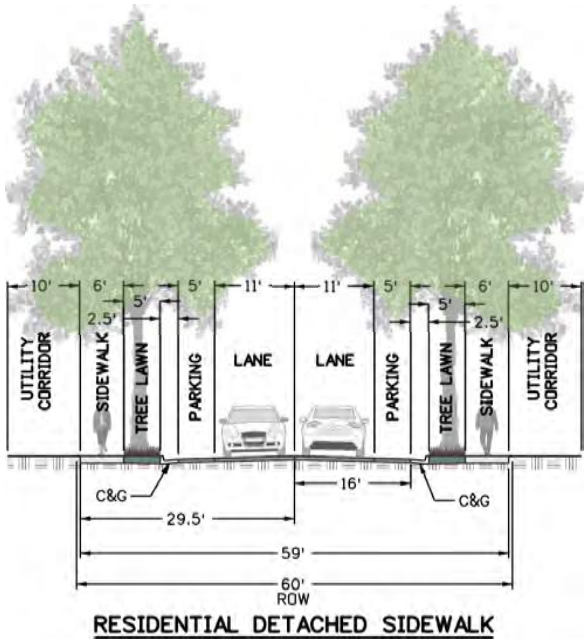
Street Design Standards – Minor Collector Section



	Minor Collector
Design/Posted Speed	40/35
Suggested ADT	1,500 - 3,000
Clear Zone	
Right of Way Width	80'
Pavement Width (pavement mat)	48'
Number of Lanes	2
Lane Widths	12'
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	
Median	NA
Curb & Gutter Type (required)	Type 1
Sidewalk Requirement (required)	2-6' Detached
Bicycle Accommodations	6' Bike Lanes
Tree Lawn Width	6'
10' Utility Corridor	10'- from back of sidewalk
Alley Driveway Setback	NA
Parking	Yes; 2-6'
Design Vehicle	WB 50
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	600'
Access Distance to Cross Street (Minimum)	75'
Vertical Alignment	AASHTO
Horizontal Alignment Radius	550' *
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 3%
Intersection Sight Distance	445'
Stopping Sight Distance	200'

* Minimum Radius based upon 4% superelevation unless noted otherwise.

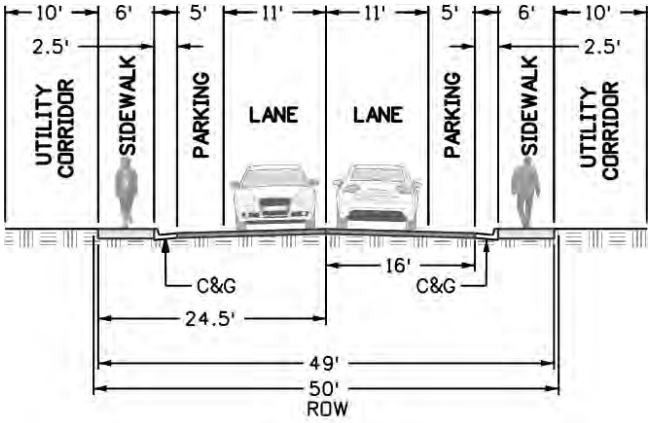
Street Design Standards – Residential Detached Sidewalk Section



RESIDENTIAL DETACHED SIDEWALK

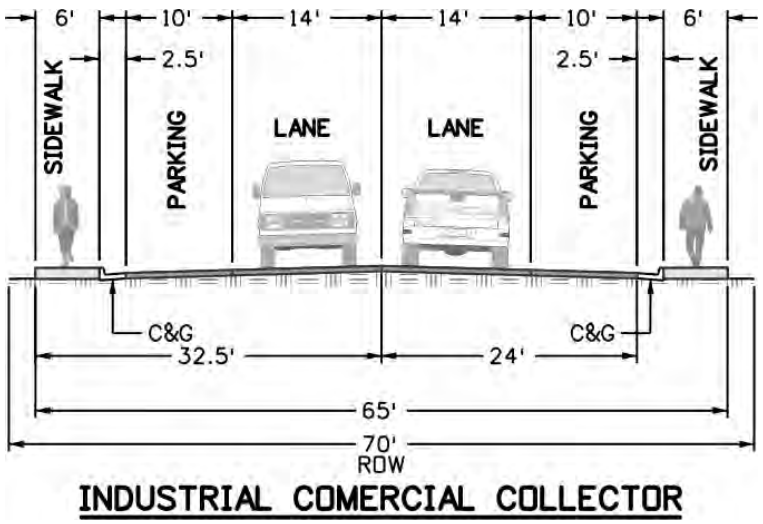
	Major Arterial
Design/Posted Speed	30/25
Suggested ADT	300 - 1,500
Clear Zone	NA
Right of Way Width	60’
Pavement Width (pavement mat)	32’
Number of Lanes	2
Lane Widths	11’
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	NA
Median	NA
Curb & Gutter Type (required)	Type1/Type5
Sidewalk Requirement (required)	2-6’ Detached
Bicycle Accommodations	No
Tree Lawn Width	5’
10’ Utility Corridor	10’ from back of sidewalk
Alley Driveway Setback	NA
Parking	Yes; 2 – 5’
Design Vehicle	SU 30
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	300’ Max
Access Distance to Cross Street (Minimum)	25’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	200’
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 4%
Intersection Sight Distance	280’
Stopping Sight Distance	155’

Street Design Standards – Residential Attached Sidewalk Section



	Major Arterial
Design/Posted Speed	30/25
Suggested ADT	300 – 1,500
Clear Zone	NA
Right of Way Width	50’
Pavement Width (pavement mat)	32’
Number of Lanes	2
Lane Widths	11’
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	NA
Median	NA
Curb & Gutter Type (required)	Type1/Type5
Sidewalk Requirement (required)	2-6’ Attached
Bicycle Accommodations	No
Tree Lawn Width	NA
10’ Utility Corridor	10’ from back of sidewalk
Alley Driveway Setback	NA
Parking	Yes; 2 - 5’
Design Vehicle	SU 30
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	300’Max
Access Distance to Cross Street (Minimum)	25’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	200’
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 4%
Intersection Sight Distance	280’
Stopping Sight Distance	155’

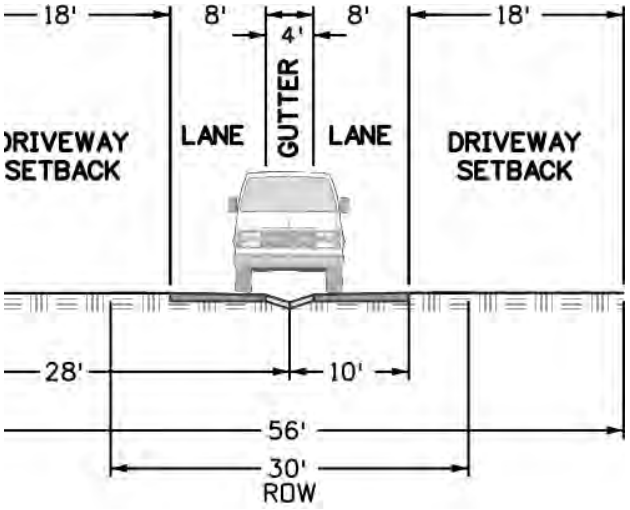
Street Design Standards – Commercial/Industrial Section



INDUSTRIAL COMERCIAL COLLECTOR

	Commercial/Industrial
Design/Posted Speed	30/25
Suggested ADT	--
Clear Zone	10'
Right of Way Width	70'
Pavement Width (pavement mat)	48'
Number of Lanes	2
Lane Widths	14'
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	NA
Median	NA
Curb & Gutter Type (required)	Type 1
Sidewalk Requirement (required)	2-6' Attached
Bicycle Accommodations	No
Tree Lawn Width	NA
10' Utility Corridor	NA
Alley Driveway Setback	NA
Parking	Yes; 2 – 10'
Design Vehicle	WB 67
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	600'
Access Distance to Cross Street (Minimum)	75'
Vertical Alignment	AASHTO
Horizontal Alignment Radius	200'
Grade (Min-Max)	1% - 6%
Intersection Grade	1% - 3%
Intersection Sight Distance	445'
Stopping Sight Distance	200'

Street Design Standards – Alley Section



	Alley
Design/Posted Speed	--
Suggested ADT	--
Clear Zone	NA
Right of Way Width	30'
Pavement Width (pavement mat)	20'
Number of Lanes	2
Lane Widths	10'
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	NA
Median	NA
Curb & Gutter Type (required)	Inverted Cross Pan
Sidewalk Requirement (required)	NA
Bicycle Accommodations	NA
Tree Lawn Width	NA
10' Utility Corridor	NA
Alley Driveway Setback	18' from edge of asphalt
Parking	Allowed only on 18' driveways
Design Vehicle	SU 30
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	½ Adjacent Street Length
Access Distance to Cross Street (Minimum)	NA
Vertical Alignment	AASHTO
Horizontal Alignment Radius	85'
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 4%
Intersection Sight Distance	170'
Stopping Sight Distance	80'

Thank You

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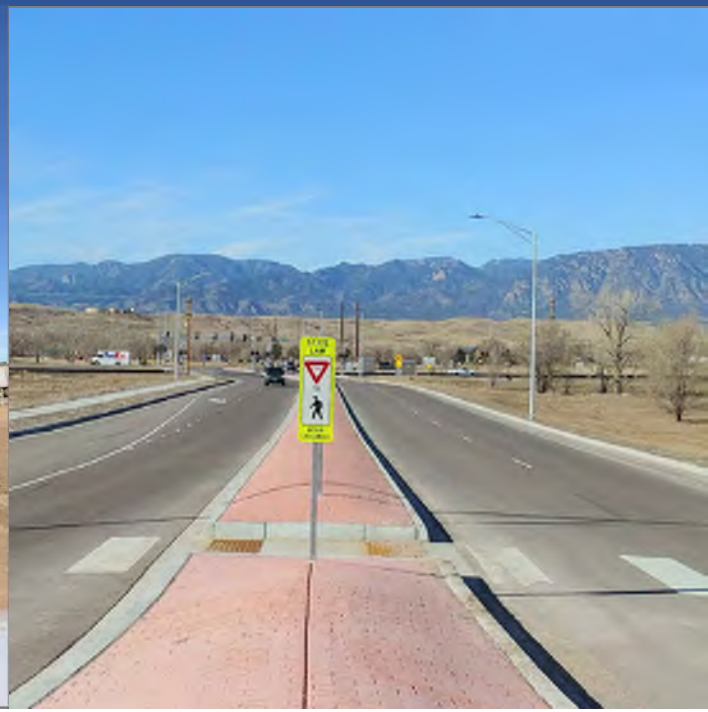
EDC Meeting Slides - April 12, 2021

Presentation to the Fountain City Council

City of Fountain Transportation Master Plan

Stakeholder Conceptual Planning Briefing

6:00 PM | April 27, 2021
City of Fountain – Transportation Master Plan



Welcome & Agenda

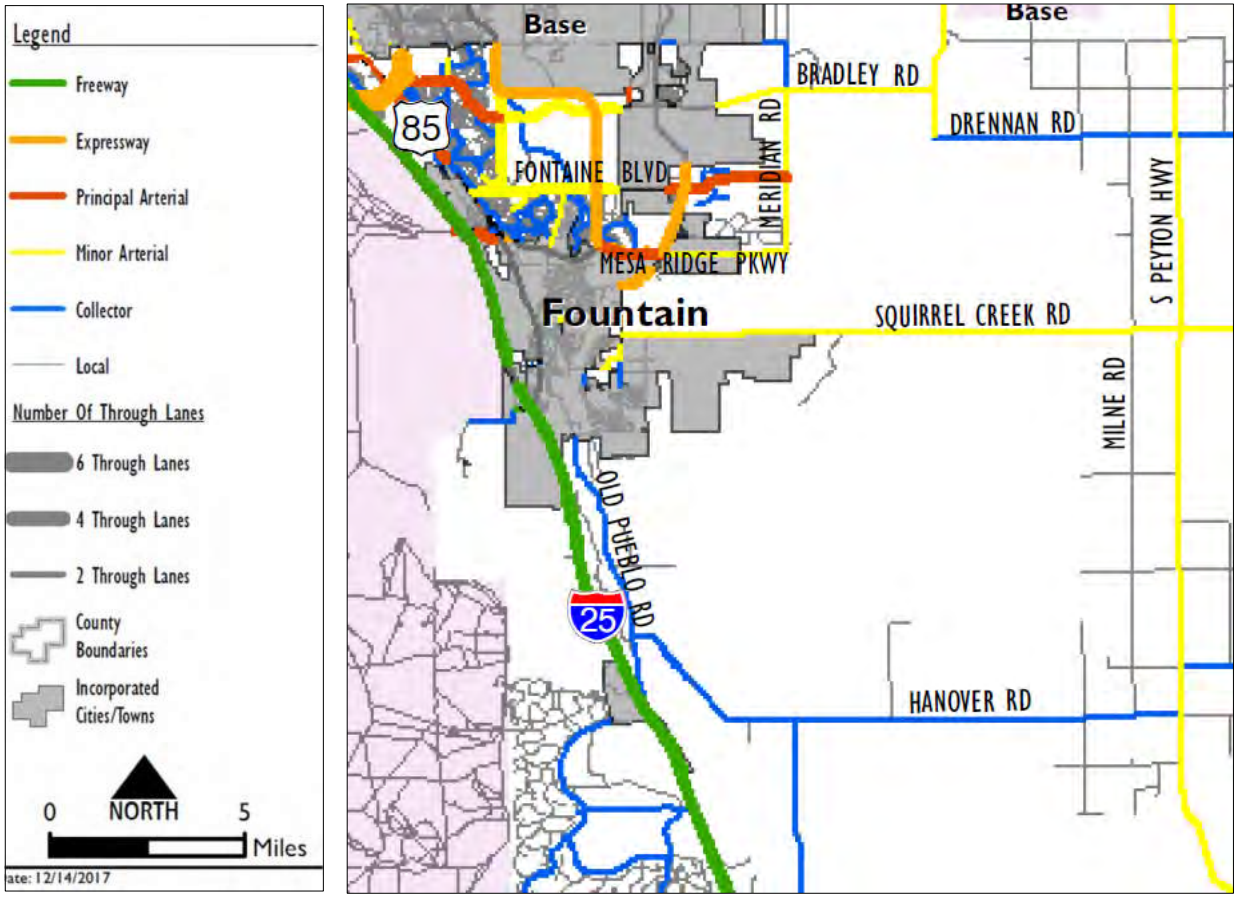
- Introduction
- Regional Planning Context
- Transportation System Needs
- Transportation Master Plan Network
- Design Criteria, Guidelines & Standards
- Cost and Funding Strategies
- Next Steps

Regional Planning Context / Consistency

TMP 2021 Builds on Regional Planning:

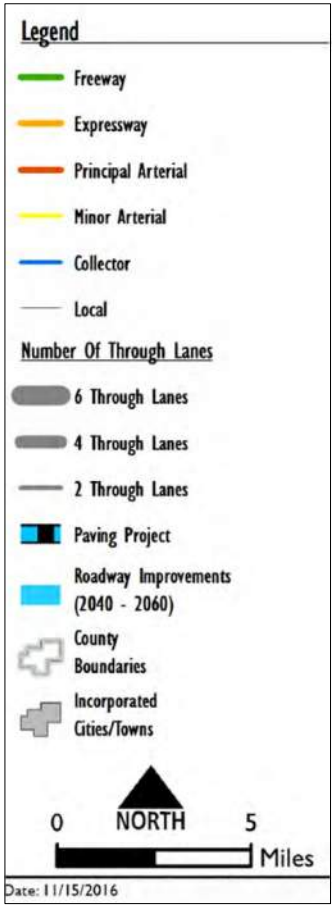
- El Paso County 2040 MTCP
  - 2040 Roadway Improvements
  - 2060 Corridor Preservation Plan (CPP)
- PPACG 2045 Fiscally Constrained RTP
- State/Federal Functional Classifications

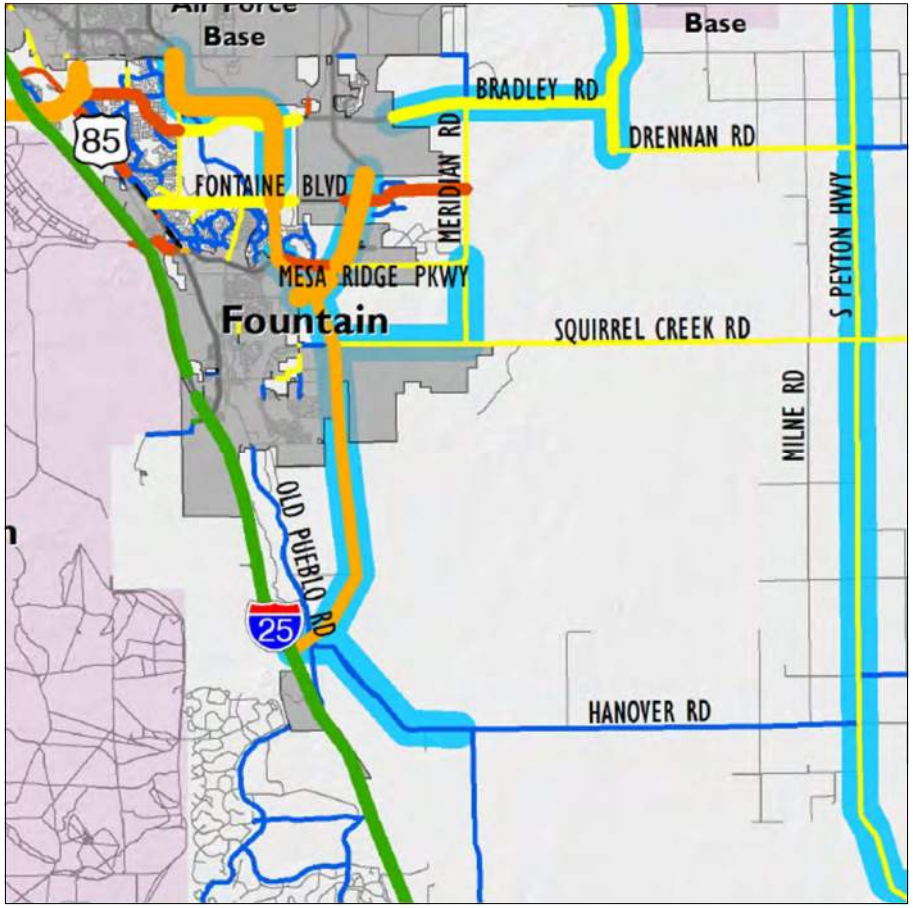
Regional Context - EPC 2040 MTCP – 2040 Roadways



- 2040 Network
- Adopted by El Paso County in 2016
- Constrained by 2040 Funding

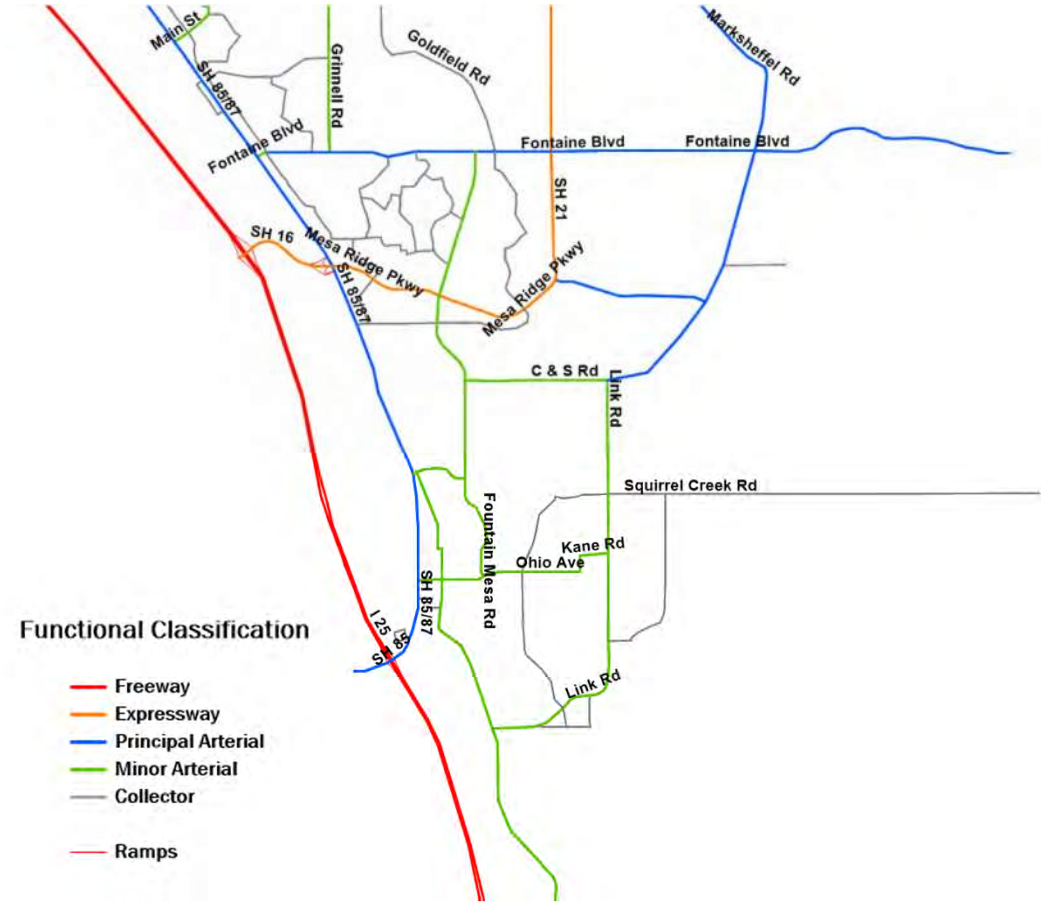
Regional Context - EPC 2040 MTCP – CPP (2060)





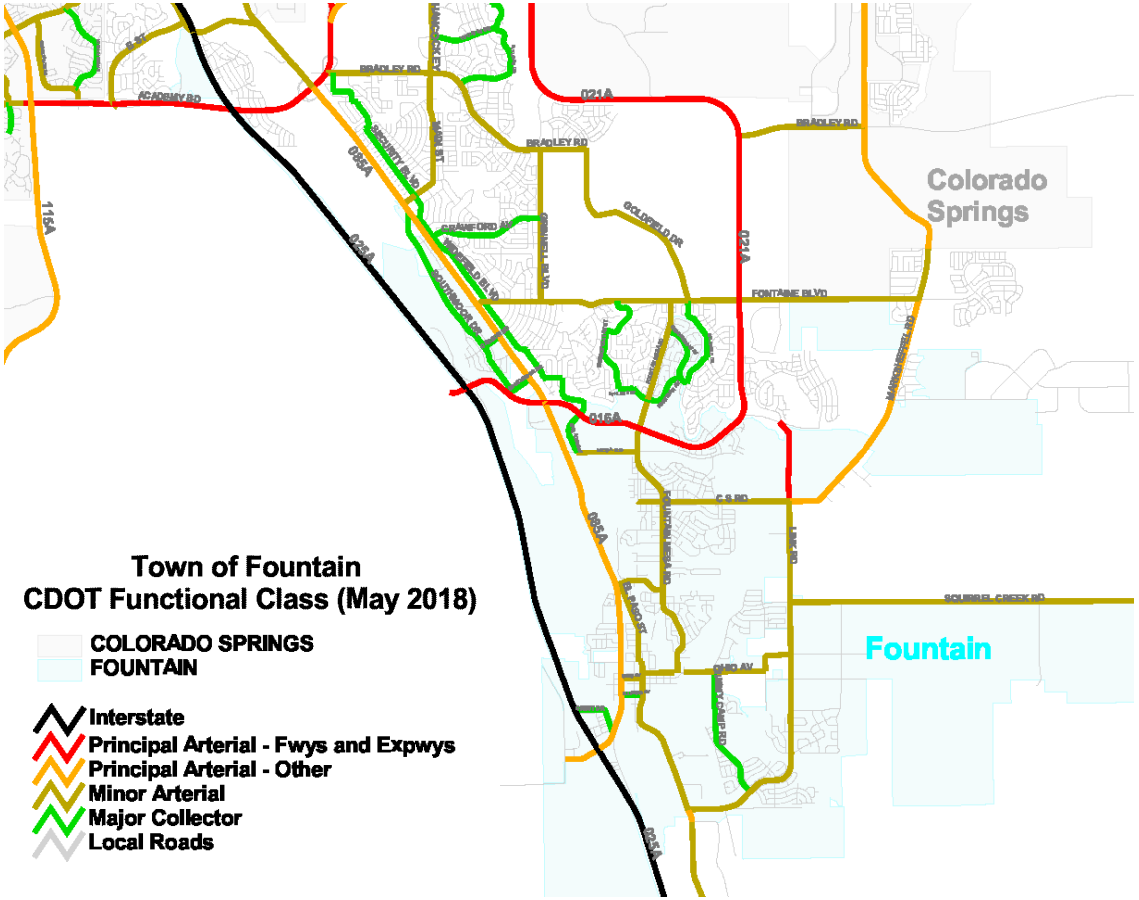
- "Needs Based" Vision Plan
- Blueprint for ROW reservation and acquisition
- Projects to be Implemented as Funding / Opportunities Permit

Regional Context - PPACG 2045 Fiscally Constrained RTP



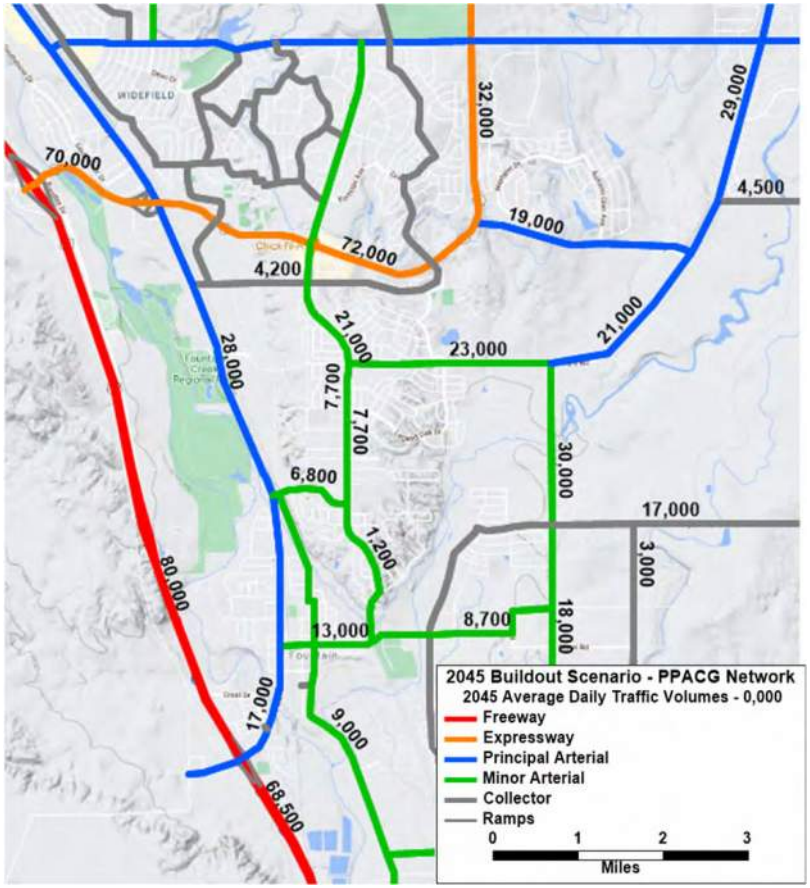
- 2045 Network
- Adopted by PPACG
- Includes Only Projects "funded" by 2045
- Includes Federal, State, PPRTA, Local, Privately Funded Projects
- Developed by 3-C Federally Mandated (for funding eligibility) Planning Process
- Model/Forecasts adopted by PPACG and Constrained to State Demographer County Control Totals

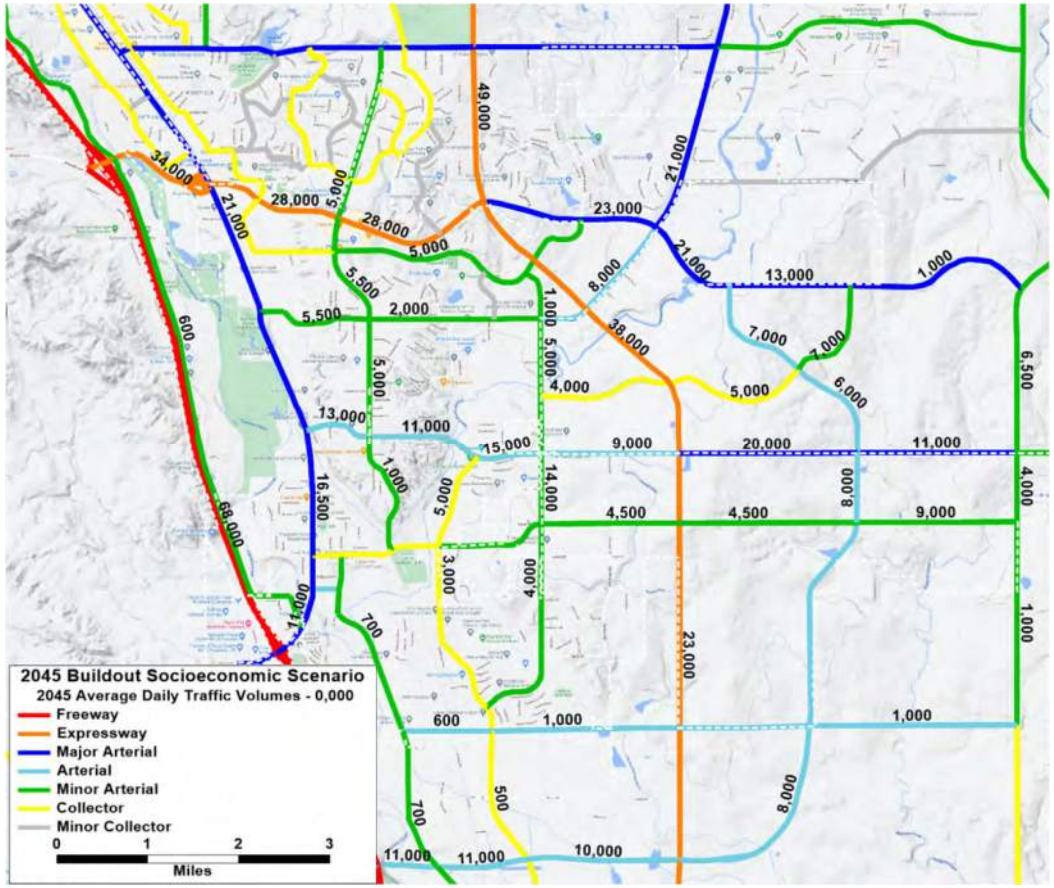
Regional Context - State/Federal Funding Eligibility



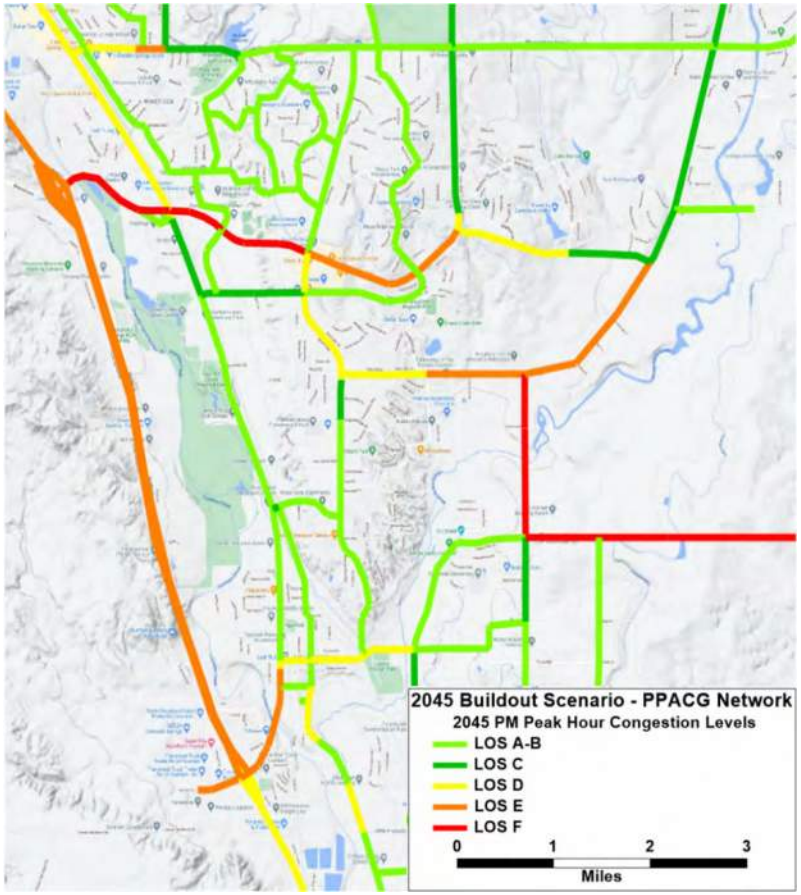
- CDOT/FHWA Functional Classifications
- Identifies Funding Eligibility for Federal and State funding

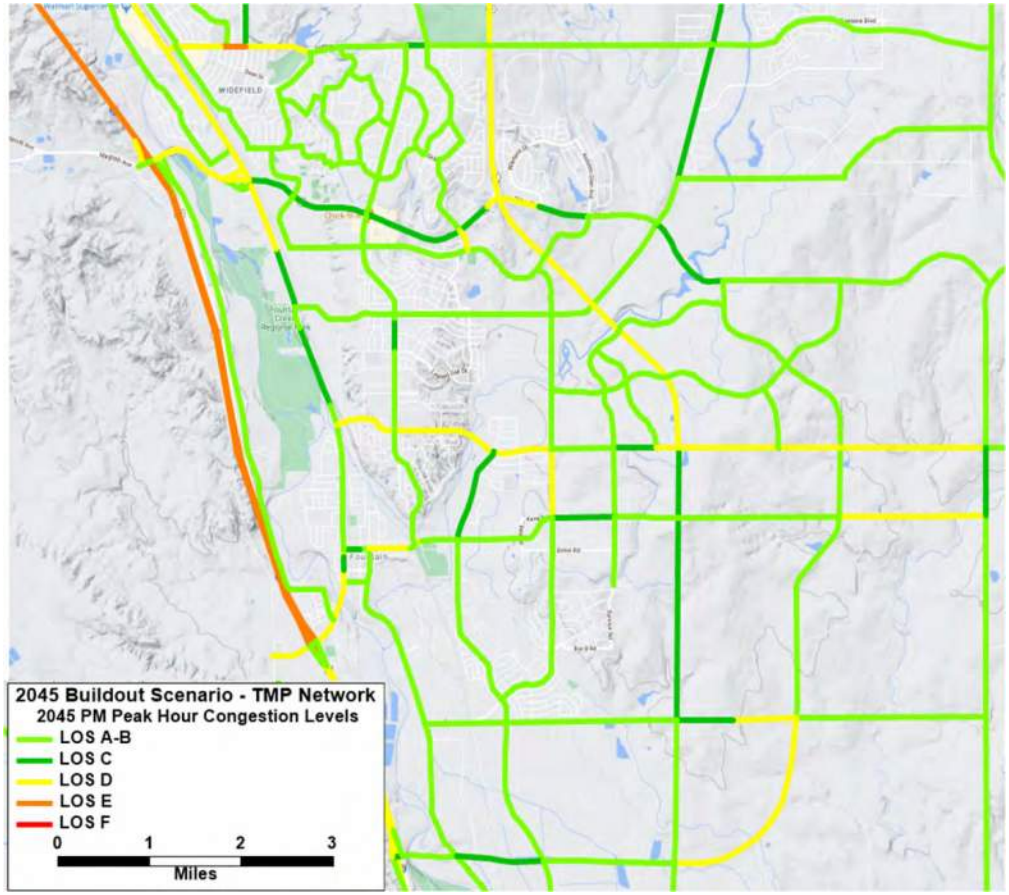
Transportation System Needs – Forecast Daily Traffic



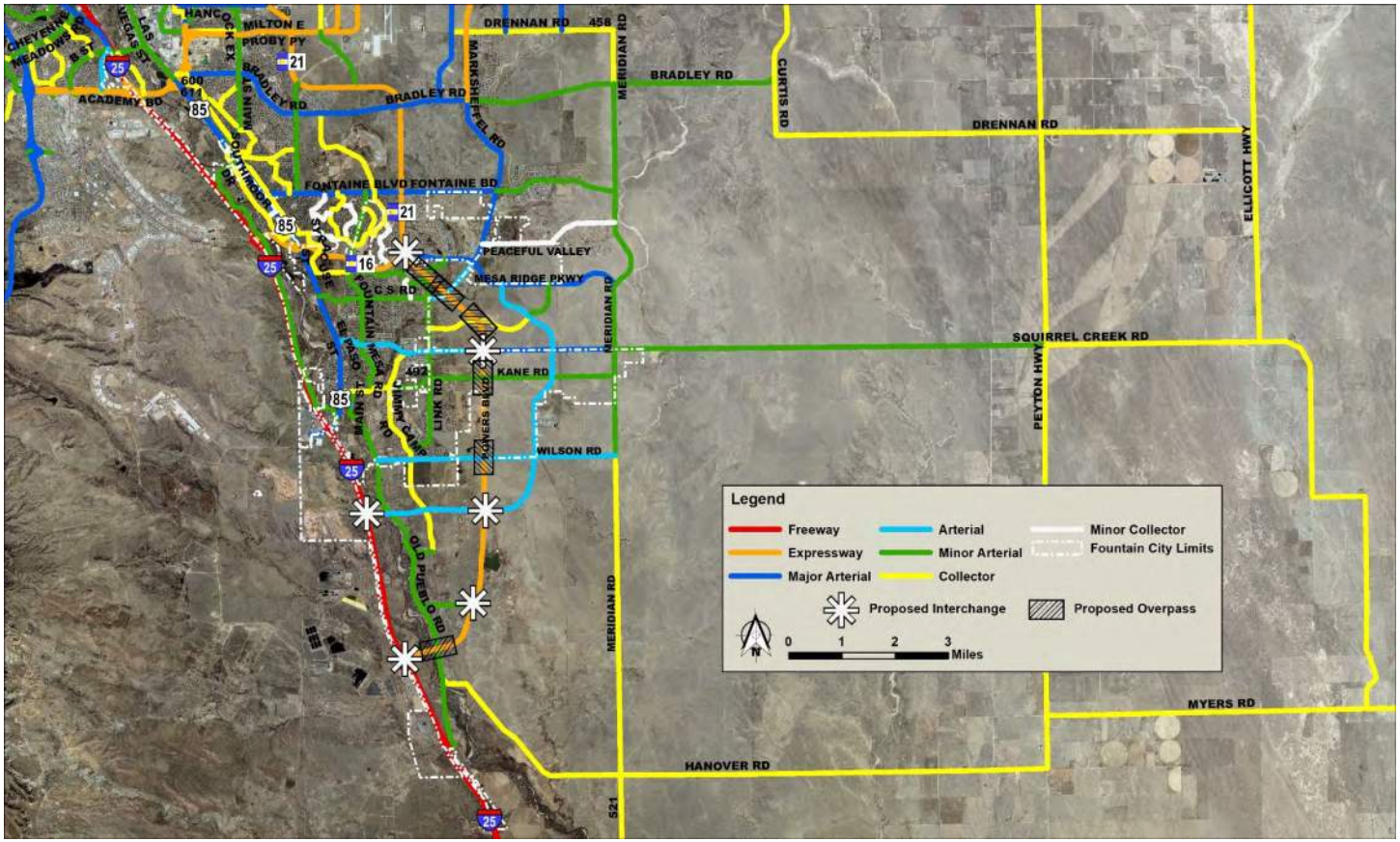


Transportation System Needs – Peak Hour Congestion

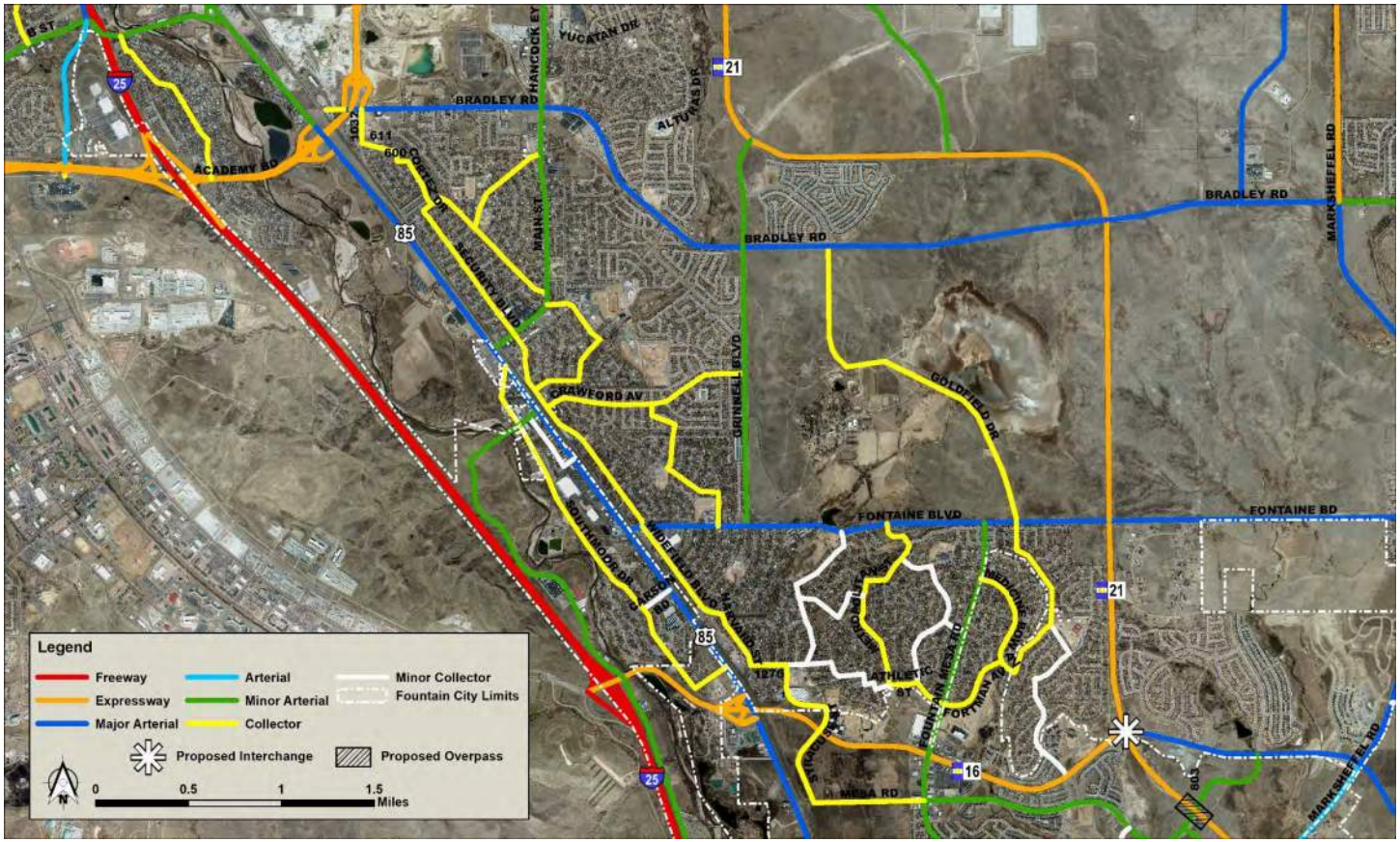




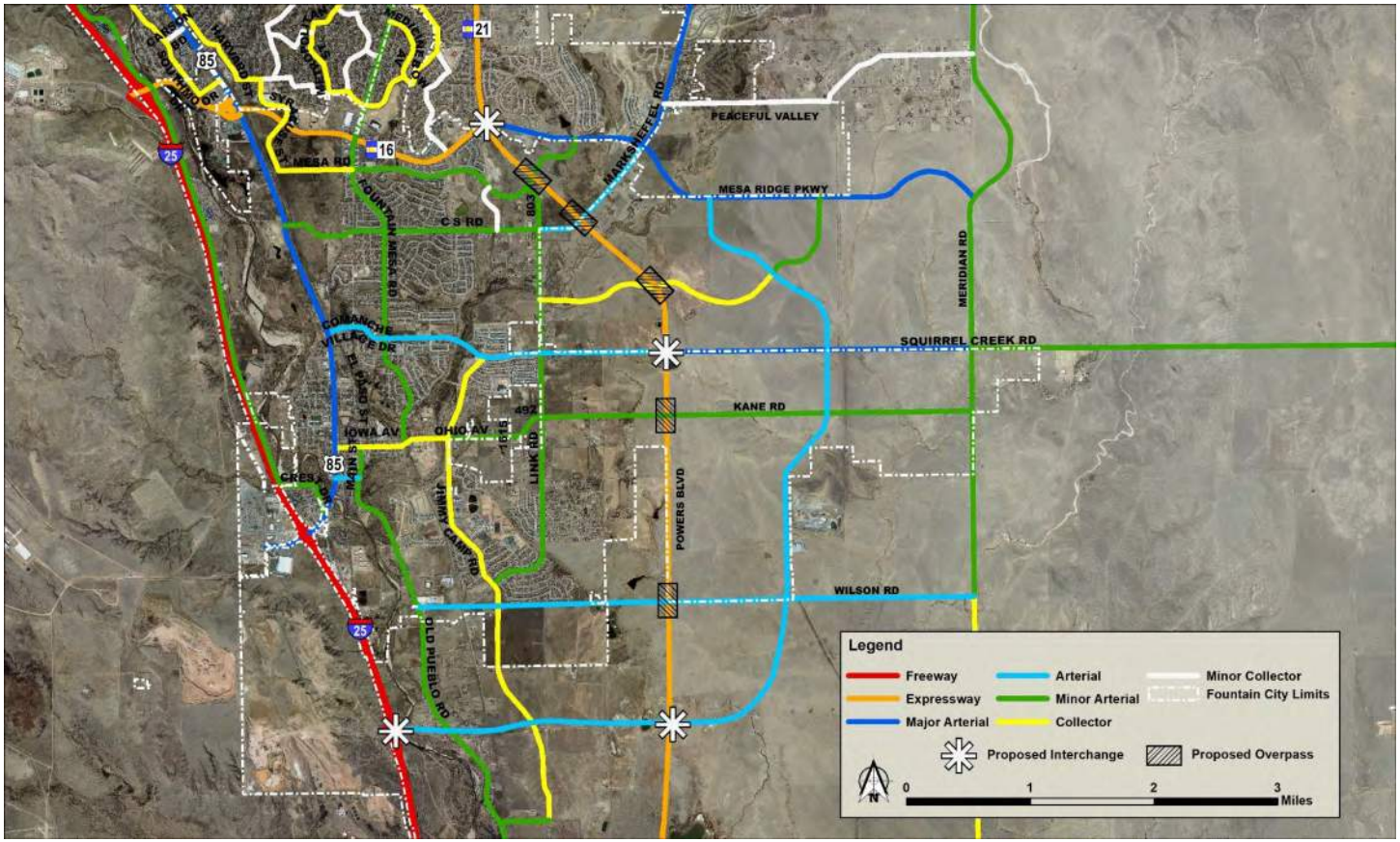
Transportation Master Plan – Overall Network



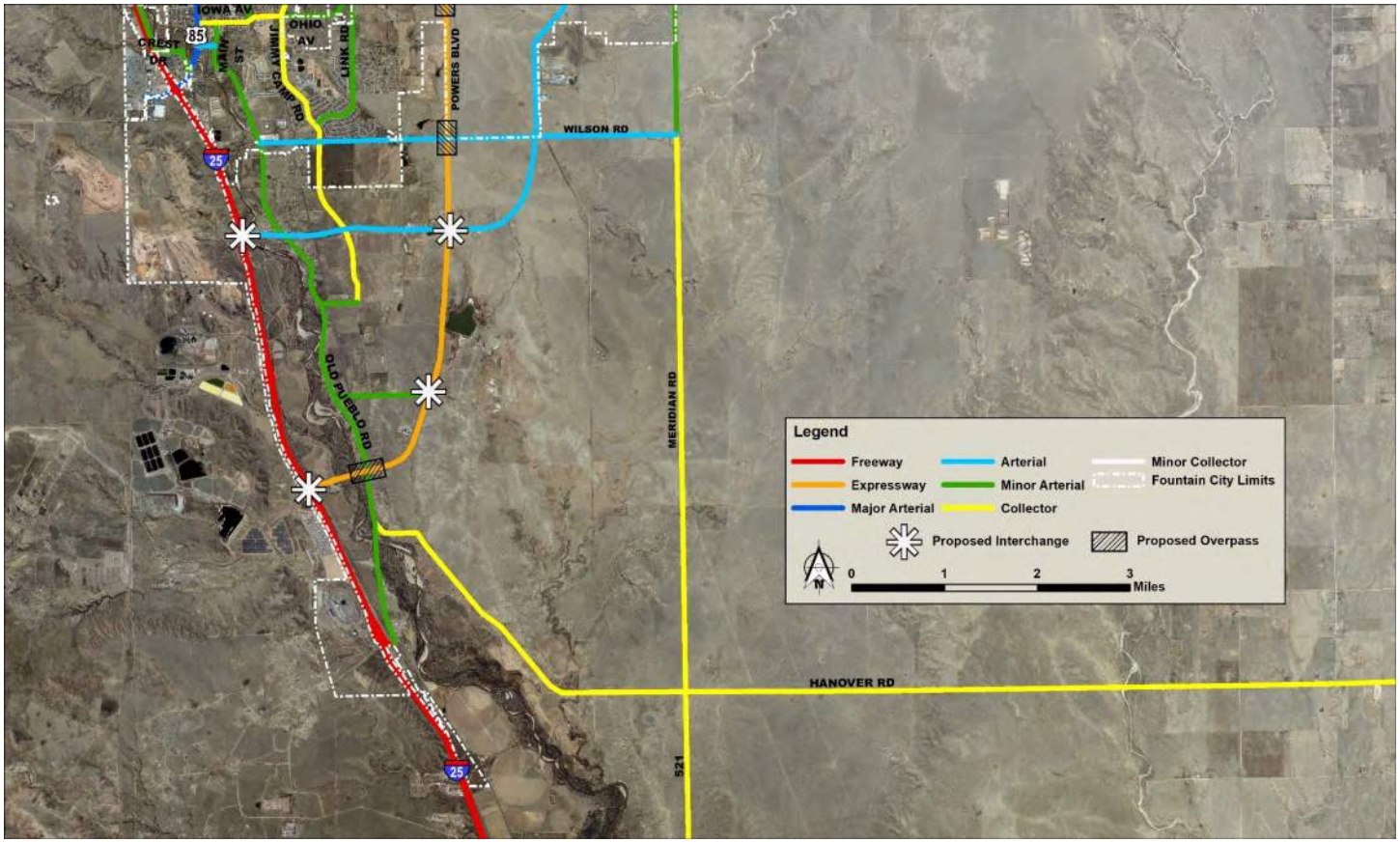
Transportation Master Plan Network - North Area



Transportation Master Plan Network – Central Area



Transportation Master Plan Network – South Area



Design Criteria, Guidelines & Standards

- Adopted Off-Street Trail Standards
- New Street Standards
- City of Colorado Springs - General Design Criteria
- ASHTO Design Guidelines
- State Access Code
- Manual on Uniform Traffic Control Devices (MUTCD)

Off-Street Trail Design Standards

Design Criteria	Primary Off-Street Trail	Secondary Off-Street Trail
Right-of-Way	50’ Min	30’ Min
Trail Width	10’	8’
Trail Surface	Concrete. No openings greater than ½ inch per ADA.	Concrete. No openings greater than ½ inch per ADA.
Parallel Trail Width	3’ if present.	NA
Parallel Trail Surface	Crushed gravel non-equestrian; natural equestrian.	NA
Sight Distance	130’ Min or provide signage.	90’ Min or provide signage.
Grades	5% Max. Exception to 8.55% for 200’ Max.	5% Max. Exception to 8.55% for 200’ Max.
Cross Slope	1-2 % typical. 3% maximum.	1-2 % typical. 3% maximum.
Vertical Clearance	12 feet preferable, 10 feet minimum.	12 feet preferable, 10 feet minimum.
Shoulders	3 feet mowed and clear of hazards on each side of trail.	3 feet mowed and clear of hazards on each side of trail.
Trail Centerline Radius	40’ at tight corners/switchbacks. 100’ elsewhere.	30’ at tight corners/switchbacks. 100’ elsewhere.
Radius at Trail Intersections	15’ to accommodate maintenance vehicles or 8’ Min.	8’ Min
Separation from Roadway	20’ Min where feasible.	8’ Min where feasible.
Stripping		None
Underpass Width	12’ Min; 14’ Preferred.	10’ Min; 12’ Preferred.
Bridges	10’ Min	8’ Min
Guardrails	Guardrails or fencing along steep drops within 5’ of trail.	Guardrails or fencing along steep drops within 5’ of trail.

Street Design Standards – Expressway to Minor Collector Criteria

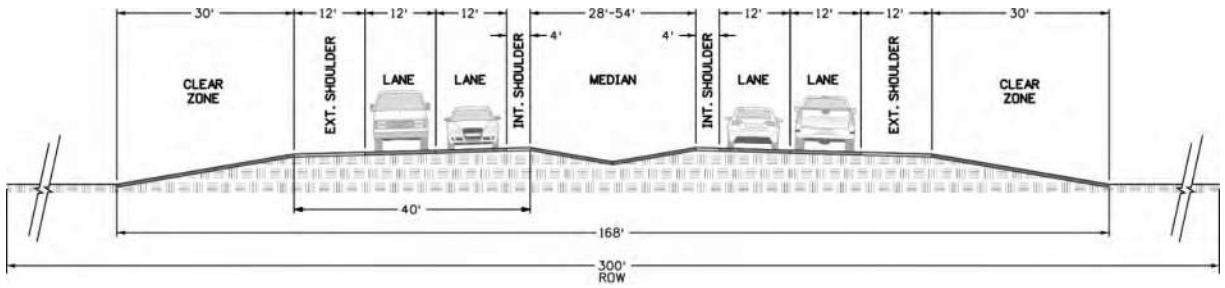
	Expressway	Major Arterial	Arterial	Minor Arterial	Collector	Minor Collector
Design/Posted Speed	60/55	50/45	50/45	45/40	40/35	40/35
Suggested ADT	60,000 - 80,000	25,000 - 60,000	10,000 - 25,000	5,000 - 10,000	3,000 - 5,000	1,500 - 3,000
Clear Zone	30’					
Right of Way Width	300’	170’	130’	110’	80’	80’
Pavement Width (pavement mat)	2 – 40’-60’	2 – 44’	2 – 31’	72’	48’	48’
Number of Lanes	4 - 6	6	4	5	3	2
Lane Widths	12’	12’	12’	12’	12’	12’
Shoulder Width (Ext., excluding C&G)	8’or12’	2-6’ Multi-Use	2-5’ Multi-Use	2-5’ Multi-Use	2-5’ Multi-Use	NA
Shoulder Width (Int, excluding (C&G)	4’or12’					
Median	28’ Swale	28’ - TBC to TBC	16’ - TBC to TCB	NA	Painted – 14’	NA
Curb & Gutter Type (required)	NA	Type 1 Type 3 (median)	Type 1 Type 3 (median)	Type 1	Type 1	Type 1
Sidewalk Requirement (required)	NA	6’ Detached (on one side)	6’ Detached (on one side)	2- 6’ Detached	2- 6’ Detached	2-6’ Detached
Bicycle Accommodations	NA	10’ Off-Street Trail (on other side)	10’ Off-Street Trail (on other side)	Multi-Use Shoulder	Multi-Use Shoulder	6’ Bike Lanes
Tree Lawn Width	NA	10’	10’	10’	6’	6’
10’ Utility Corridor	NA	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk	10’- from back of sidewalk
Alley Driveway Setback	NA	NA	NA	NA	NA	NA
Parking	No	No	No	No	No	Yes; 2-6’
Design Vehicle	WB 67	WB 67	WB 67	WB 67	WB 50	WB 50
Signalized Intersection Frequency	1 Mile	½ Mile	½ Mile	½ Mile	NA	NA
Unsignalized Intersection Frequency	1 Mile	½ Mile	½ Mile	¼ Mile	600’	600’
Access Distance to Cross Street (Minimum)	NA	115’	115’	115’	75’	75’
Vertical Alignment	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO	AASHTO
Horizontal Alignment Radius	3150’ w 6% Super of 8% Max Table	930’ *	930’ *	750’ *	550’ *	550’ *
Grade (Min-Max)	1% - 4%	1% - 4%	1% - 4%	1% - 4%	1% - 8%	1% - 8%
Intersection Grade	1% - 2%	1% - 3%	1% - 3%	1% - 3%	1% - 3%	1% - 3%
Intersection Sight Distance	CDOT Design - 2018	555’	555’	445’	445’	445’
Stopping Sight Distance	CDOT Design - 2018	425’	425’	305’	200’	200’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

Street Design Standards – Residential, Industrial/Commercial, Alley Criteria

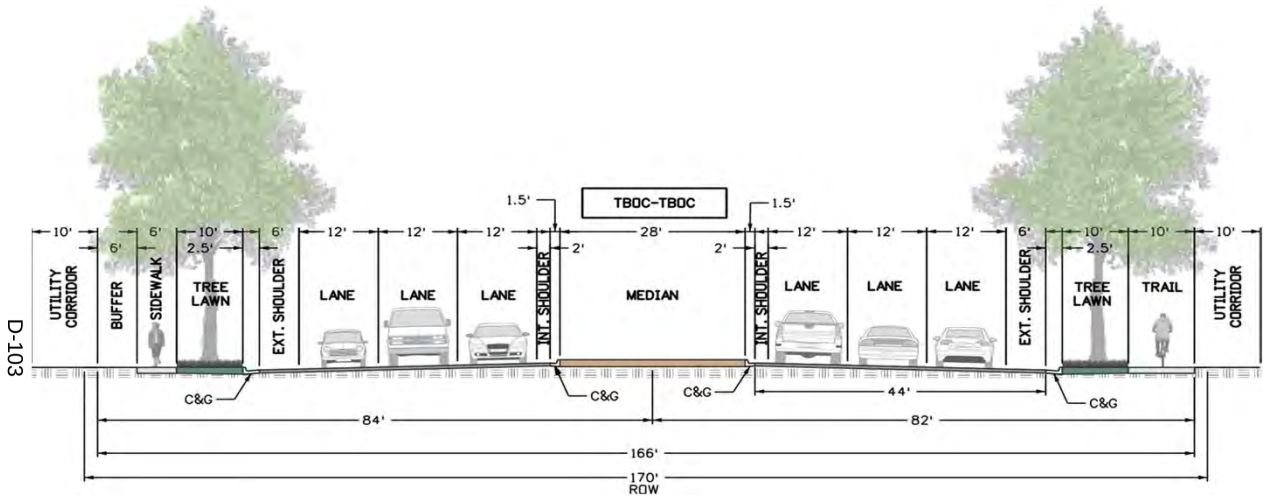
	Residential – Detached Sidewalk	Residential – Attached Sidewalk	Industrial/Commercial	Alley
Design/Posted Speed	30/25	30/25	30/25	--
Suggested ADT	300 - 1,500	300 – 1,500	--	--
Clear Zone	NA	NA	10’	NA
Right of Way Width	60’	50’	70’	30’
Pavement Width (pavement mat)	32’	32’	48’	20’
Number of Lanes	2	2	2	2
Lane Widths	11’	11’	14’	10’
Shoulder Width (Ext., excluding C&G)	NA	NA	NA	NA
Shoulder Width (Int, excluding (C&G)	NA	NA	NA	NA
Median	NA	NA	NA	NA
Curb & Gutter Type (required)	Type1/Type5	Type1/Type5	Type 1	Inverted Cross Pan
Sidewalk Requirement (required)	2-6’ Detached	2-6’ Attached	2-6’ Attached	NA
Bicycle Accommodations	No	No	No	NA
Tree Lawn Width	5’	NA	NA	NA
10’ Utility Corridor	10’ from back of sidewalk	10’ from back of sidewalk	NA	NA
Alley Driveway Setback	NA	NA	NA	18’ from edge of asphalt
Parking	Yes; 2 – 5’	Yes; 2 - 5’	Yes; 2 – 10’	Allowed only on 18’ driveways
Design Vehicle	SU 30	SU 30	WB 67	SU 30
Signalized Intersection Frequency	NA	NA	NA	NA
Unsignalized Intersection Frequency	300’ Max	300’Max	600’	½ Adjacent Street Length
Access Distance to Cross Street (Min)	25’	25’	75’	NA
Vertical Alignment	AASHTO	AASHTO	AASHTO	AASHTO
Horizontal Alignment Radius	200’	200’	200’	85’
Grade (Min-Max)	1% - 8%	1% - 8%	1% - 6%	1% - 8%
Intersection Grade	1% - 4%	1% - 4%	1% - 3%	1% - 4%
Intersection Sight Distance	280’	280’	445’	170’
Stopping Sight Distance	155’	155’	200’	80’

Street Design Standards - Expressway Section



	Expressway
Design/Posted Speed	60/55
Suggested ADT	60,000 - 80,000
Clear Zone	30'
Right of Way Width	300'
Pavement Width (pavement mat)	2 – 40'-60'
Number of Lanes	4 - 6
Lane Widths	12'
Shoulder Width (Ext., excluding C&G)	8' or12'
Shoulder Width (Int, excluding (C&G)	4' or12'
Median	28' Swale
Curb & Gutter Type (required)	NA
Sidewalk Requirement (required)	NA
Bicycle Accommodations	NA
Tree Lawn Width	NA
10' Utility Corridor	NA
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 67
Signalized Intersection Frequency	1 Mile
Unsignalized Intersection Frequency	1 Mile
Access Distance to Cross Street (Minimum)	NA
Vertical Alignment	AASHTO
Horizontal Alignment Radius	3150' w 6% Super of 8% Max Table
Grade (Min-Max)	1% - 4%
Intersection Grade	1% - 2%
Intersection Sight Distance	CDOT Design - 2018
Stopping Sight Distance	CDOT Design - 2018

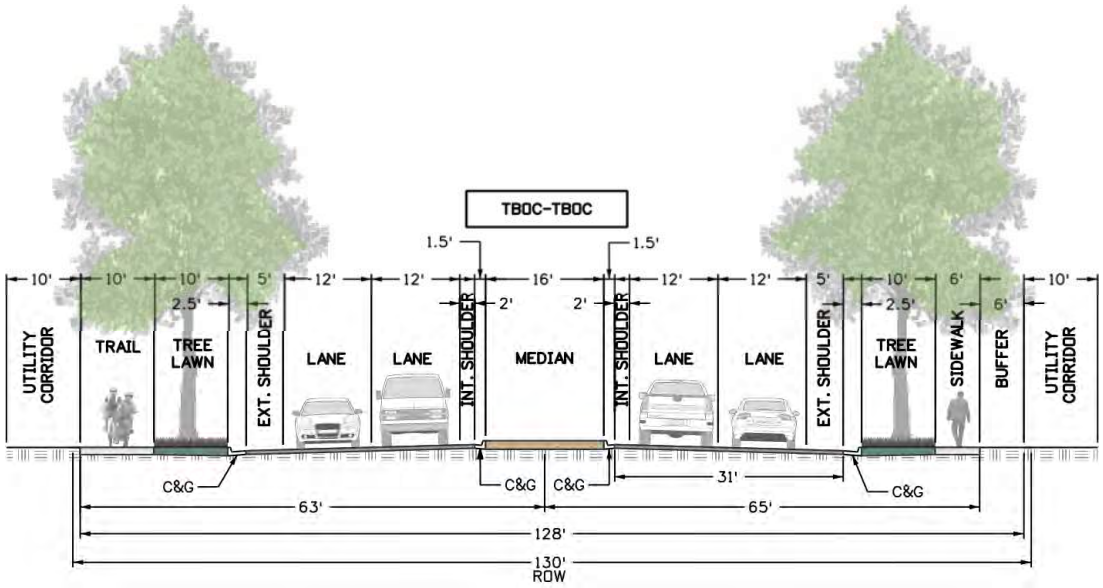
Street Design Standards – Major Arterial Section



	Major Arterial
Design/Posted Speed	50/45
Suggested ADT	25,000 - 60,000
Clear Zone	
Right of Way Width	170'
Pavement Width (pavement mat)	2 – 44'
Number of Lanes	6
Lane Widths	12'
Shoulder Width (Ext., excluding C&G)	2-6' Multi-Use
Shoulder Width (Int, excluding (C&G)	
Median	28' - TBC to TBC
Curb & Gutter Type (required)	Type 1 Type 3 (median)
Sidewalk Requirement (required)	6' Detached (on one side)
Bicycle Accommodations	10' Off-Street Trail (on other side)
Tree Lawn Width	10'
10' Utility Corridor	10'- from back of sidewalk
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 67
Signalized Intersection Frequency	½ Mile
Unsignalized Intersection Frequency	½ Mile
Access Distance to Cross Street (Minimum)	115'
Vertical Alignment	AASHTO
Horizontal Alignment Radius	930' *
Grade (Min-Max)	1% - 4%
Intersection Grade	1% - 3%
Intersection Sight Distance	555'
Stopping Sight Distance	425'

* Minimum Radius based upon 4% superelevation unless noted otherwise.

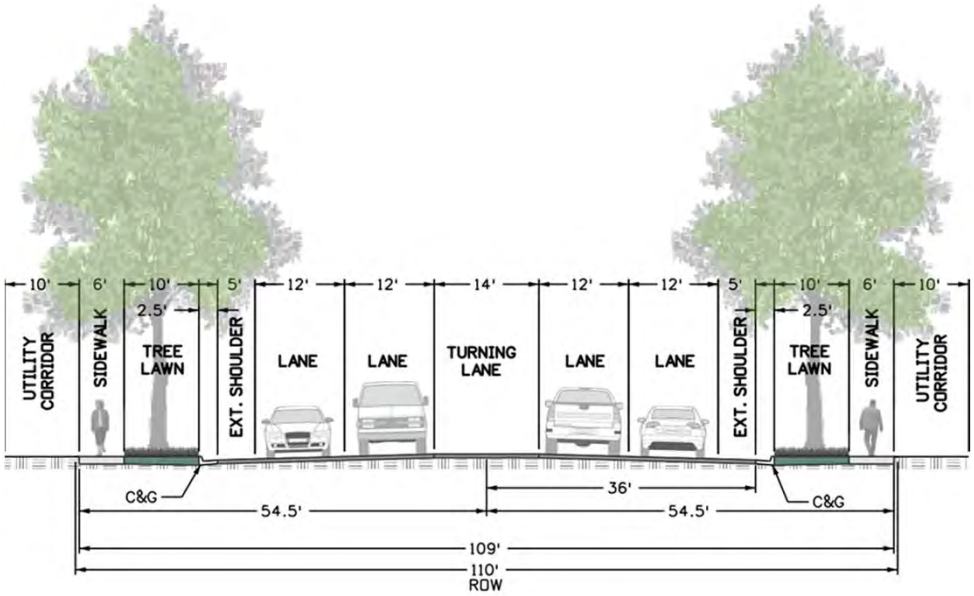
Street Design Standards – Arterial Section



	Arterial
Design/Posted Speed	50/45
Suggested ADT	10,000 - 25,000
Clear Zone	
Right of Way Width	130’
Pavement Width (pavement mat)	2 – 31’
Number of Lanes	4
Lane Widths	12’
Shoulder Width (Ext., excluding C&G)	2-5’ Multi-Use
Shoulder Width (Int, excluding (C&G)	
Median	16’ - TBC to TCB
Curb & Gutter Type (required)	Type 1 Type 3 (median)
Sidewalk Requirement (required)	6’ Detached (on one side)
Bicycle Accommodations	10’ Off-Street Trail (on other side)
Tree Lawn Width	10’
10’ Utility Corridor	10’- from back of sidewalk
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 67
Signalized Intersection Frequency	½ Mile
Unsignalized Intersection Frequency	½ Mile
Access Distance to Cross Street (Minimum)	115’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	930’ *
Grade (Min-Max)	1% - 4%
Intersection Grade	1% - 3%
Intersection Sight Distance	555’
Stopping Sight Distance	425’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

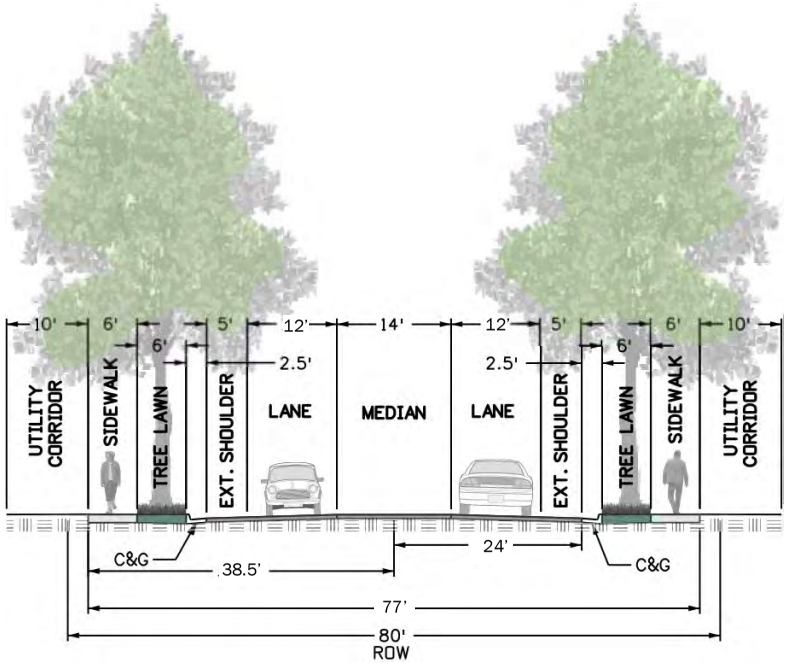
Street Design Standards – Minor Arterial Section



	Minor Arterial
Design/Posted Speed	45/40
Suggested ADT	5,000 - 10,000
Clear Zone	
Right of Way Width	110’
Pavement Width (pavement mat)	72’
Number of Lanes	5
Lane Widths	12’
Shoulder Width (Ext., excluding C&G)	2-5’ Multi-Use
Shoulder Width (Int, excluding (C&G)	
Median	NA
Curb & Gutter Type (required)	Type 1
Sidewalk Requirement (required)	2- 6’ Detached
Bicycle Accommodations	Multi-Use Shoulder
Tree Lawn Width	10’
10’ Utility Corridor	10’- from back of sidewalk
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 67
Signalized Intersection Frequency	½ Mile
Unsignalized Intersection Frequency	¼ Mile
Access Distance to Cross Street (Minimum)	115’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	750’ *
Grade (Min-Max)	1% - 4%
Intersection Grade	1% - 3%
Intersection Sight Distance	445’
Stopping Sight Distance	305’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

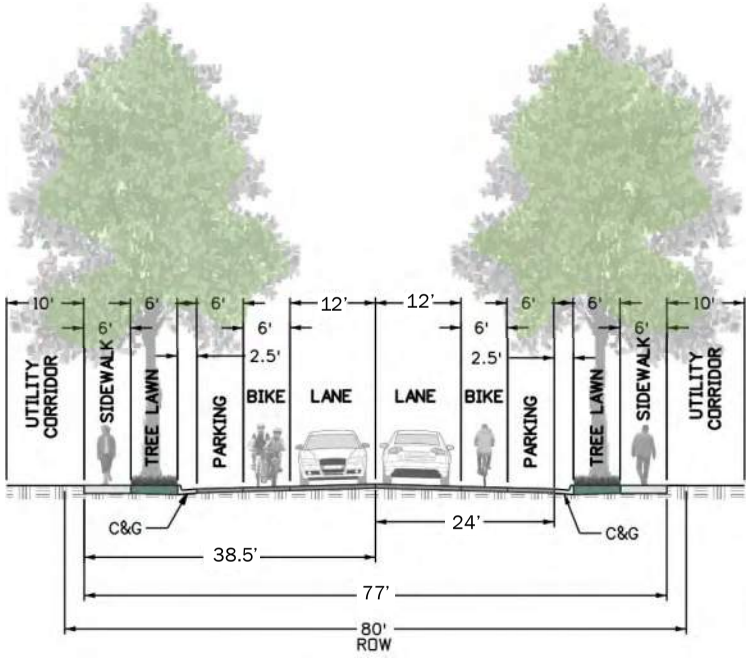
Street Design Standards – Collector Section



	Collector
Design/Posted Speed	40/35
Suggested ADT	3,000 - 5,000
Clear Zone	
Right of Way Width	80’
Pavement Width (pavement mat)	48’
Number of Lanes	3
Lane Widths	12’
Shoulder Width (Ext., excluding C&G)	2-5’ Multi-Use
Shoulder Width (Int, excluding (C&G)	
Median	Painted – 14’
Curb & Gutter Type (required)	Type 1
Sidewalk Requirement (required)	2- 6’ Detached
Bicycle Accommodations	Multi-Use Shoulder
Tree Lawn Width	6’
10’ Utility Corridor	10’- from back of sidewalk
Alley Driveway Setback	NA
Parking	No
Design Vehicle	WB 50
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	600’
Access Distance to Cross Street (Minimum)	75’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	550’ *
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 3%
Intersection Sight Distance	445’
Stopping Sight Distance	200’

* Minimum Radius based upon 4% superelevation unless noted otherwise.

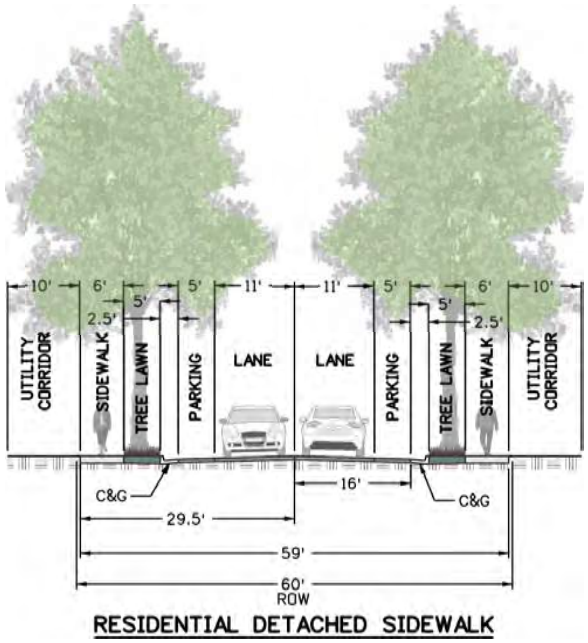
Street Design Standards – Minor Collector Section



	Minor Collector
Design/Posted Speed	40/35
Suggested ADT	1,500 - 3,000
Clear Zone	
Right of Way Width	80'
Pavement Width (pavement mat)	48'
Number of Lanes	2
Lane Widths	12'
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	
Median	NA
Curb & Gutter Type (required)	Type 1
Sidewalk Requirement (required)	2-6' Detached
Bicycle Accommodations	6' Bike Lanes
Tree Lawn Width	6'
10' Utility Corridor	10'- from back of sidewalk
Alley Driveway Setback	NA
Parking	Yes; 2-6'
Design Vehicle	WB 50
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	600'
Access Distance to Cross Street (Minimum)	75'
Vertical Alignment	AASHTO
Horizontal Alignment Radius	550' *
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 3%
Intersection Sight Distance	445'
Stopping Sight Distance	200'

* Minimum Radius based upon 4% superelevation unless noted otherwise.

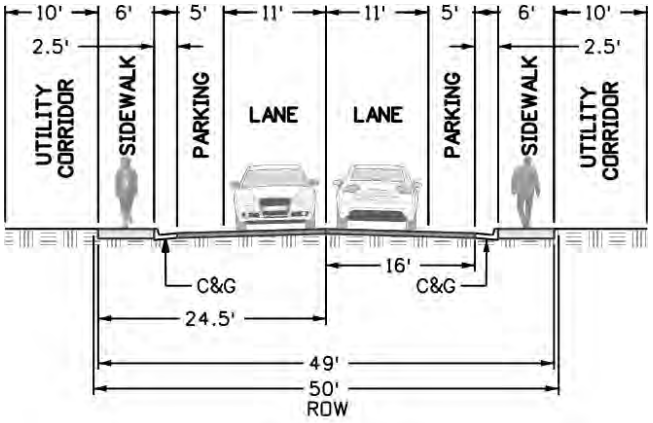
Street Design Standards – Residential Detached Sidewalk Section



RESIDENTIAL DETACHED SIDEWALK

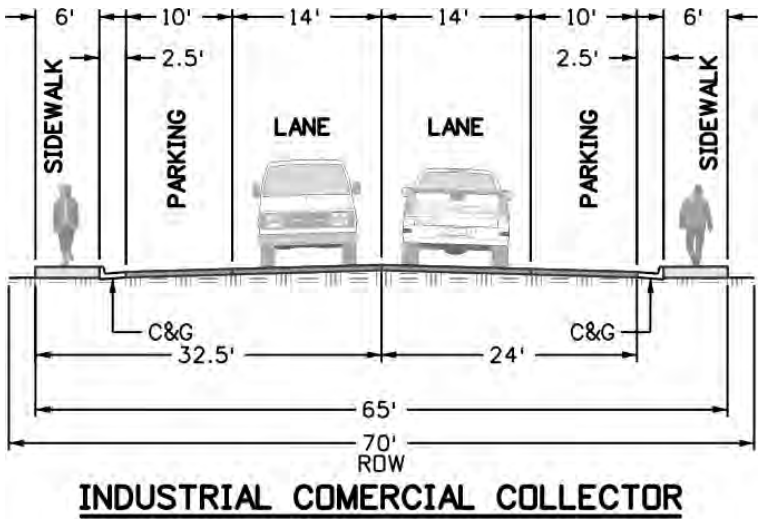
	Major Arterial
Design/Posted Speed	30/25
Suggested ADT	300 - 1,500
Clear Zone	NA
Right of Way Width	60’
Pavement Width (pavement mat)	32’
Number of Lanes	2
Lane Widths	11’
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	NA
Median	NA
Curb & Gutter Type (required)	Type1/Type5
Sidewalk Requirement (required)	2-6’ Detached
Bicycle Accommodations	No
Tree Lawn Width	5’
10’ Utility Corridor	10’ from back of sidewalk
Alley Driveway Setback	NA
Parking	Yes; 2 – 5’
Design Vehicle	SU 30
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	300’ Max
Access Distance to Cross Street (Minimum)	25’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	200’
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 4%
Intersection Sight Distance	280’
Stopping Sight Distance	155’

Street Design Standards – Residential Attached Sidewalk Section



	Major Arterial
Design/Posted Speed	30/25
Suggested ADT	300 – 1,500
Clear Zone	NA
Right of Way Width	50’
Pavement Width (pavement mat)	32’
Number of Lanes	2
Lane Widths	11’
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	NA
Median	NA
Curb & Gutter Type (required)	Type1/Type5
Sidewalk Requirement (required)	2-6’ Attached
Bicycle Accommodations	No
Tree Lawn Width	NA
10’ Utility Corridor	10’ from back of sidewalk
Alley Driveway Setback	NA
Parking	Yes; 2 - 5’
Design Vehicle	SU 30
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	300’Max
Access Distance to Cross Street (Minimum)	25’
Vertical Alignment	AASHTO
Horizontal Alignment Radius	200’
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 4%
Intersection Sight Distance	280’
Stopping Sight Distance	155’

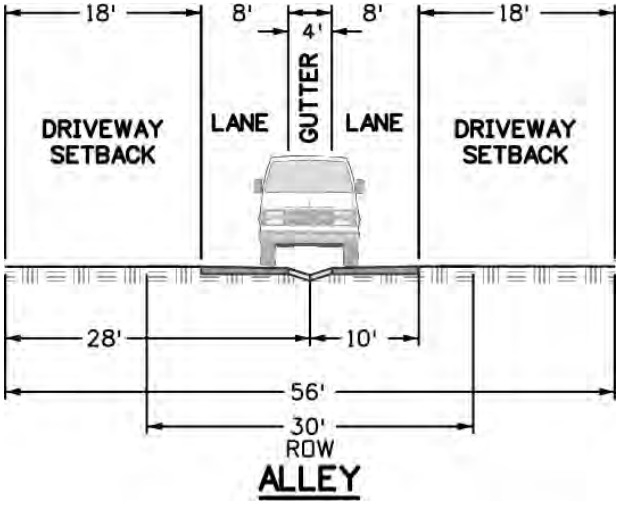
Street Design Standards – Commercial/Industrial Section



INDUSTRIAL COMERCIAL COLLECTOR

	Commercial/Industrial
Design/Posted Speed	30/25
Suggested ADT	--
Clear Zone	10'
Right of Way Width	70'
Pavement Width (pavement mat)	48'
Number of Lanes	2
Lane Widths	14'
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	NA
Median	NA
Curb & Gutter Type (required)	Type 1
Sidewalk Requirement (required)	2-6' Attached
Bicycle Accommodations	No
Tree Lawn Width	NA
10' Utility Corridor	NA
Alley Driveway Setback	NA
Parking	Yes; 2 – 10'
Design Vehicle	WB 67
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	600'
Access Distance to Cross Street (Minimum)	75'
Vertical Alignment	AASHTO
Horizontal Alignment Radius	200'
Grade (Min-Max)	1% - 6%
Intersection Grade	1% - 3%
Intersection Sight Distance	445'
Stopping Sight Distance	200'

Street Design Standards – Alley Section



	Alley
Design/Posted Speed	--
Suggested ADT	--
Clear Zone	NA
Right of Way Width	30'
Pavement Width (pavement mat)	20'
Number of Lanes	2
Lane Widths	10'
Shoulder Width (Ext., excluding C&G)	NA
Shoulder Width (Int, excluding (C&G)	NA
Median	NA
Curb & Gutter Type (required)	Inverted Cross Pan
Sidewalk Requirement (required)	NA
Bicycle Accommodations	NA
Tree Lawn Width	NA
10' Utility Corridor	NA
Alley Driveway Setback	18' from edge of asphalt
Parking	Allowed only on 18' driveways
Design Vehicle	SU 30
Signalized Intersection Frequency	NA
Unsignalized Intersection Frequency	½ Adjacent Street Length
Access Distance to Cross Street (Minimum)	NA
Vertical Alignment	AASHTO
Horizontal Alignment Radius	85'
Grade (Min-Max)	1% - 8%
Intersection Grade	1% - 4%
Intersection Sight Distance	170'
Stopping Sight Distance	80'

Costs and Funding Strategies

Cost Opinion Assumptions

- Costs are total program costs and include: Construction, Design Engineering, and Construction Engineering
- Costs are based on current year and have not been escalated for future years.
- Costs assume full reconstruction of existing roadways that require expansion.
- Cost Summary includes all improvements shown in the Transportation Master Plan including regional facilities.

Costs and Funding Strategies

Cost Eligibility/Responsibility Breakdown:

- Regional Facilities Costs - $676 M over the next 20-60 years
  - State/Federal Eligible - $586 M
  - EPC - $90 M (PPRTA/County Impact Fee)
- Fountain/EPC Facilities Costs: $380 M over the next 20-60 years
  - Undetermined Funding - $240 M
  - State/Federal Eligible - $140 M
- Private - $80 M

Next Steps

- Finalize Impact Fee
- Develop Funding Forecasts
  - State/Federal
  - Funding by Others/Private/Local
  - Impact Fees
- Prioritize Improvements/Phasing
- Monitor Implementation – 5-Year Cycle

Thank You

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