2040 DOUGLAS COUNTY TRANSPORTATION MASTER PLAN

June 2019

Douglas County
Transportation
Master Plan

2040 Douglas County Transportation Master Plan

Draft Report

June 2019

Submitted to

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LIST OF ACRONYMS AND ABBREVIATIONS

ADT	Average Daily Traffic
BUILD	Better Utilizing Investments to Leverage Development
CARA	Centennial Airport Review Area
CDOT	Colorado Department of Transportation
CIP	Capital Improvement Program
City	Aurora, Castle Pines, Littleton, Lone Tree
CMP	Douglas County 2040 Comprehensive Master Plan
County	Douglas County
CWIP	Countermeasure with Promise
DRCOG	Denver Regional Council of Governments
EA	Environmental Assessment
FCRTP	Fiscally Constrained Regional Transportation Plan
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
GID	General Improvement District
GIS	Geographic Information Systems
INFRA	Infrastructure for Building America
ITS	Intelligent Transportation Systems
LID	Local Improvement District
LOS	level of service
MVRTP	Metro Vision Region Transportation Plan
NCHRP	National Cooperative Highway Research Program
PEL	Planning and Environmental Linkages
ROD	Record of Decision
RTA	Regional Transportation Authorities
RTD	Regional Transportation District
SH	State Highway
TAC	Technical Advisory Committee
TAZ	traffic analysis zone
TDM	Transportation Demand Management
TIGER	Transportation Investment Generating Economic Recovery
TMP	Douglas County 2040 Transportation Master Plan
TOWN	Castle Rock, Larkspur, Parker

USDOT	United States Department of Transportation

SECTION I. INTRODUCTION AND CONTEXT

Purpose

The primary purpose of the 2040 Transportation Master Plan (TMP) is to define a long-range vision for a multimodal transportation system that offers more choices in how people travel in Douglas County (County). The County's Goal is to keep the traveling public safe, keep the traveling public and goods moving, and the economy growing. The TMP implements these goals through a comprehensive evaluation of the existing status of the road network, including congestion levels and physical condition; projections for future demands based on pending and projected growth and development trends; integration of recent transportation planning efforts including specialized studies and efforts by the County's municipalities and state and regional agencies. The TMP guides the County's capital improvement program and facilitates the effective investment of public funds for transportation system improvement. In order to achieve optimal results this plan is intended to be a living document allowing the County to update and adjust identified priorities as needed in the future.

The focus of this TMP is on unincorporated Douglas County. However, the transportation plans of the incorporated municipalities within the County have been integrated into the plan to ensure that a comprehensive and coordinated transportation system is provided.

Planning Process

The 2040 TMP takes much of its direction from the vision and objectives for transportation documented in the 2035 Douglas County Comprehensive Master Plan and builds upon the previous Douglas County 2030 Transportation Plan and other recent County plans, studies, regulations and guidelines.

This update to the TMP was managed by the Public Works Engineering Department with a Technical Advisory Committee (TAC) providing direction and review of the technical analysis and draft recommendations. The TAC included an interdisciplinary team of key staff from Public Works Engineering, Community Development, and Open Space and Natural Resources.

Agency outreach was conducted to receive input from local, regional, state and federal agency transportation stakeholders that involved representatives from:

- Cities of Aurora, Castle Pines, Lone Tree, and Littleton
- Colorado Department of Transportation (CDOT)
- Regional Transportation District (RTD)

- Towns of Castle Rock, Larkspur and Parker
- Highlands Ranch Metro District
- Denver Regional Council of Governments (DRCOG)
- Federal Highway Administration (FHWA)

Integrated Planning Effort

The TMP incorporates and builds upon the concepts and recommendations from previous planning efforts. The TMP update process development began with a review of Douglas County's existing plans, studies, standards, and guidelines. Local, regional and statewide plans and studies were also incorporated into the TMP foundation. It should be noted that the following documents remain as relevant plans and are referenced in this TMP as additional planning resources.

The TMP for Douglas County considers and builds upon information within the previous Douglas County 2030 Transportation Plan (adopted 2009), the most recent local agency transportation plans, recent studies conducted by the County and local agencies, and the most recent Denver Regional Council of Governments (DRCOG) Regional Transportation Plan (2040).

Douglas County 2030 Transportation Plan (2009)

The purpose of the Douglas County 2030 Transportation Plan was to define a long-range vision for a multimodal transportation system that offers choices in how people travel. The development of this plan was coordinated with neighboring jurisdictions, regional transportation related agencies, and reflected public input from several open house meetings. The 2030 Transportation Plan integrated all travel modes and known plans into a single document. This plan included corridor prioritization and improvement priorities for funding future transportation needs.

Douglas County 2040 Comprehensive Master Plan (pending 2019)

The Comprehensive Master Plan (CMP) serves as the foundation for future growth and development for land areas within the jurisdiction of the County. As stated within its Vision Statement, the CMP reflects, acknowledges and balances the common values, rights, and needs of all County residents and landowners, and honors and protects its diverse communities and resources. The desired community vision, as expressed in the CMP's policies, are intended to be used as a basis for a community conversation during development review and to support decision-makers in implementing, maintaining, and enhancing community values. The CMP addresses transportation within its Section 7(6), herein referenced as the "CMP transportation element." Consistent with the structure within other portions of the CMP, it identified community values for

transportation in a series of goals, objectives and policies. These are restated in a summarized form, below, while a full form may be found in Appendix A of this plan.

The CMP transportation element is complementary to and consistent with the purpose and intent of the TMP. Each plan seeks to support the same identified goals through the processes in which they operate. The TMP is a plan for building a safe, efficient, effective transportation system. The CMP transportation element directly adopts, in Goal 7-1, policies that establish the framework of the TMP. Additionally it considers the ways in which land use supports and influences transportation demands and the ways in which transportation systems impact social, economic, and environmental systems.

The CMP transportation element addresses diverse topics that are implemented primarily through the development review process. These are presented in a summarized form below.

CMP Section 6(7) POLICY SUMMARIES

The CMP Policy summary states are presented below provide an overview of the CMP Section 6:

Goal 7-1 provides for:

- Consistency between the TMP and local and regional plans
- Support and coordination of integrated travel modes
- Establish safety as a leading value, considering user needs and locations, and appropriate design solutions for all users
- Ensure development pays its fair share with development-required road construction consistent with the CIP; that developers construct or provide fair-share contributions to public capital improvements; that developers contribute to and mitigate impacts to off-site transportation infrastructure

CMP Goal 7-2 policy summaries:

- Identify and obtain sufficient right of way to support the needs of all users and modes
- Promote well-connected road network to minimize unnecessary driving
- Evaluate alternative design options prior to increasing road capacity by the addition of lanes
- Provide connections between existing and future subdivisions to shorten trip lengths and meet emergency service provider needs
- Minimize impacts to existing neighbors when planning major new roads
- Design local roads to serve the scale and purpose of the neighborhood including walkability, traffic calming, berming, and minimizes impacts to natural features including significant open space, riparian areas and wildlife crossings

CMP Goal 7-3 policy summaries:

- Support transit services funded by other agencies to meet demands of residents including older adults and people with disabilities
- Support land development concepts that support multimodal transportation and transit-oriented development in designated urban areas

CMP Goal 7-4 policy summaries:

- Coordinate transportation programs and policies to reduce traffic congestion, provide alternatives to automobile use and create healthier living environments. Examples include Transportation Demand Management (TDM) strategies such as, staggered works hours, telecommuting and ridesharing and incentives to businesses for such purposes
- Apply land use planning to reduce automobile use and improve access to community resources by including bicycle and pedestrian facilities; encouraging mixed use development, and promoting connectivity of roads and paths to reduce trip lengths

CMP Goal 7-5 policy summary:

- Achieve and coordinate land use planning to ensure future operations at Centennial Airport

CMP 7-6 policy summary:

- Achieve compatibility between the railroads, other transportation corridors and surrounding land uses, including reduction of at-grade crossings, and review of new land uses adjacent to rail lines for health and safety impacts

The transportation goals, objectives and policies within the CMP describe and organize community values for the transportation network that complement the purpose and high-level values of the TMP. Development of the TMP incorporates the CMP's vision for transportation through these goals, objectives, and policies.

Douglas County Transit Framework Plan (2016)

Guided by the Board of County Commissioner Goals, the Douglas County Department of Community Development provides supportive services to assist individuals and families with special needs and circumstances to remain safe, stable, and productive. The County conducted an initial Transit Demand Study in 2012.

The scope of the 2012 study concentrated on the transportation needs of the County's senior, disabled, and at-risk populations. The Douglas County Transit Framework Plan (2016) expanded upon the 2012 research by exploring the transportation patterns, habits, and needs of all Douglas County residents.

Douglas County Safety Study Final Report (2017)

This study conducted a comprehensive safety study across Douglas County with a focus on non-state highways and congested roadways, including consideration of rural highways with low traffic volumes. The study applied the Countermeasure with Promise (CWIP) approach: identifying effective countermeasures and then locating sites where it can be applied. The study ranked 50 potential safety projects based on benefit and cost ratio of the proposed safety improvements. The study focused on solving the following problems:

- Roadway departure crashes on rural segments (overturning, fixed object crashes, head-on and sideswipe opposite direction crashes)
- Approach turn (left turn opposite direction) crashes at intersections
- Broadside crashes at intersections
- Pedestrian and bicycle crashes at intersections

Castle Pines Comprehensive Plan (2016)

Castle Pines is located in the north-central portion of Douglas County. The Castle Pines Comprehensive Plan contains a primary goal for transportation to "Develop an efficient, multi-functional transportation network designed to ensure safety, promote user access, and facilitate cost-effective operations and maintenance." A sub-goal to this primary goal is to "Ensure consistency between the Douglas County 2030 Transportation Plan, Denver Regional Council of Governments (DRCOG) 2040 Regional Transportation Plan, and local transportation plans".

Town of Castle Rock Transportation Master Plan (2017)

The Castle Rock Transportation Master Plan (Castle Rock TMP) provides a guiding framework for the continued development and enhancement of the transportation network in Castle Rock. The purpose of this plan is to provide information about the existing transportation system and to analyze future transportation needs within the Town necessary to accommodate land use plans documented in the Town of Castle Rock Comprehensive Master Plan. The Castle Rock TMP considers a wide range of transportation network improvements necessary to continue the development of a complete transportation system that integrates all travel modes.

City of Lone Tree 2040 Transportation Master Plan (pending 2019)

The Lone Tree 2040 Transportation Master Plan (Lone Tree TMP) is being prepared collaboratively and concurrently with the Douglas County 2040 Transportation Master Plan. Information gathered, travel forecasts and transportation recommendations from the Douglas County TMP are being used to inform the Lone Tree 2040 TMP. The purpose of the Lone Tree 2040 TMP is to provide a guiding framework for the continued development and enhancement of the transportation network in Lone Tree. This TMP considers a

wide range of transportation network improvements necessary to continue the development of a complete transportation system that integrates all travel modes.

Town of Parker Transportation Master Plan (2014)

The Town of Parker Transportation Master Plan (Parker TMP) serves as the Town's long-range plan for travel and mobility. This Parker TMP provides policy guidance and articulates overall transportation policies, goals, strategies and priorities that were developed through a public process informed by technical expertise. The Parker TMP is used to align transportation decisions with future development impacts and to analyze how transportation capacity aligns with the community's land use and economic development goals.

DRCOG 2040 Metro Vision Region Transportation Plan (MVRTP) and 2040 Fiscally Constrained Regional Transportation Plan (2040 FCRTP)

DRCOG is the designated metropolitan planning organization for the Denver region. As such, it is federally charged with developing a long-range regional transportation plan. The MVRTP presents the region's vision for a multimodal transportation system needed to respond to future growth and demographic trends. This vision is not constrained by financial limitations. Incorporated within the MVRTP is the 2040 FCRTP, which addresses federal requirements for a long-range transportation plan (Chapter 5). Specifically, the 2040 FCRTP defines transportation elements and services to be provided over the next 25 years based on reasonably expected revenues.

Planning and Environmental Linkages (PEL) Report for the Douglas County US 85 Corridor Improvements Study (2016)

The purpose of this study was to identify necessary improvements to the US 85 Corridor to safely and efficiently meet the future multimodal travel demands on US 85 associated with the buildout of the Chatfield Basin in northwest Douglas County, anticipated to occur beyond the 2040 time frame. The need for the improvements is centered on the following factors: inadequate capacity; existing access concerns; safety concerns; and lack of multimodal facilities and connections.

2002 South I-25 Corridor, and US 85 Corridor Record of Decision Re-evaluation and Section 4(f) Evaluation: US 85 Highlands Ranch Parkway to C-470 (2017)

In May 2001, CDOT and FHWA completed the South I-25/US 85 Final Environmental Impact Statement (FEIS; CDOT 2001). A Record of Decision (ROD) was signed in 2002 that identified a Selected Alternative. The FEIS/ROD outlined a set of improvements to address transportation needs for a 2020 horizon year. Since then, Douglas County has helped provide funding to CDOT to combine with their own funding to design and construct six segments of the Selected Alternative inclusive of wildlife crossings from the FEIS/ROD. In addition, funding has been provided to improve sections of I-25.

The Purpose and Need elements for the Reevaluation were identical to those identified in the FEIS/ROD. The purpose of the FEIS/ROD was to develop a transportation solution that addresses transportation capacity inadequacies and safety problems in the US 85 corridor while avoiding or minimizing adverse environmental impacts.

I-25 PEL: Colorado Springs Denver South Connection (Underway)

As the only north-south route through Colorado, Interstate 25 connects major population centers, employment centers and provides access to recreational areas. The section of Interstate 25 between Monument and C-470 experiences congestion, high speeds, steeper grades, and wildlife contributing to severe crashes which have led to long periods of highway delays.

In August 2016, CDOT launched the Interstate 25 Planning and Environmental Linkages (I-25 PEL) study between Colorado Springs and south Denver to identify immediate and long-term solutions for this stretch of highway. The purpose of the I-25 PEL is to identify improvements along this corridor to enhance mobility, address specific safety concerns and provide increased travel reliability for the public. Through the I-25 PEL process, an identified early action item was the I-25 South Gap Project: Monument to south of Castle Rock.

I-25 South Gap Project Monument to south of Castle Rock (Under construction)

The proposed action for the I-25 South Gap Environmental Assessment (EA) is to add one travel lane in each direction between Monument and Castle Rock. This action will address the existing bottleneck and balance lane capacity with the adjoining 3-lane sections north and south along the corridor. The proposed action will also widen shoulders to provide safe space for disabled vehicles, maintenance, law-enforcement, and emergency response, as well as reduce wildlife/vehicle collisions.

Stakeholder Engagement and Community Outreach

Stakeholder engagement and community outreach informed the Douglas County 2040 TMP as to the community's transportation vision. Douglas County's broad and diverse geographical area and the diverse needs associated with the differing areas within the County required a wide net to gather input.

The stakeholder engagement and community outreach effort for the 2040 TMP was designed to discover needs, common interests, and values held by citizens and stakeholders in order to develop and understand the community's transportation vision. The following efforts were used to gather input and inform the public of opportunities to provide input:

- **Project web page** – A project page was created on the County's web site: www.2040DougCoTMP.com. This web page served to maximize public access to information and

allowed comments to be submitted at all times. The site provided information regarding the importance and reason for the planning process, background, and public engagement opportunities.

- County news blast – An introduction to the 2040 TMP planning effort and request for participation was sent to a large audience through various County communication channels, including breaking news, multimodal transportation, and personal and public safety subscription blast lists, released to news media, social media, and posted on the home page of the County's site.
- Public open house meetings – Three open house meetings were held to provide attendees an opportunity to review existing and forecasted conditions information and discuss their priorities with County traffic engineers, planners and project team members. These meetings were held in three different locations across the County as a convenience for residents: Highlands Ranch, Roxborough, and Parker.
- Online survey – An interactive online survey was available for approximately two months. Respondents were asked to select their top three priorities for improving transportation in the County, list locations in greatest need of improvements, and share additional comments regarding the existing transportation system and improvements most important to them. The survey included an interactive map commenting tool, and results of location-specific comments were then available to the County in Geographic Information System (GIS) format. The survey was mobile device-friendly, and provided a modern way for people to engage at their convenience. Over 500 people participated, resulting in over 600 specific comments, thousands of responses to questions, and a database of hundreds of interested parties for future use.
- Telephone Town Hall – A telephone town hall meeting was held to provide people an option to engage from the comfort of their own home. Thousands of calls were placed to registered voters across the County, which informed many people who otherwise would not have heard about the planning effort. Members of the public were also able to pre-register to participate in the call.

Utilizing all of these stakeholder engagement and community outreach opportunities provided the 2040 TMP with a strong understanding of the diverse needs associated with the differing areas within the County

SECTION II. EXISTING CONDITIONS

Data describing the transportation facilities and services in the County were developed through an evaluation of existing conditions of the transportation system. The following sections describe the existing roadway system, transit services, and bicycle and pedestrian facilities within unincorporated Douglas County. Transportation projects included in the current County Capital Improvement Program are presented to represent the committed roadway network. GIS was used to collect, store, refine, manipulate and present transportation facilities as well as the associated operational and descriptive attributes.

Roadway System

ROADWAY CLASSIFICATION

Urban and rural areas have fundamental different characteristics with regard to density of road networks, land use, and travel patterns. Consequently, roadway types are established within a functional classification system to reflect the diverse influences and characteristics of roads within Douglas County. The Douglas County Engineering Division has adopted a Functional Street Classification Plan (FSCP) based on projected traffic volumes, land use and expected growth levels. The FSCP incorporates the minimum design, technical criteria and specifications to be used for both urban and rural roadway facilities. This FSCP is documented in Chapter 4 of the Douglas County Roadway Design and Technical Criteria (https://www.douglas.co.us/documents/rwd-design-and-technical-criteria.pdf.

The designated streets addressed within applicable to this TMP include those with higher volumes and capacities, while the lower volume local street are not reflected. **Table 1** identifies the TMP roadway functional classification identified for both Urban and Rural areas.

Table 1: Roadway Functional Classification

ROADWAY CLASSIFICATION	
Urban Area	Rural Area
Urban Collector	Rural Collector
Minor Arterial	Rural Arterial (2 and 4 lanes)
Major Arterial (4 and 6 lanes)	

Urban Roadways

Urban Collector streets serve intermediate and short-distance travel. Collectors provide a lower level of mobility than arterials and operate at lower speeds. These roads connect local roads to arterials and may have direct access depending on the surrounding land use. Residential driveway access to Urban Collectors is prohibited

Minor Arterials are roads that serve moderate speed and traffic volumes over moderate distances. Access is restricted with spacing standards between intersections and limited direct property access. Minor arterials serve major traffic generators or large land areas and link collector streets with the major arterial roadways.

Major Arterials provide a high level of mobility at higher speeds for relatively long distances. Access is generally limited with an infrequent number of intersections and little or no direct property access, depending on the surrounding land use. Land uses adjacent to major arterials should generally be served by other network roadways and inter-parcel connections.

Rural Roadways

Rural Collector streets are the primary link between the local street system and arterials in the rural areas of the County. These facilities typically have higher speeds and longer trip lengths than collector streets in urban areas. Rural collectors may be miles long because of large parcels and a relatively sparse street network. Rural collector roads in the County are sometimes the only facilities available for access to dispersed rural land uses.

Rural Arterial Roadways provide connections to neighboring cities and between urban and rural areas. Most Rural Arterials serve a mix of rural-to-urban and farm-to-market traffic. In some cases rural arterials, especially in rural/urban fringe areas, accommodate significant amounts of urban-to-urban through-traffic during peak commuting time periods. This is not the intended function of the rural arterial designation and is often the result of congestion on urban arterials

Although not included within the Douglas County Rodway Design and Technical Criteria, interstate freeways, state highways and expressways serve Douglas County residents providing primarily long-distance travel between communities. State highways and expressways provide the greatest mobility, with strictly controlled access allowed only at interchanges. State highways/expressways also serve regional traffic, with access allowed primarily at major intersections.

Figure 1 displays the existing roadway functional classification and number of lanes on roadways within Douglas County.

MULTIMODAL FACILITIES AND SERVICES

Multimodal facilities and services provide opportunities to connect different modes of travel together to create a cohesive transportation system that moves people safely and efficiently. This section describes the existing conditions of alternative travel modes that are an important component of the TMP including, bicycle, pedestrian and transit. This multimodal system combines with the Intelligent Transportation System for the roadway network provides the full complement of transportation facilities, services and connections in Douglas County. Having a balanced multimodal system that considers pedestrian, bicycle, and transit and moves vehicles efficiently and moves vehicles efficiently through the use of an Intelligent Transportation System (ITS), significantly supports the transportation needs of the County's diverse users.

Bicycle and Pedestrian Facilities

Bicycling and walking provide healthy alternatives to the automobile for many types of trips. This active mode of transportation also assist the County in reducing congestion, improving air quality, and developing a more balanced transportation system by providing additional modal choices to more people. As shown in **Figure 2**, the existing bicycle and pedestrian transportation network consists of attached and detached sidewalks, on street bike lanes, and both paved and natural surface multi-use trails. This network serves a range of users for both commuter and recreational purposes. The regional trails connect cities within the County and provide access to major destinations and recreational opportunities. Much of the bicycle and pedestrian assets are located within more urban areas in the northern part of the County and adjacent to Cities and Towns such as Aurora, Castle Pines, Castle Rock, Littleton, Lone Tree and Parker.

Transit Services

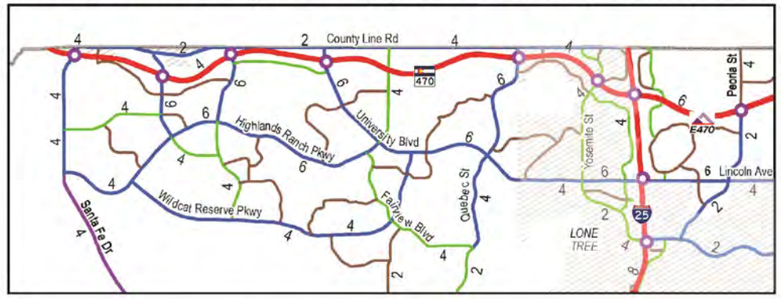
Existing transit service is provided by the Colorado Department of Transportation (CDOT), the Regional Transportation District (RTD), and local companies. As shown in **Figure 3**, CDOT offers regional bus service (Bustang) along I-25.The Bustang South Line operates between Colorado Springs and Denver but there are currently no stops within Douglas County.RTD maintains local bus routes throughout northern Douglas County and regional routes which extend as far south as the Pinery. The RTD Southeast light rail line extends into Douglas County with stops at the County Line station near Park Meadows Mall and at the Lincoln Station.

RTD recently completed construction of a 2.3 mile extension of the Southeast light rail line providing service past Lincoln Station to the new RidgeGate Station. Full service to the RidgeGate Station began May 2019.

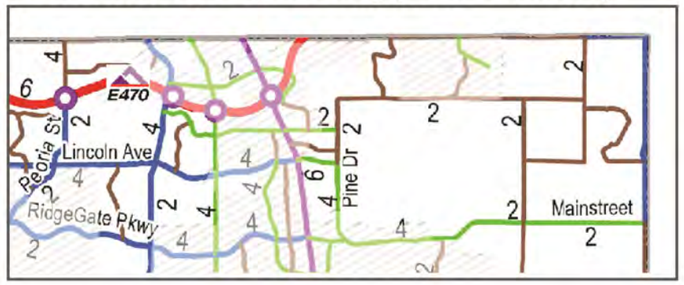
As part of the transit demand analysis conducted by the County in 2016, I-25 is expected to continue to serve as the regional backbone for transit services. However, the plan also identified the need for point-to-point transit services between the major cities within the County.Increasing traffic congestion and an aging population may make intra-city transit more viable in the future.In addition, both CDOT and RTD continue to

evaluate the need for increased and enhanced transit services such as high-speed rail and Bus Rapid Transit (BRT).

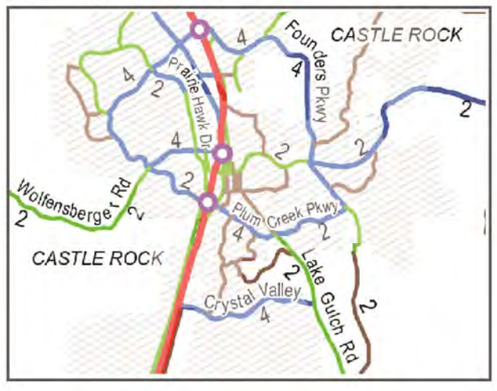
Inset 1 Northwest Douglas County (Highlands Ranch, Littleton, and Lone Tree)

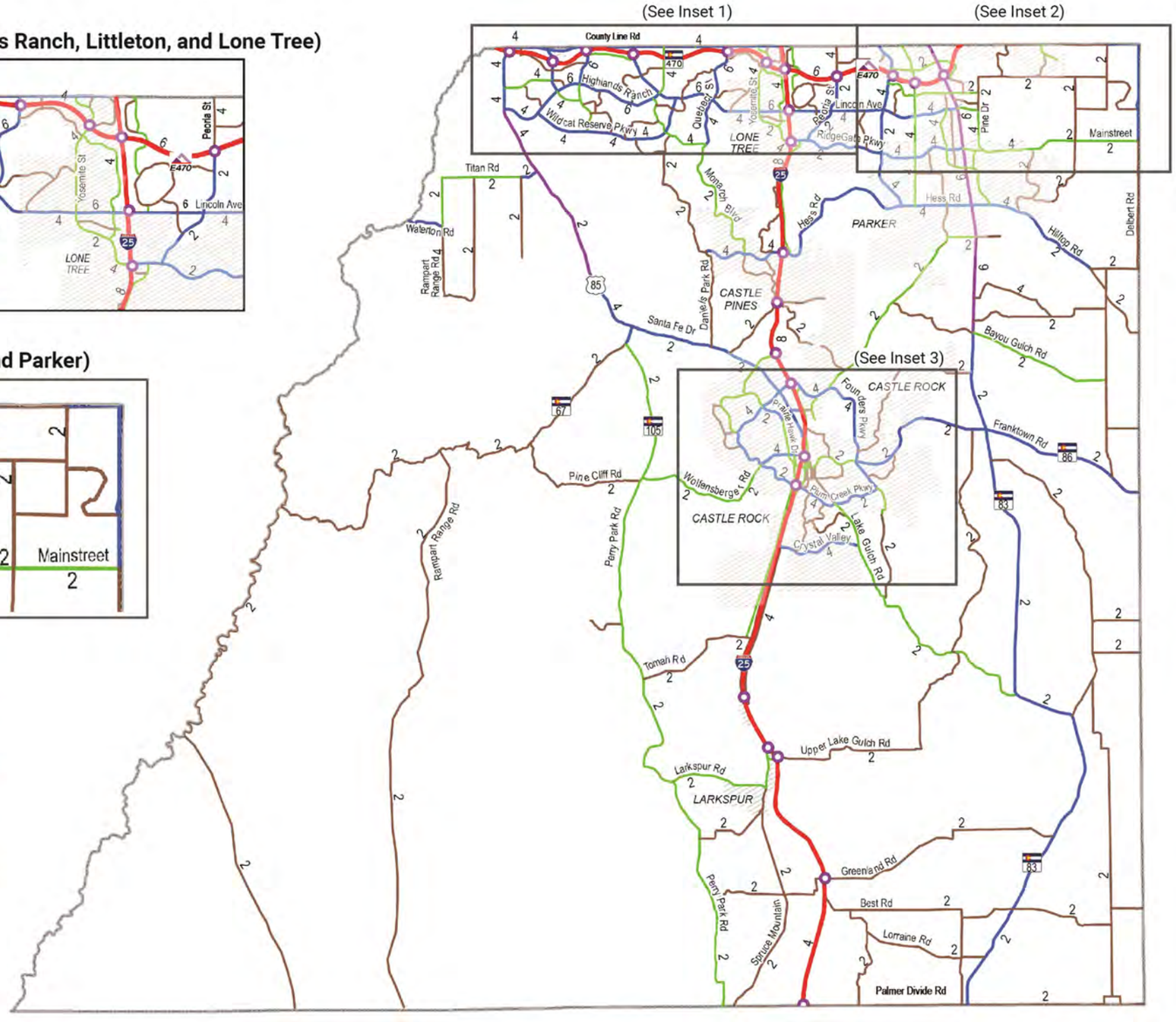


Inset 2 Northeast Douglas County (Aurora and Parker)



Inset 3 Castle Rock





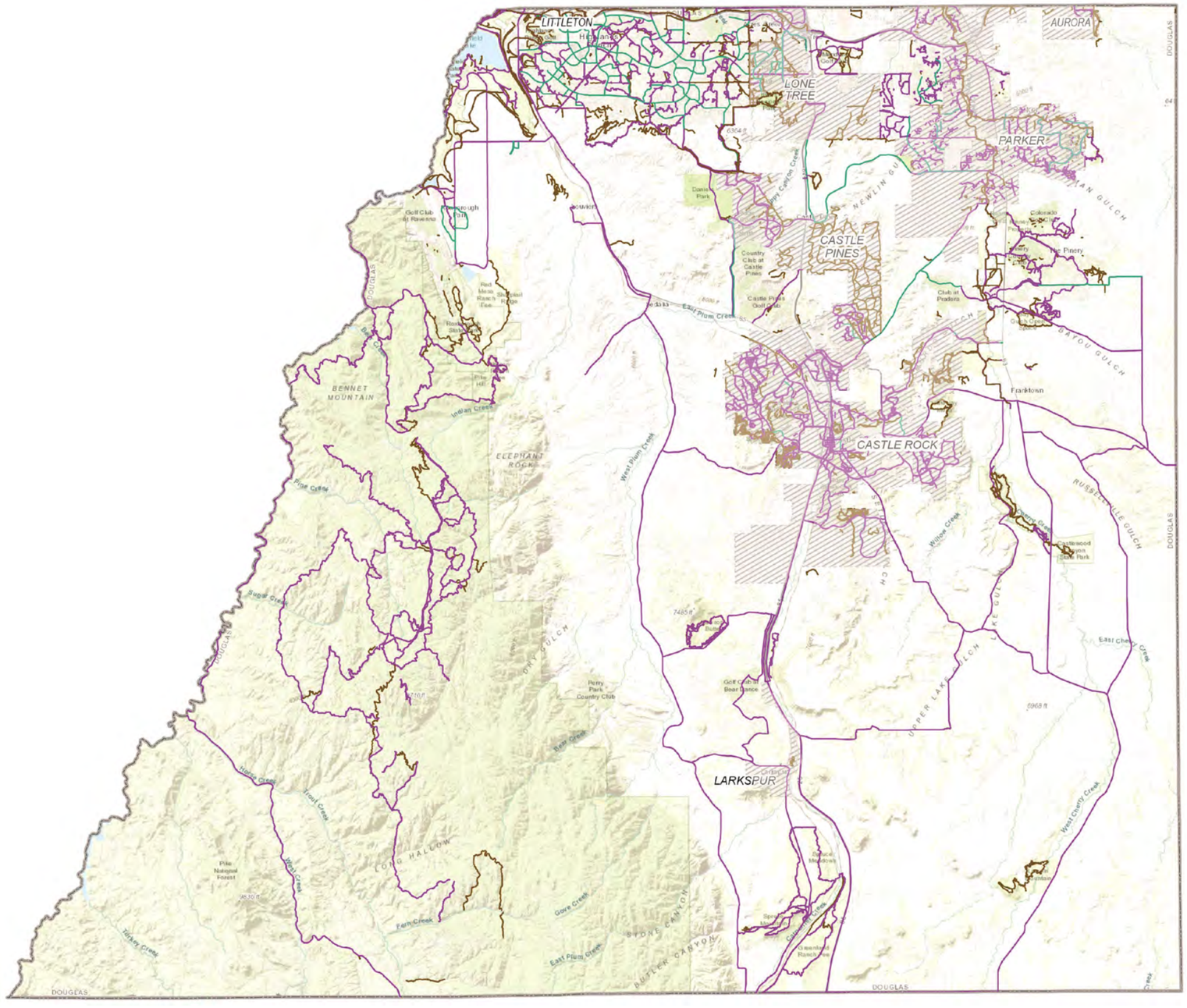
Legend

- Interchange
- Freeway
- Expressway
- Major Arterial
- Minor Arterial
- Collector
- # Number of Lanes

Note:
Roadway specifics for Town of Castle Rock, Town of Parker and Lone Tree can be found in the documents referenced on page xx.

0 2.5 5 miles

Figure 1: Existing Roadway Network



Legend

- On-Street Bike
- Park Trail
- Shared Use

Existing bike lanes and trails shown include:

- City of Aurora Trails
- Castle Pines Trails
- Castle Rock Trails
- City of Lone Tree Bike Lanes
- City of Lone Tree Trails
- Colorado Front Range Trails
- Douglas County Bike Routes
- Douglas County Trails
- DRCOG Trails

N

0 2.5 5 miles

Figure 2: Existing Bicycle and Pedestrian Facilities

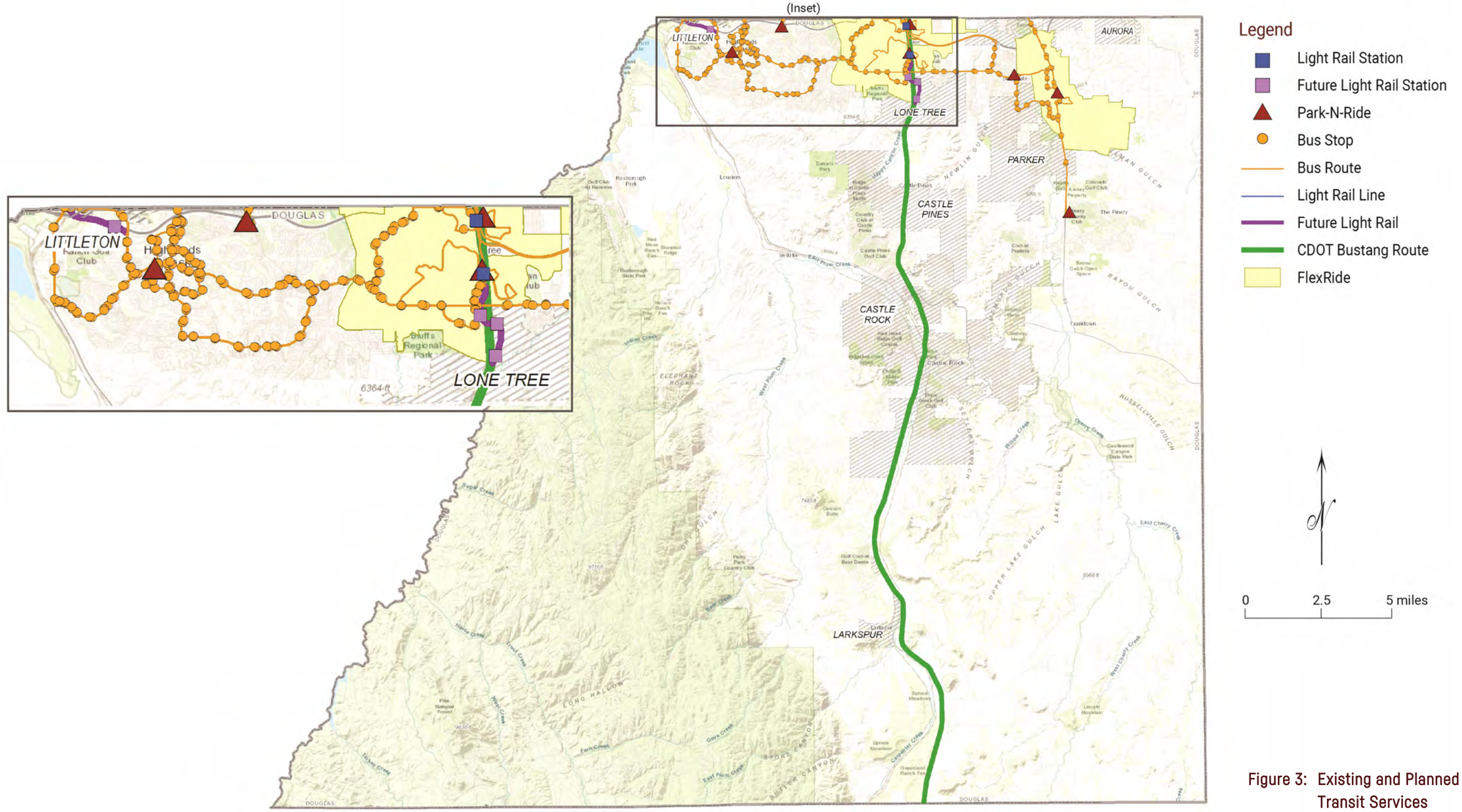


Figure 3: Existing and Planned Transit Services

In addition to the routes offered by CDOT and RTD, there are specialized transit services within the County. These are too numerous to list, but often consist of private entities providing targeted services for the disabled and elderly populations as well as call and ride services like those offered by the Town of Parker. Another such service is the Lone Tree link which strives to establish "last mile" problem by connecting major activity centers such as the entertainment district, Charles Schwab campus, and Sky View Hospital to the light rail transit center at Lincoln Avenue via a circulator bus.

Intelligent Transportation Systems (ITS)

The County maintains a traffic management center with communication to all County traffic signals and network devices. Many of the traffic signals are connected via fiber optics which improves speed and reliability. There are also cameras for traffic detection and incident response, Bluetooth devices for travel times, and variable message signs for traveler information. The commitment to travelers in Douglas County does not end at our boundaries. Douglas County partners with CDOT and neighboring jurisdictions on regional traffic signal timing and traffic operations.

SECTION III. TRAVEL DEMAND DEVELOPMENT

Methodology Overview

A travel demand model for Douglas County was prepared as part of the TMP update. The model provides for the input of land use for each planning horizon, along with an assumed roadway network, to assess the travel demand placed on the transportation system. It provides output in the form of estimated traffic volumes on the roadway system. The Douglas County travel demand model is used for County roadway planning project prioritization as part of capital programming.

The DRCOG Focus 2.1 Travel Demand Model was used to develop daily vehicular forecasts on the primary roadway facilities throughout Douglas County. The DRCOG model encompasses the entire Denver region, including Douglas County. This travel demand model develops forecasts based on the density and location of households and employment; existing and planned roadways and how much traffic they can accommodate, as well as the associated transit system.

The evaluation first focused on the horizon year 2040 network needs to ensure a complete and integrated roadway system will develop over time. Following the development of the 2040 road network, phased road networks were developed for the 2020 and 2030 time horizons. As part of the travel demand model development base year 2015 travel demand forecasts were compared to actual ground counts to validate the accuracy of the travel demand model. The validation of the travel demand model is discussed in **Appendix A**.

LAND USE

The County horizon year land use inputs utilized for the TMP were developed and provided by Douglas County. The household and employment information was allocated by the DRCOG traffic analysis zone (TAZ) structure identified for the County. **Table 2** below provides the Douglas County total households and employment projections for 2020, 2030 and 2040.

Table 2: Total Households and Employment Projections for 2020, 2030, and 2040

HORIZON	TOTAL HOUSEHOLDS	TOTAL EMPLOYMENT
2020	128,878	123,406
2030	167,315	168,535

HORIZON	TOTAL HOUSEHOLDS	TOTAL EMPLOYMENT
2040	201,962	220,276

Appendix C provides a tabular summary of the land use inputs used for the horizon years along with a map displaying the TAZ structure. The DRCOG socio-economic horizon year forecasts for the rest of the Denver metropolitan region were utilized for the TMP.

ROAD NETWORK DEVELOPMENT SUMMARY

A primary goal for the TMP is to develop implementable roadway recommendations for unincorporated Douglas County. These recommendations reflect integration with local agency and jurisdiction plans. Keeping this in mind the development of the Douglas County 2040 transportation network required an extensive review of the past planning documents summarized in Section I, as well as coordination with the local agencies and jurisdictions.

DRCOG URBANSIM MODEL SUMMARY

UrbanSim is a simulation system for supporting planning and analysis of urban development, incorporating the interactions between land use, transportation, the economy, and the environment. It is designed to explore the effects of infrastructure and development constraints, as well as other policies on community outcomes, such as motorized and non-motorized accessibility, housing affordability, greenhouse gas emissions and the protection of open space and environmentally sensitive habitats. The forecasts from DRCOG's UrbanSim model are used as inputs to the regional travel demand model, Focus 2.1.

The Focus 2.1 model estimates are the result of "tour", or linked-trip generation, while the former Compass model trip generation assumed either home- or work-based origins. The Focus 2.1 model also has time-of-day and development pattern sensitivity, includes consideration of non-motorized modes and walk access to transit, and integrates complex person level decision making.

The Douglas County 2020, 2030 and 2040 land use forecasts were provided to DRCOG for UrbanSim post processing that resulted in socioeconomic datasets that were incorporated into the respective travel demand model.

ROADWAY CAPACITIES

Roadway capacity can be defined as the maximum traffic volume that a roadway can carry at a desired level of service (LOS). Roadway capacity as a planning utility depends on the anticipated future functional classification of the roadway coupled with the available number of through lanes.

Planners and engineers use a measurement called Level of Service (LOS) to gauge the adequacy of transportation facilities. Similar to grades in school, LOS is scored using letters from A to F, where A represents the best conditions and F represents failure. **Table 3** identifies and defines the vehicular levels of service.

Table 3: Vehicular Level of Service

Vehicular Level of Service (LOS)	Definition
LOS A	Free-flow vehicular traffic; vehicles moving freely.
LOS B	Stable flow with the ability of vehicles to choose speed and/or lane.
LOS C	Stable flow; however monitoring of speed and lane changes of vehicles is required.
LOS D	Stable flow with restricted speed and ability to change lanes.
LOS E	Unstable flow at or near capacity; experiencing increased delays and reduced traveler reliability.
LOS F	Unstable flow; stop and go conditions.

Developing and maintaining a safe transportation system to address present and future demands the County established LOS thresholds of LOS D for arterial and collector roadways in urban and semi-urban areas and LOS C for arterial and collector roadways in rural areas. This LOS criteria provides safety and mobility on the County roadways and ensures operations do not become unstable

Average daily traffic volume capacities of roads, by classification, were estimated based on typical traffic flow characteristics and capacities per hour per lane that have been documented in various regional and local agency studies throughout the United States. **Table 4** presents the daily capacities, by roadway classification, based on the number of lanes and area type.

Table 4: Recommended Traffic Volume Thresholds

	Urban		
	Number of Lanes		
Roadway Classification	2	4	6
Roadway Classification	LOS D	LOS D	LOS D
Collector	12,000	20,000	
Arterial			
Minor Arterial		30,000	
Major Arterial		40,000	55,000
Expressway		50,000	70,000

Not currently identified in Douglas County Roadway Standards.

1. Collector (4-lane)
2. Expressway

In order to maintain acceptable levels of service for both the urban and rural areas of the County the forecasted daily traffic volumes for each roadway segment were compared to the designated daily roadway capacities for the associated roadways to determine if they were exceeding and/or approaching the designated County LOS threshold. Roadways segments with traffic volumes that are forecasted to exceed and/or approach the County LOS threshold were identified for phased improvement.

TRAVEL FORECASTS AND NETWORK PERFORMANCE

The purpose of the TMP travel forecasts are to produce future average daily traffic volumes for the use planning and design. These forecasts are utilized to determine the need of a project, number of roadway lanes needed and for alternatives analyses.

To ensure the highest level of accuracy of the travel forecasts, the procedures documented in the national Cooperative Highway Research Program Report 765 (NCHRP Report 765) were utilized to compare the base year model outputs to counted traffic volumes. Future travel forecasts for each planning horizon were adjusted accordingly, resulting in 2020, 2030 and 2040 ADT volumes.

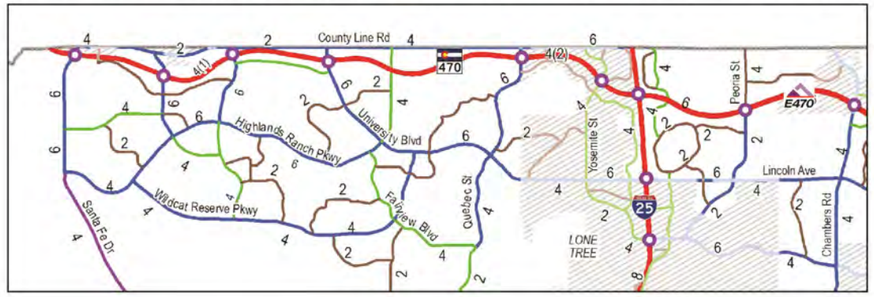
Horizon Years 2020 and 2030

Utilizing the land use data provided by Douglas County and base road network assumptions as reviewed by Douglas County and local agency and jurisdiction staff, future average daily traffic forecasts were prepared for the 2020 and 2030 planning horizon years. The base 2020 and 2030 roadway networks are illustrated in **Figures 4** and **5.**

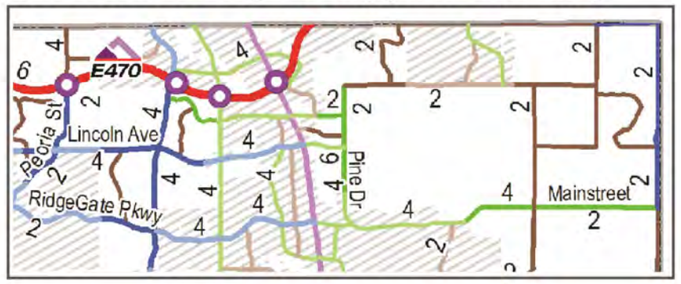
A network performance evaluation was conducted for each of the planning horizon years by comparing the forecasted traffic volumes to the LOS daily traffic threshold volume for the corresponding roadway functional classifications. This process allowed the determination where ADT volumes would be approaching and/or exceeding the specified LOS threshold volume for the corresponding roadway type. **Figures 6** and **7** illustrate the resultant ADT volumes and roadway network performance evaluation for the 2020 and 2030 horizon years, respectively.

The 2020 and 2030 horizon year forecast development and network performance evaluation were used to help facilitate a determination of when specific roadway improvements would be needed as part of the implementation of the recommended 2040 roadway network.

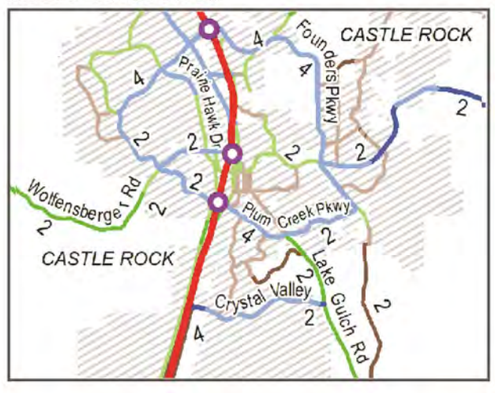
Inset 1 Northwest Douglas County (Highlands Ranch, Littleton, and Lone Tree)

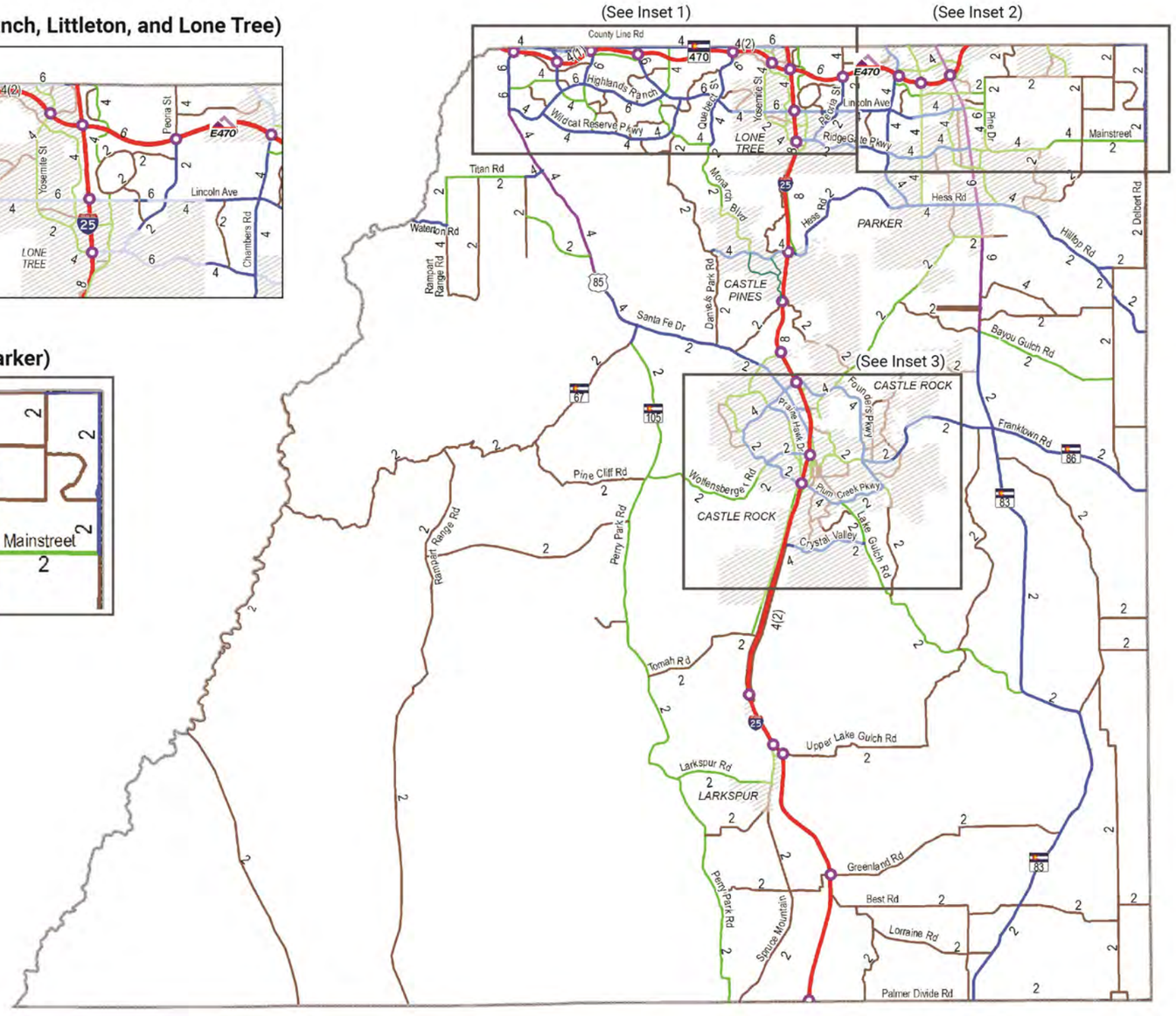


Inset 2 Northeast Douglas County (Aurora and Parker)



Inset 3 Castle Rock





Legend

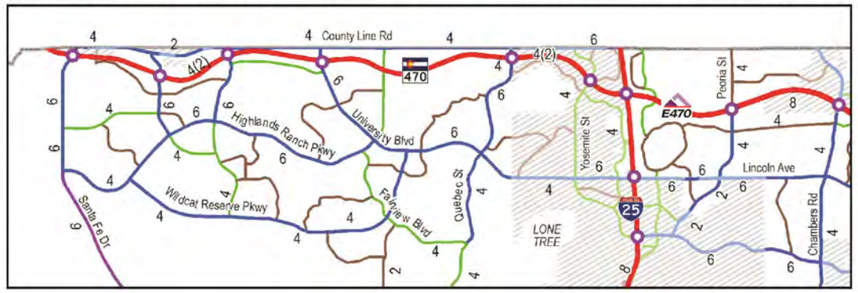
- Interchange
- Freeway
- Expressway (4-6 lanes)
- Major Arterial (2-6 lanes)
- Minor Arterial (2-4 lanes)
- Collector (2-4 lanes)
- # Number of Lanes
- (#) Number of I-25 and C-470 Toll Lanes

N

0 2.5 5 miles

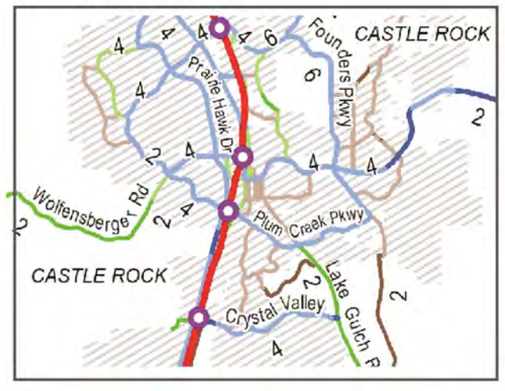
Figure 4: 2020 Roadway Network

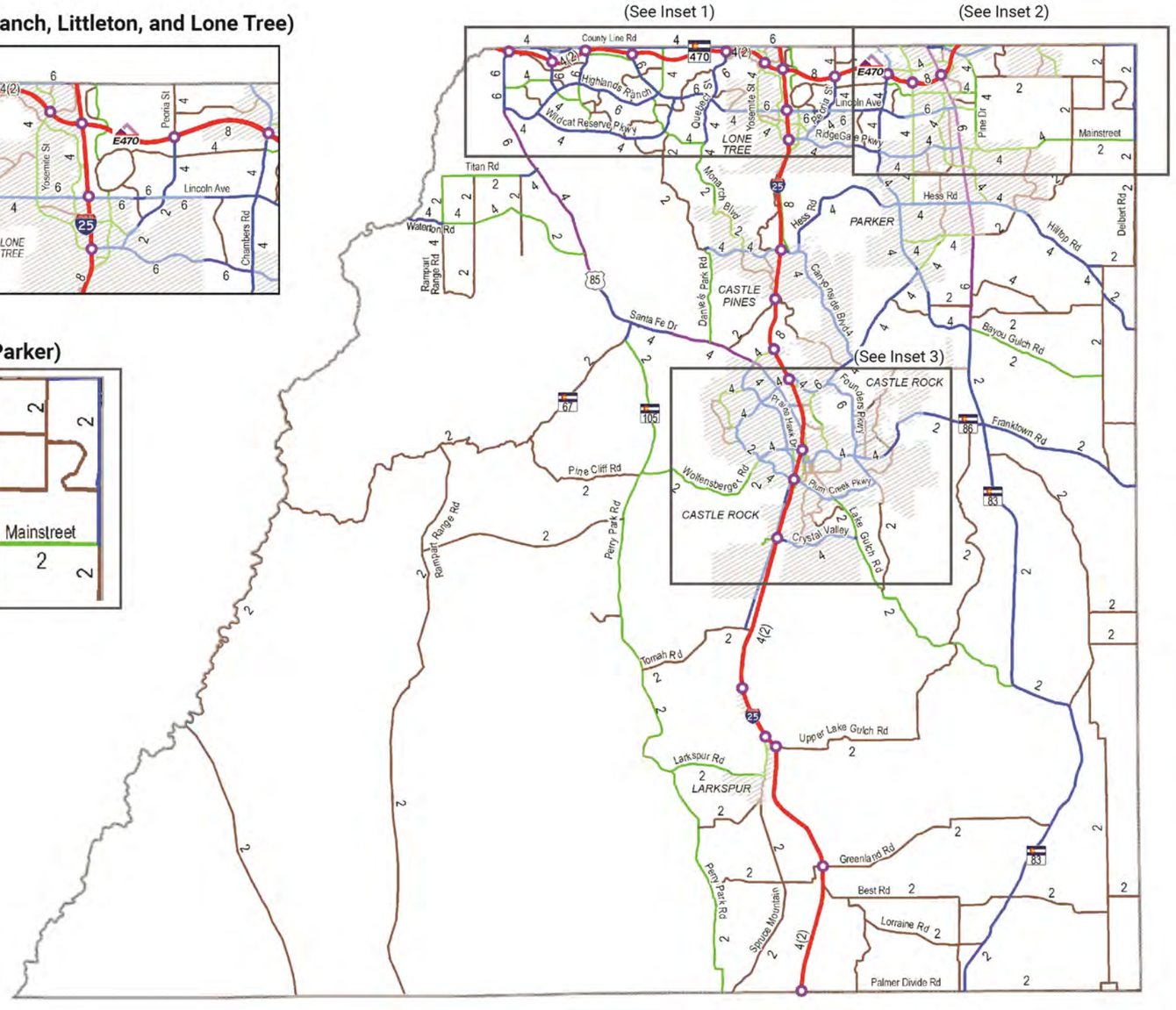
Inset 1 Northwest Douglas County (Highlands Ranch, Littleton, and Lone Tree)



Inset 2 Northeast Douglas County (Aurora and Parker)

Inset 3 Castle Rock





Legend

- Interchange
- Freeway
- Expressway (4-6 lanes)
- Major Arterial (2-6 lanes)
- Minor Arterial (2-4 lanes)
- Collector (2-4 lanes)
- # Number of Lanes
- (#) Number of I-25 and C-470 Toll Lanes

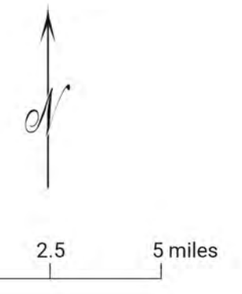
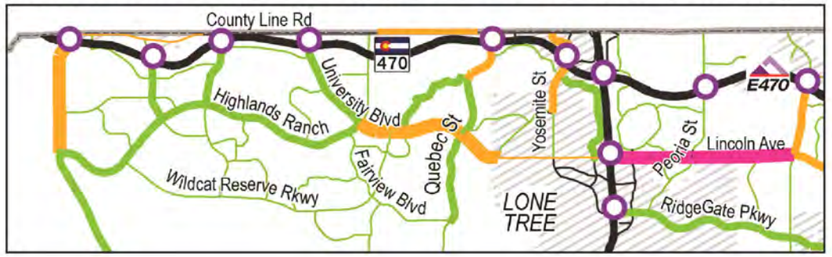
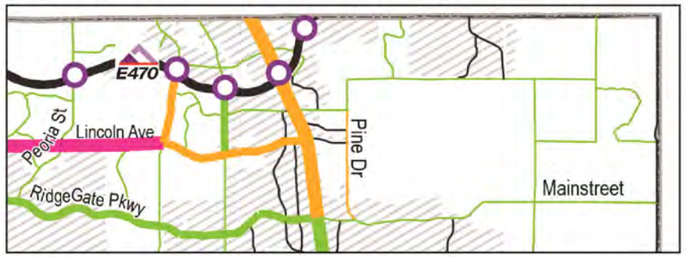


Figure 5: 2030 Roadway Network

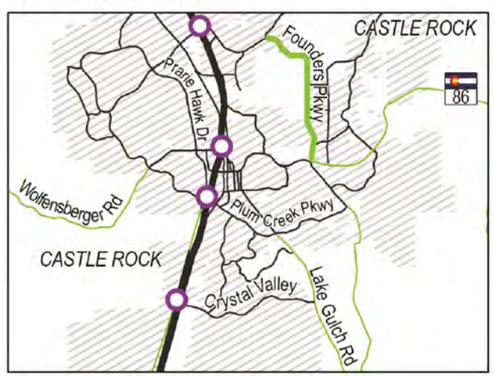
Inset 1 Northwest Douglas County (Highlands Ranch, Littleton, Lone Tree)

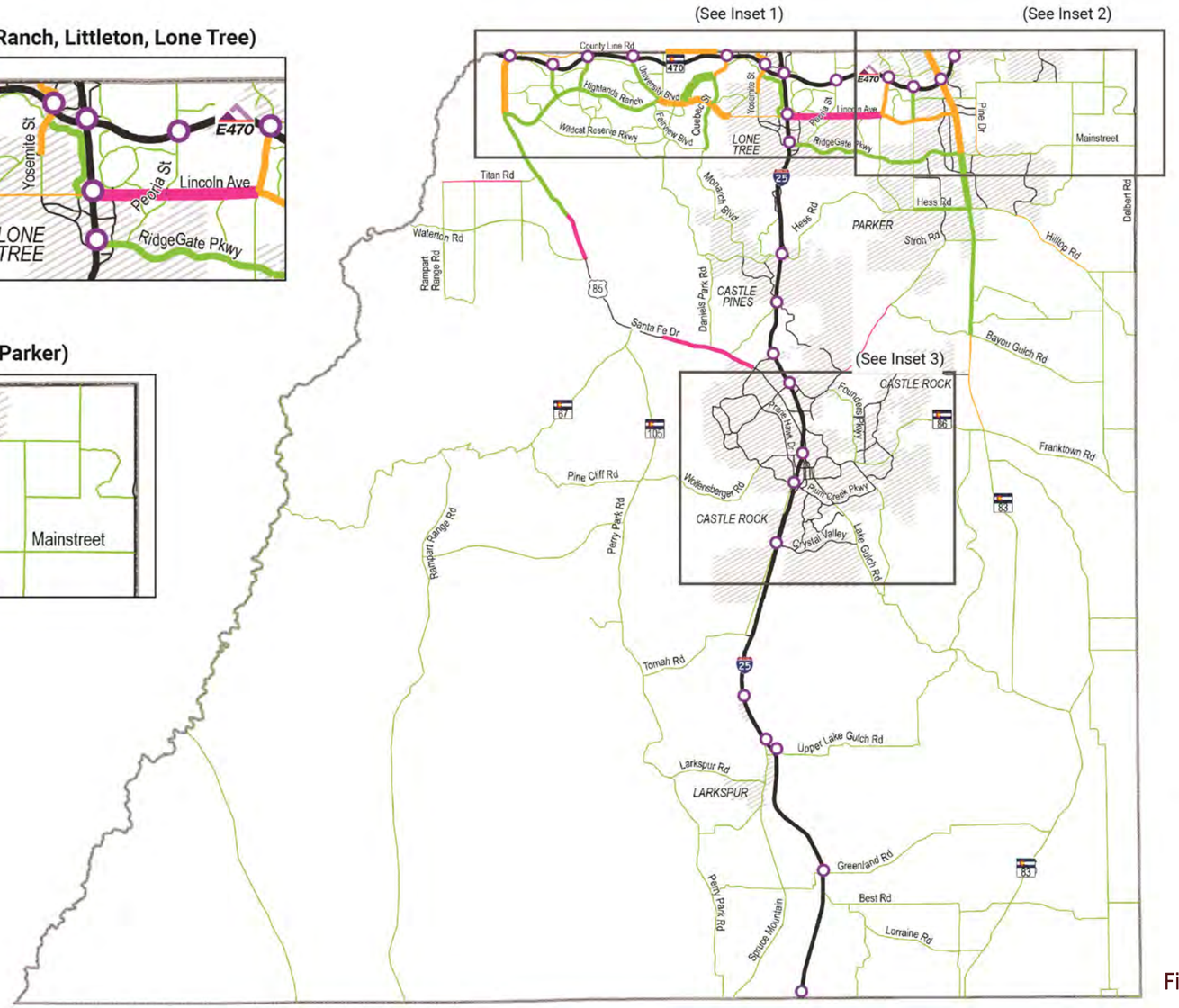


Inset 2 Northeast Douglas County (Aurora and Parker)



Inset 3 Castle Rock





Legend

- Interchange
- Forecasted ADT Exceeding LOS D ADT Threshold
- Forecasted ADT Approaching LOS D ADT Threshold
- Uncongested Forecasted ADT Volume

(See Figure 3 for 2020 Laneage)

Note: Freeway performance not shown

Lane Width Volumes

Note: Thicker lines indicate higher traffic volumes

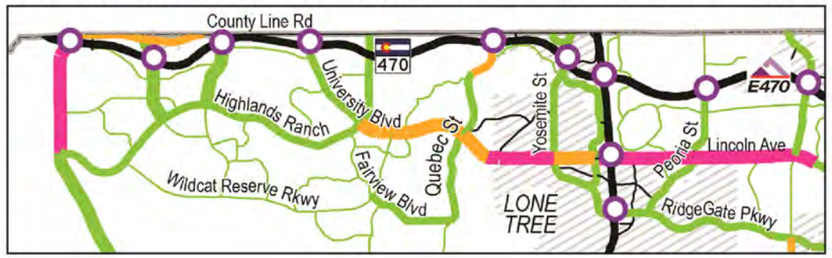
>40,000 | <40,000 to >20,000 | 0 to <20,000

N

0 2.5 5 miles

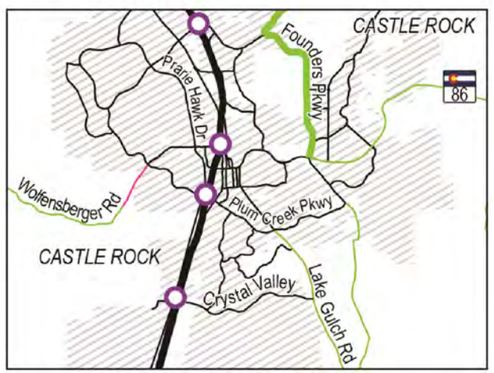
Figure 6: 2020 Average Daily Traffic (ADT) Volumes and Network Performance

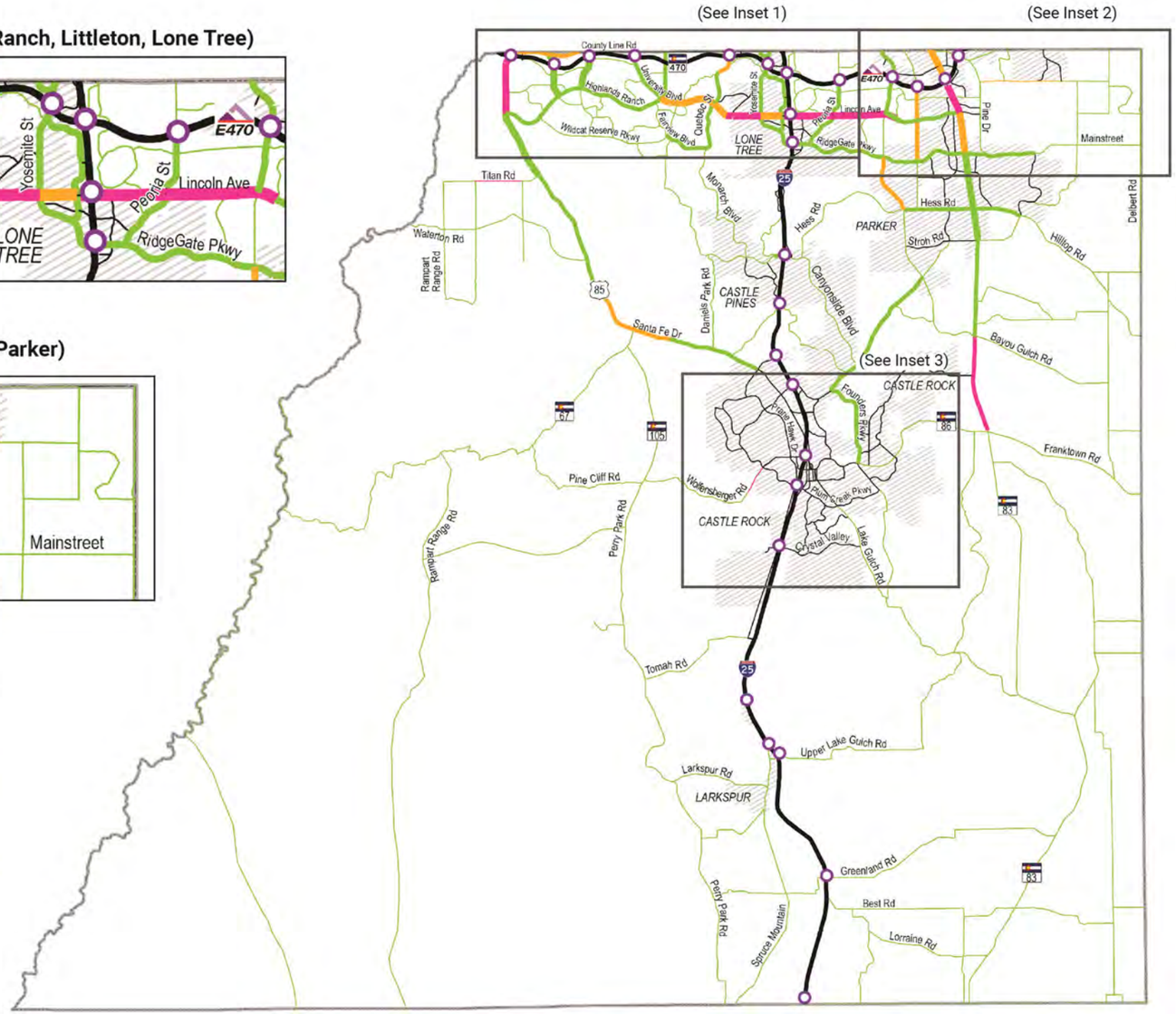
Inset 1 Northwest Douglas County (Highlands Ranch, Littleton, Lone Tree)



Inset 2 Northeast Douglas County (Aurora and Parker)

Inset 3 Castle Rock





Legend

- Interchange
- Exceeding LOS D ADT Threshold
- Approaching LOS D ADT Threshold
- Uncongested Forecasted ADT Volume

(See Figure 4 for 2030 Laneage)

Note: Freeway performance not shown

Lane Width Volumes
Note: Thicker lines indicate higher traffic volumes

>40,000
<40,000 to >20,000
0 to <20,000

N

0 2.5 5 miles

Figure 7: 2030 Average Daily Traffic (ADT) Volumes and Network Performance

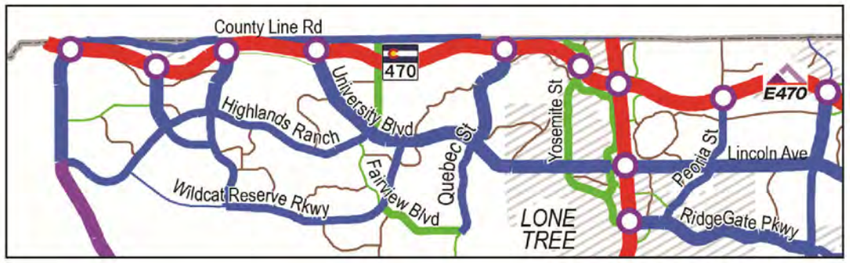
Horizon Year 2040

Horizon year 2040 traffic forecasts were developed followed by an initial network performance evaluation. This iterative process was conducted in order to identify the recommended 2040 roadway network to ensure that a complete and integrated roadway system can be implemented over time.

The 2040 daily traffic roadway forecasts were compared to the established daily roadway LOS threshold traffic volumes to determine the appropriate 2040 roadway laneage for the primary roadways within the County. This network performance evaluation process facilitated the development of the recommended Douglas County 2040 roadway system discussed in the following section.

The resultant 2040 daily traffic volumes shown in **Figure 8** depict the anticipated 2040 vehicular demand on the primary roadways within Douglas County. The 2040 forecast traffic volumes provide the basis for the standard 20-year planning horizon for major roadway improvements.

Inset 1 Northwest Douglas County (Highlands Ranch, Littleton, Lone Tree)



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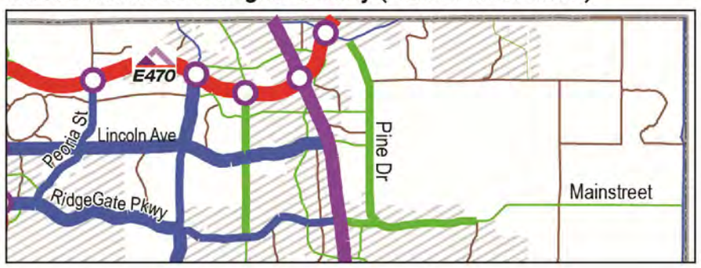
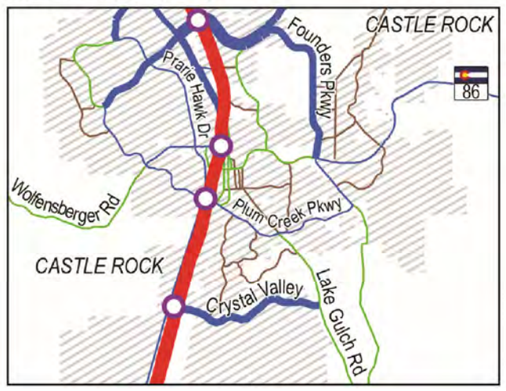
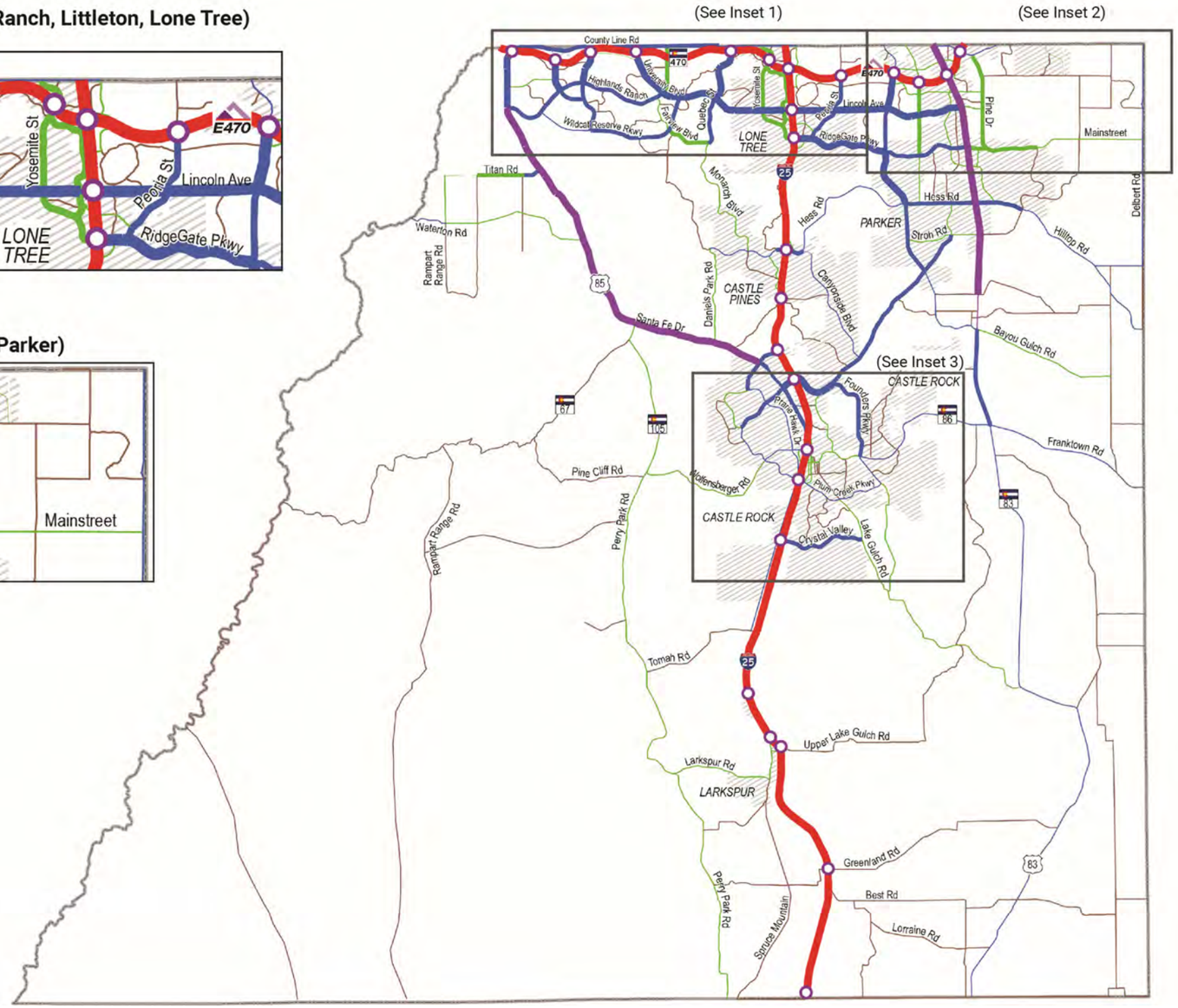


Inset 3 Castle Rock





Legend

- Interchange
- Freeway
- Expressway (4-6 lanes)
- Major Arterial (2-6 lanes)
- Minor Arterial (2-4 lanes)
- Collector (2-4 lanes)
- # Number of Lanes
- (#) Number of I-25 and C-470 Toll Lanes

Lane Width Volumes

Note: Thicker lines indicate higher traffic volumes

>40,000 | <40,000 to >20,000 | 0 to <20,000

N

0 2.5 5 miles

Figure 8: 2040 Average Daily Traffic (ADT) Volumes

SECTION IV. RECOMMENDED TRANSPORTATION SYSTEM PLAN

Once the transportation demand is known the recommended 2040 transportation system plan for Douglas County is developed, focusing on the unincorporated areas of the County. The recommendations include improvements for the roadway network, bicycle and pedestrian facilities and transit services as well as anticipated emerging trends likely to impact the TMP into the future. The provision of adequate facilities to satisfy the forecasted travel demand is an important consideration in the development of the recommended multimodal transportation system. The TMP provides an efficient transportation system that is integrated with local agency and jurisdiction transportation plans to provide Countywide connectivity.

Roadway System

The recommended roadway system identified in this TMP is a component of an integrated multimodal transportation network. The roadway system identified by the classification and laneage map presented in **Figure 9,** constitutes a system for meeting anticipated travel needs. In general, the recommended roadway component of the network is anticipated to meet Douglas County mobility thresholds and operating standards. Future roadway corridors will require continued monitoring and evaluation as the projected travel demand reaches LOS D traffic volume thresholds.

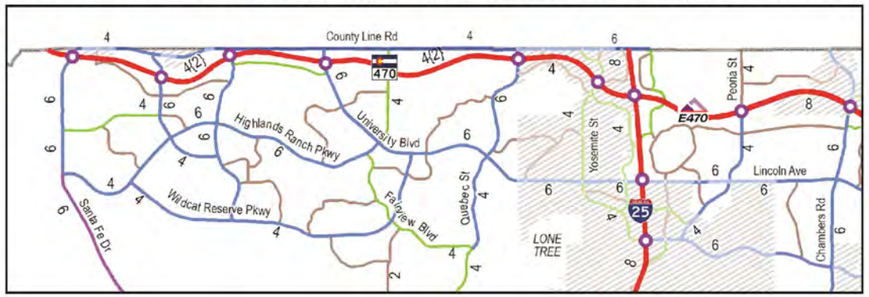
Evaluation of future roadway improvements to mitigate projected travel demand on an Urban Roadway may include:

- Enhancements to the cross street facilities in order to allow signal timing, and associated capacity to be maximized.
- Grade separation and/or alternative intersection concepts along urban corridors to increase intersection capacity, such as a continuous flow intersection or displaced left turn.

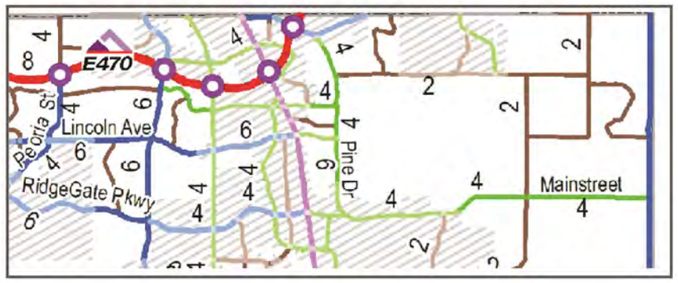
Evaluation of future roadway improvements to mitigate projected travel demand on a Rural Roadway may include:

- Shoulder improvements to improve traveler safety with the increase in recovery area
- Areas for passing slow moving vehicles
- Accommodating bicyclists
- Providing safe access to and from residential access points

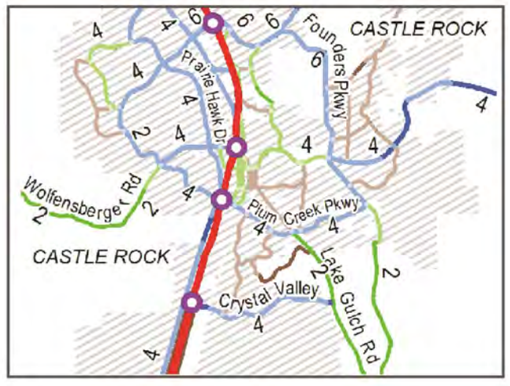
Inset 1 Northwest Douglas County (Highlands Ranch, Littleton, and Lone Tree)



Inset 2 Northeast Douglas County (Aurora and Parker)



Inset 3 Castle Rock



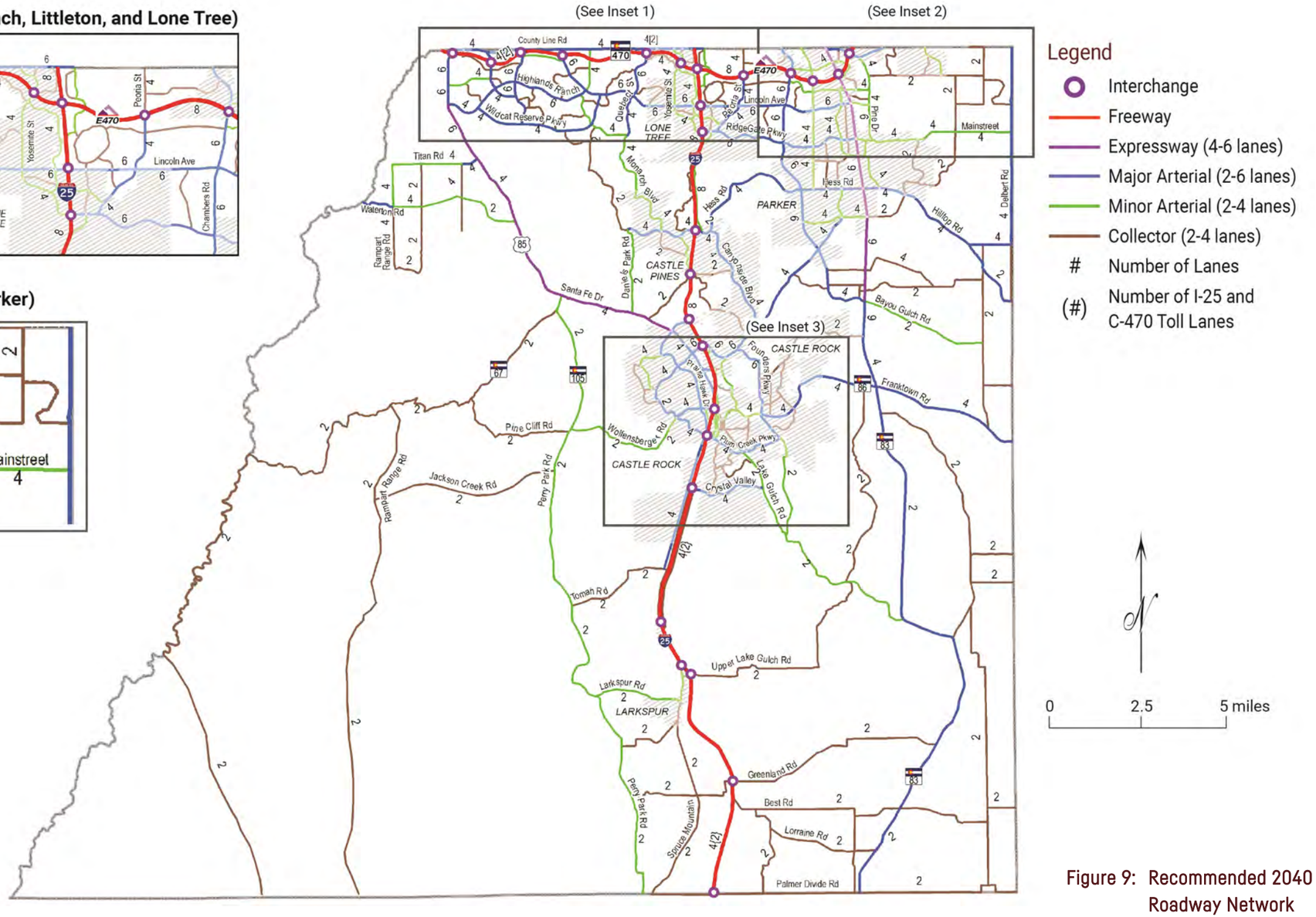


Figure 9: Recommended 2040 Roadway Network

Multimodal Facilities and Services

This section describes the proposed elements of the multimodal parts of the transportation master plan. Having a balanced multimodal system that considers pedestrian, bicycle, and transit, is an important component to the plan.

Bicycle and Pedestrian

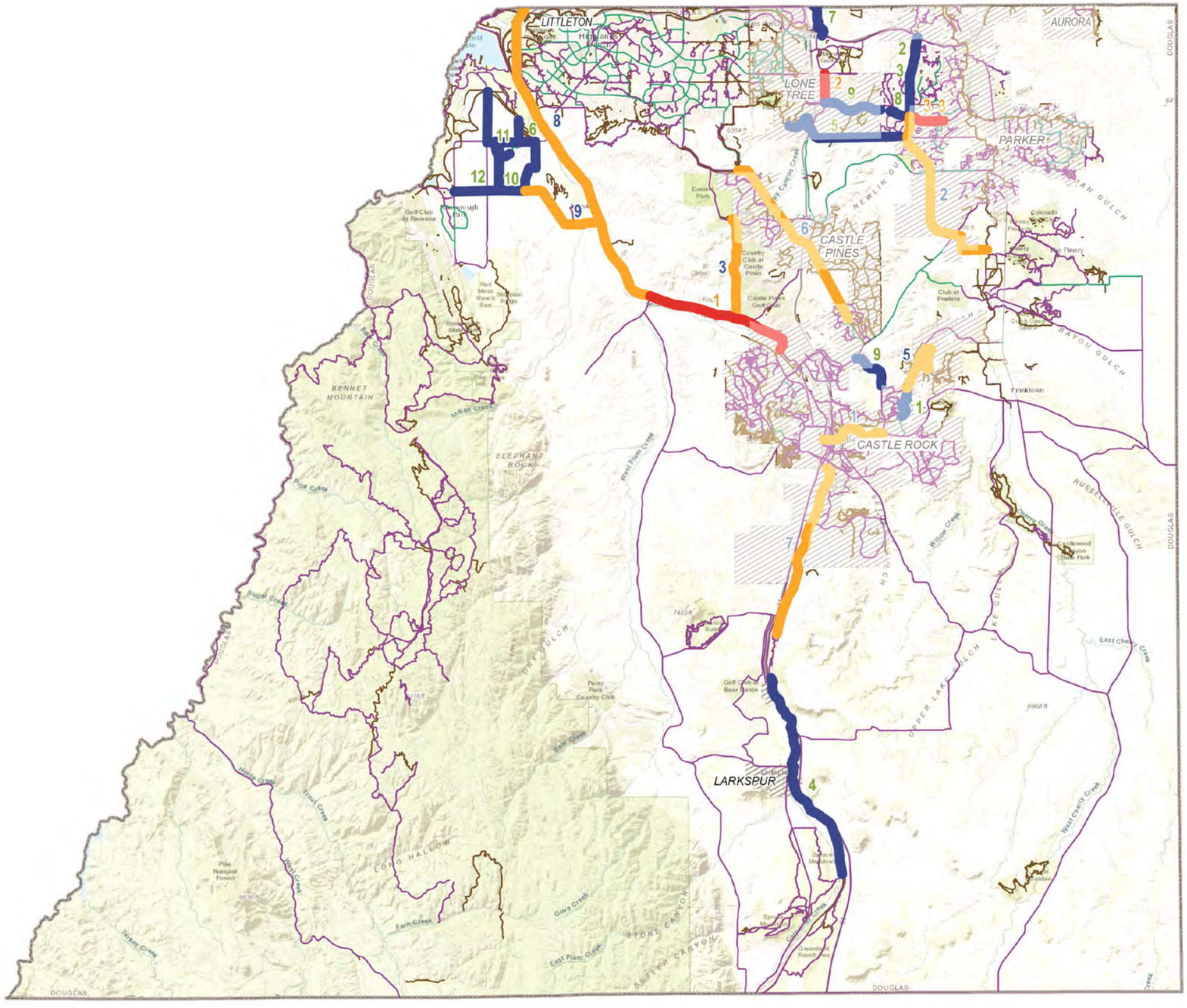
The County encourages bicycle and pedestrian travel as part of an active lifestyle and as a healthy commute alternative to the automobile.

To continue the expansion of the bicycle and pedestrian system, Douglas County will coordinate with state and local jurisdictions near the boundaries and look for opportunities to enhance the existing system and close gaps in regional trails. Citizen surveys have consistently indicated that Douglas County citizens are interested in trail connectivity, safety, and expansion. Table 5 describes bicycle and pedestrian facility enhancements identified by the County.

As shown in **Figure 10**, five (5) bicycle and pedestrian projects are planned for 2019, which will construct nearly fifteen (15) miles of new trails. One project currently under construction will complete a four (4) mile section of the East/West trail between Chambers Road and RidgeGate Parkway; and the unpaved eight foot (8') wide multi-use trail will connect to the existing trail system near Bluffs Regional Park.

An additional seven (7) projects are planned for 2020.Approximately two (2) miles of cycle track east along RidgeGate Parkway from Havana Street to the Meridian Trail will be constructed. As part of the buildout of the Sterling Ranch development a seven (7) mile paved multi-use trail loop will be constructed with a connection along Roxborough Park Road to the Highline Canal Trail.

As funding allows, nearly 45 more miles of trails are planned by 2040.One major project that is planned is a paved multi-use trail parallel to US85/ Santa Fe Drive. Planned to be constructed in phases, this trail will traverse 14.5 miles. Phase one consists of 4.5 miles of trail between Castle Rock Parkway and Sedalia by year 2030 with the completion of the trail by 2040, extending the remaining ten (10) miles from Sedalia to C-470.



Legend

Planning Horizon

- Proposed 2019-2020
- Proposed 2021-2030
- Proposed 2031-2040

Planned Bike and Pedestrial Trails

- On-Street Bike
- Park Trail
- Shared Use

Municipalities with planned bike lanes and trails shown include:

- Castle Rock Trails
- Colorado Front Range Trails
- Douglas County Bike Routes
- Douglas County Trails

N

0 2.5 5 miles

Figure 10: Planned Bicycle and Pedestrian Trails

Table 5: Bicycle and Pedestrian Trails Description Table

Legend Color	Planning Horizon	Project Code	Project Description
	2019 - 2020	1	As part of this 1-mile roadway paving project, provide 6' wide shoulders and designate as a bicycle route with pavement markings and share the road signing.
		2	Construct a 1-mile paved multi-use trail parallel to Chambers Road from E-470 to Lincoln Avenue.
		3	Construct a 1.5-mile paved multi-use trail parallel to Chambers Road from Lincoln Avenue to Mainstreet.
		4	Construct 7 miles of unpaved multi-use trail from Noe Road, just south of the I-25 and Greenland interchange, to connect to the Columbine Trail near Skyview Lane. This section of trail would parallel Carpenter Creek and East Plum Creek.
		5	Complete this 4-mile section of the East/West trail from Chambers Road to RidgeGate. This unpaved 8' wide multi-use trail would connect to the existing trail system near Bluffs regional park.
		6	Construct 0.7 miles of paved multi-use trail to connect the Highline Canal Trail to the intersection of Titan Road and Eagle River Street.
		7	Restripe just over 1-mile of the existing Inverness Parkway to provide on street bicycle lanes from just south of E470 to County Line Road.
		8	Construct 0.75 miles of paved multi-use trail along the north side of Mainstreet from just west of Meridian Village Parkway to just east of Chambers Road.
		9	Construct approximately 2 miles of cycle track east along RidgeGate Parkway from Havana Street to the Meridian Trail.
		10	Construct a 7 mile paved multi-use trail loop within Sterling Ranch with a connection along Roxborough Park Road to the Highline Canal Trail.
		11	Construct bike lanes on Taylor River Circle when the road is extended approximately 0.8 miles.
		12	When Waterton Road is extended east from Rampart Range Road to Sterling Ranch, construct a 1.3-mile paved multi-use trail to connect to the Sterling Ranch Trail.
	2021 - 2030	1	Construct a paved 10' wide multi-use trail parallel to US 85 from Castle Rock Parkway near the Meadows neighborhood to the Town of Sedalia (approximately 4.5 miles).
		2	Provide bicycle lanes on Havana Street through the RidgeGate development for approximately 1 mile between RidgeGate Parkway and Lincoln Avenue.
		3	Construct 1 mile of paved multi-use trail along the north side of Mainstreet from just east of Chambers Road to Jordan Road.
	2031 - 2040	1	Install share the road bicycle signing and striping along 5th Street from the east Plum Creek trail just west of I-25 to the intersection of 5th Street, SH 86, Founders Parkway, and Ridge Road (approximately 2 miles).
		2	Complete gaps in this paved 2-mile multi-use trail from Mainstreet to Hess Road. When Chambers Road is extended, construct 4 miles of paved multi-use trail south of Hess Road beyond Crowfoot Valley Road to connect to the Cherry Creek Regional Trail.
		3	Construct a paved 10' wide multiuse trail parallel to Daniels Park Road for approximately 3 miles from US 85 to Castle Pines Parkway.
		4	Complete this 1.3 mile gap in the paved multi-use trail along Founders Parkway from Crowfoot Valley Road to Crimson Sky Drive.
		5	Extend the paved multi-use Hidden Mesa Trail approximately 2.2 miles along Pleasant View Drive and parallel to Castle Oaks Drive to Autumn Sage Street.
		6	Extend the existing trail near Crowfoot Valley Road approximately 6 miles north to Monarch Boulevard parallel to the existing overhead utility lines. The trail would begin near Gemstone Park near the Sapphire Point neighborhood and extend through the City of Castle Pines and across I-25, to end near Coyote Ridge Park.
		7	Construct a 5.5-mile paved multi-use trail, east of I-25 and parallel with the railroad, from the end of the Plum Creek trail, near Perry Park Road just south of Plum Creek Parkway, to the Columbine Trail near Tomah Road.
		8	Construct a paved 12'-wide multi-use trail parallel to US 85 from the Town of Sedalia to C-470 (approximately 10 miles).
		9	Construct 3 miles of paved multi-use trail from the Plum Creek Trail near US 85, along Airport Road, to connect to the Sterling Ranch Trail.

Emerging Technologies

The County is committed to leveraging existing and emerging technologies to improve transportation.The County plans to install additional automated traffic count stations on key transportation corridors. Data from these count stations allow County traffic engineers to see changes in travel patterns and identify areas needing attention.New road weather information stations are also planned.

Douglas County plans to roll out a system on certain corridors to begin providing signal information to vehicles.The County will also be implementing advanced features to the signal system, such as adaptive signal control and enhanced signal performance measure features, at some locations to improve traffic signal operations.Douglas County recently completed an Intelligent Mobility Demonstration Corridor Deployment Plan, which recommends scalable technologies and applications to be implemented over the next several years, so that the system can prepare for future technologies such as connected and autonomous vehicles.

SECTION V. TRANSPORTATION PLAN IMPLEMENTATION

In order for the TMP to be effective, it must not be static. Douglas County has strived to implement long range transportation plans and continuous roadway improvement needs. The TMP implementation plan tie directly to the goals and objectives to ensure that the short-term and mid-term actions are helping to achieve the long-term vision of the TMP.

Implementation of the plan will require on-going maintenance of the existing transportation system as well as implementation of new improvements and services described in the TMP. Implementing the TMP is a long term commitment of the County and requires a collaborative effort partnering with local agencies and jurisdictions.

The implementation section of the TMP includes the CIP, Funding Strategies, and a list of prioritized transportation improvements. The recommendations in this section will help the County set its course to achieve the vision, principles, and policies of the TMP.

CAPITAL IMPROVEMENT PLAN (CIP)

The most recent Douglas County CIP lists necessary transportation system improvements including street, bicycle, pedestrian, transit, and signal system facilities to move toward achievement of the transportation vision.

FUNDING STRATEGIES

From the 2019 Douglas County Adopted Budget the current sources of funding identified for roadway and multimodal transportation improvements within Douglas County include:

- Road & Bridge Fund – As required by state law this fund is used to account for the costs associated with the construction and maintenance of County roads and bridges. Restricted revenue sources include property taxes and highway user fees. The County must share back with incorporated municipalities one-half of the taxes collected on properties within the incorporated areas.
- Infrastructure Fund – This fund is used to account for funding for infrastructure within the County.
- Road Sales & Use Tax Fund – As required by state law this fund is used to account for revenues derived from the 0.4% sales and use tax approved by voters in November 1995 and extended by

voters in November 2007. Monies are designated for the improvement and maintenance of county roads and bridges. The five wholly incorporated municipalities located within the county receive a shareback of these revenues in accordance with extended intergovernmental agreements.

- Open Space Sales & Use Tax Fund – As required by state law this fund is used to account for revenues derived from the 0.17% sales and use tax approved by voters in November 1994 and extended by voters in November 2000. Monies are designated for the acquisition, preservation, development, and maintenance of open space lands, trail systems, and parks facilities. The three incorporated municipalities located within the county at the time the sales tax was approved receive a shareback of the revenues in accordance with approved intergovernmental agreements.
- Parks Sales & Use Tax Fund – As required by state law this fund is used to account 0.20% of sales and use tax for revenues derived from the 0.17% open space sales and use tax approved by voters in November 1994 and extended by voters in November 2000. Monies are designated for development, and maintenance of public trail systems, parks recreational facilities.
- Conservation Trust Fund – As required by state law this fund is used to account for revenues received from the state lottery fund to be used for the development and maintenance of parks, trails, open space, and other recreational purposes within the county.
- Local Improvement Districts/General Improvement Districts – These funds are used to account for road improvements and utilities located within local improvement districts (LIDs). Funding for these improvements are provided from special assessments levied against the properties located within the LIDS, with some assistance from general governmental revenues of the County for engineering and construction management costs. General Improvement Districts (GIDs) are funds used to account for the revenues derived from a designated property tax levied by GIDS, a special taxing district, and designated for the improvement and maintenance of roads located within that district.

Some other important funding tools and potential new sources that can be used to build projects include:

- Developer Agreements – Douglas County has policies and practices in place that allow for cost sharing for needed transportation improvements based on increase in traffic caused by future development. These cost sharing arrangements are typically implemented through developer agreements. Developer agreements reached through negotiations can be used for other transportation projects, especially when the impact on a transportation facility is clearly attributable to a specific development.
- Regional Transportation Authority – Colorado law allows cities and counties to form Regional Transportation Authorities (RTAs) to fund and build transportation infrastructure improvements and to provide transportation services within a multijurisdictional area boundary (CRS 43-4-601). An RTA has the power to build, finance, operate, and maintain any regional transportation system. There are currently at least six RTAs operating in Colorado, most of which provide funding for transit service. An RTA can levy a sales tax of up to 1.0 percent; property tax of up to 5 mills; charge tolls; charge a

motor vehicle registration fee of up to $10; and levy lodging taxes of up to 2.0 percent. RTAs may also enter into agreements to receive other revenues from participating jurisdictions.

- BUILD and INFRA Grants – The United States Department of Transportation (USDOT) Better Utilizing Investments to Leverage Development (BUILD) grant program is a federal transportation discretionary grant program following the previous Transportation Investment Generating Economic Recovery (TIGER) grant programs. The BUILD program is targeting at least 30 percent of its funding to rural areas, in contrast with the previous TIGER program which generally favored large urban transportation and transit projects. The rural nature of the southern Douglas County may make that particular area competitive for BUILD grants in the future.

  The USDOT Infrastructure for Building America (INFRA) grant program is a federal transportation discretionary grant program that targets highways, bridges and other transportation infrastructure using innovative approaches and partnerships with the private sector to fund transportation infrastructure projects.

The ultimate funding program may include more than one method. Whatever funding method or combination of methods is used, it must also provide the level of revenue necessary to provide adequate maintenance and fix existing deficiencies, as well as provide for transportation improvements needed to support Douglas County's future growth.

ROADWAY IMPROVEMENTS

Figure 11 displays the locations of roadway projects needed to implement the recommended plan.

Project Prioritization

Table 6 lists proposed roadway improvement projects identified by this TMP. Key columns include planned project location, planned improvement, and responsibility. The project responsibility qualitatively assesses the agencies and partners anticipated to contribute to each project. The cost estimates represent high-level construction costs, without right-of-way acquisition, for the entire project in 2019 dollars.

In order to prioritize this needs list in to short term, mid-term and long term improvements, a ranking methodology was developed for each category that used traditional transportation data such as traffic data, existing traffic conditions, the network performance evaluations, and the ability of the improvement project to provide needed linkages to the rest of the transportation system. The recommended roadway projects were then prioritized by category based on the ranking criteria.

An important aspect of this list is the necessary flexibility and fluidity of the analysis. The County will continually monitor development patterns to ensure the continued operation of all roadway facilities and to adjust priorities as more information is known.

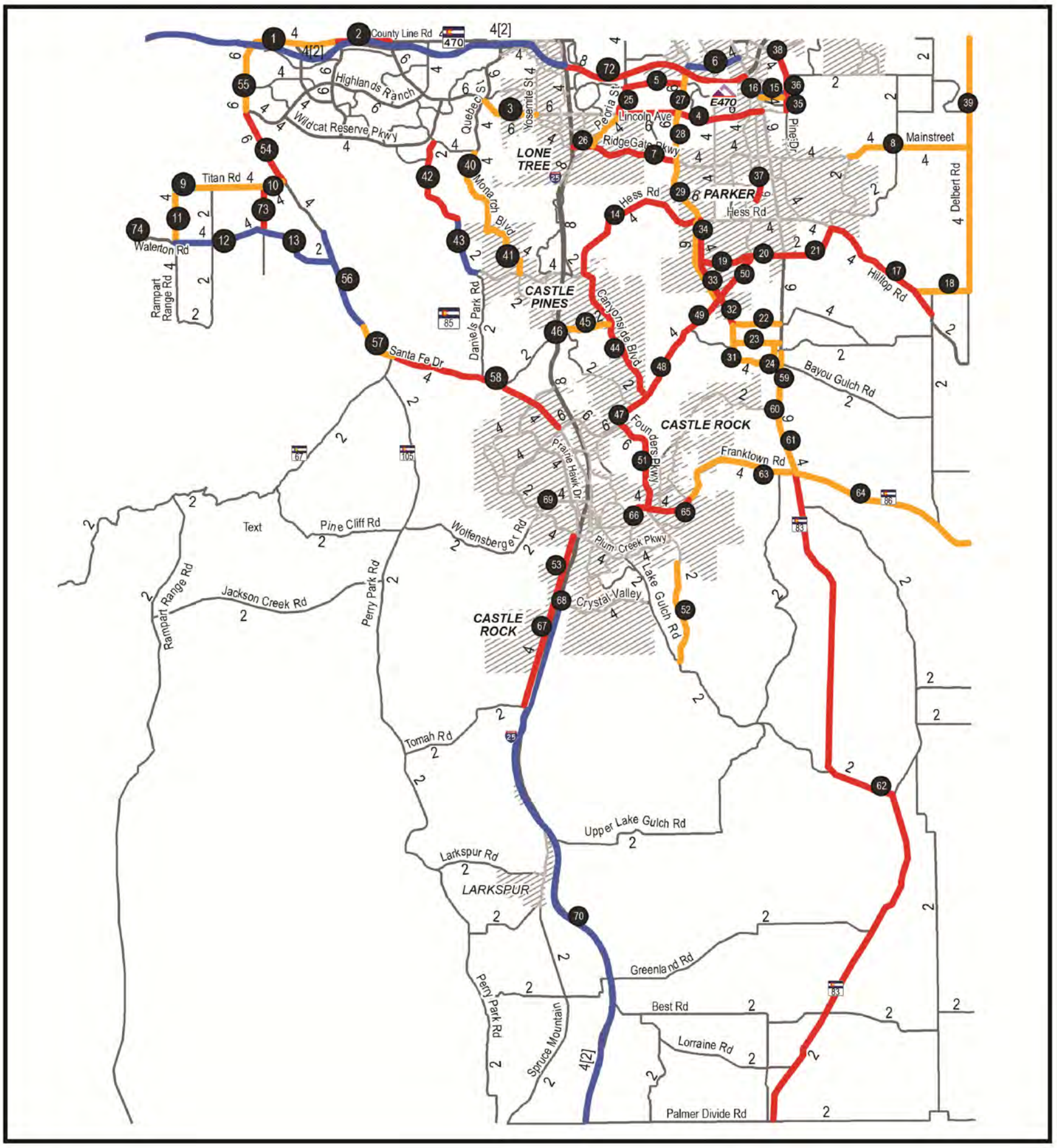


Figure 11: Douglas County Roadway Improvements

Table 6: Douglas County Transportation Improvements Summary - Roads

2040 Douglas County Transportation Improvement Summary - Roads (Updated May 20, 2019)									
Project ID No.	Roadway	2040 Roadway Classification	Location	Improvement / Upgrade	Planning Level Cost Estimate (Using 2018 Costs)				
					Cost	Project Financial Partners			
					($ Millions)	% from Douglas County	Amt. from Douglas County	% from Other Agencies or Developers	Amt. from Other Agencies or Developers
Proposed Roadway Improvements / Upgrades for Planning Horizon: 2019 through 2020									
6	Cottonwood Drive	Minor Arterial	Chambers Road to Cottonwood Way	Widen from 2 to 4 lanes	12.5	0%	-	100%	12.5
7	RidgeGate Pkwy	Major Arterial	I-25 to Lone Tree Eastern City Limits	Widen from 2 to 6 lanes	26.5	9%	2.5	91%	24.0
12	Waterton Road	Minor Arterial	Rampart Range Road to Moore Road	New 4 lane Minor Arterial (estimate for initial 2 lanes)	20.0	0%	-	100%	20.0
13	Waterton Road / Southern Connector	Minor Arterial	Moore Road to Airport Road / US 85	New 2 lane Minor Arterial	15.0	100%	15.0	0%	-
15	Pine Lane	Minor Arterial	Dixon Drive to Pine Drive	Safety Improvements	1.4	100%	1.4	0%	-
28	Chambers Road	Major Arterial	Lincoln Ave to Mainstreet / RidgeGate Pkwy	Widen from 2 to 4 lanes	6.0	100%	6.0	0%	-
43	Daniels Park Road	Collector	Grigs Road to Castle Pines Pkwy	Upgrade from unpaved to 2 lane Collector	4.1	100%	4.1	0%	-
55	US 85	Major Arterial	1,200-feet north of County Line Road to Highlands Ranch Pkwy	Widen from 4 to 6 lanes	94.0	60%	56.0	40%	38.0
56	US 85	Expressway	Aspen Leaf (north of Louviers) to Mile Post 191 (south of Sedalia)	Widen from 2 to 4 lanes	37.5	20%	7.5	80%	30.0
70	I-25 Gap Widening & Reconstruction	Interstate	Castle Rock (Plum Creek Pkwy) to Monument	Capacity & Operational Improvements	350.0	2.9%	10.0	97%	340.0
71	C-470 Widening & Reconstruction	Interstate	Wadsworth (SH 121) to Interstate 25	Capacity & Operational Improvements	390.0	4.5%	17.5	96%	372.5
				Subtotal 2019-2020 Horizon:	**$957.0**		**$120.0**		**$837.0**
Proposed Roadway Improvements / Upgrades for Planning Horizon: 2021 through2030									
2	County Line Road	Major Arterial	Broadway to University Blvd	Widen from 2 to 4 lanes	20.0	25%	5.0	75%	15.0
4	Lincoln Ave / I-25 Interchange Complex	Major Arterial	Park Meadows Drive to Oswego Street	Operational Improvements	80.0	25%	20.0	75%	60.0
4	Lincoln Avenue	Major Arterial	Oswego St to Peoria St	Operational Improvements	4.0	25%	1.0	75%	3.0
4	Lincoln Avenue	Major Arterial	Peoria St to Chambers Road	Widen from 4 to 6 lanes	10.0	100%	10.0	0%	-
4	Lincoln Avenue	Major Arterial	Chambers Road to Keystone Blvd	Widen from 4 to 6 lanes	6.0	100%	6.0	0%	-

2040 Douglas County Transportation Improvement Summary - Roads (Updated May 20, 2019)									
Project ID No.	Roadway	2040 Roadway Classification	Location	Improvement / Upgrade	Planning Level Cost Estimate (Using 2018 Costs)				
					Cost	Project Financial Partners			
					($ Millions)	% from Douglas County	Amt. from Douglas County	% from Other Agencies or Developers	Amt. from Other Agencies or Developers
4	Lincoln Avenue	Major Arterial	Keystone Blvd to Jordan Road	Widen from 4 to 6 lanes	8.0	25%	2.0	75%	6.0
4	Lincoln Ave	Major Arterial	Jordan Road to Parker Road	Widen from 4 to 6 lanes	16.0	25%	4.0	75%	12.0
5	Belford Avenue	Collector	Peoria St to Chambers Road	New 4 lane Collector	8.0	0%	-	100%	8.0
7	RidgeGate Pkwy	Major Arterial	Lone Tree Eastern City Limits to Chambers Road	Widen from 4 to 6 lanes	12.0	100%	12.0	0%	-
12	Waterton Road	Minor Arterial	Rampart Range Road to Moore Road	Widen from 2 to 4 lanes	12.0	0%	-	100%	12.0
73	Moore Road	Minor Arterial	Waterton Road to Titan Road	Widen from 2 to 4 lanes	8.0	25%	2.0	75%	6.0
74	Waterton Road	Minor Arterial	Wadsworth (SH 121) to Campfire to Rampart Range Road	Widen from 2 to 4 lanes	16.0	25%	4.0	75%	12.0
14	Hess Road	Major Arterial	Canyonside Blvd to Chambers Rd	Widen from 2 to 4 lanes	17.0	100%	17.0	0%	-
17	Hilltop Road	Major Arterial	Canterberry Pkwy to Merryvale Trail	Widen from 2 to 4 lanes	13.5	100%	13.5	0%	-
17	Hilltop Road	Major Arterial	Merryvale Trail to Singing Hills Rd	Widen from 2 to 4 lanes	12.0	100%	12.0	0%	-
17	Hilltop Road	Major Arterial	Singing Hills Road to Flintwood Road	Widen from 2 to 4 lanes	5.0	100%	5.0	0%	-
19	Stroh Road	Minor Arterial	Chambers Road to Crowfoot Valley Rd	New 4 lane Minor Arterial	11.0	0%	-	100%	11.0
20	Stroh Road	Minor Arterial	Crowfoot Valley Rd to SH 83	Widen from 2 to 4 lanes	12.0	0%	-	100%	12.0
21	Stroh Road	Collector	SH 83 to Hilltop Road	New 2 lane Collector	10.0	85%	8.5	15%	1.5
23	Scott Road	Collector	Bayou Gulch Road to SH 83	New 2 lane Collector	8.0	0%	-	100%	8.0
25	Peoria Street	Major Arterial	Belford Ave to Lincoln Ave	Widen from 2 to 4 lanes	6.0	33%	2.0	67%	4.0
30	Dransfeldt Road Extension	Minor Arterial	20 Mile Road to Motensbocker Road	New 4 lane Minor Arterial (estimate for initial 2 lanes)	22.0	36%	8.0	64%	14.0
34	Chambers Road	Major Arterial	Hess Road to Stroh Road	New 4 lane Major Arterial	12.0	0%	-	100%	12.0
33	Chambers Road	Major Arterial	Stroh Road to Crowfoot Valley Road	New 4 lane Major Arterial	14.0	0%	-	100%	14.0
32	Bayou Gulch Road	Major Arterial	Crowfoot Valley Road to North Pinery Parkway	New 4 lane Major Arterial	6.0	0%	-	100%	6.0
32	Bayou Gulch Road	Major Arterial	North Pinery Parkway to Scott Road	New 4 lane Major Arterial	4.0	25%	1.0	75%	3.0
32	Bayou Gulch Road	Major Arterial	Scott Road to Pradera Parkway	New 4 lane Major Arterial (estimate for initial 2 lanes)	4.0	100%	4.0	0%	-

2040 Douglas County Transportation Improvement Summary - Roads (Updated May 20, 2019)									
Project ID No.	Roadway	2040 Roadway Classification	Location	Improvement / Upgrade	Planning Level Cost Estimate (Using 2018 Costs)				
					Cost	Project Financial Partners			
					($ Millions)	% from Douglas County	Amt. from Douglas County	% from Other Agencies or Developers	Amt. from Other Agencies or Developers
Continued - Proposed Roadway Improvements / Upgrades for Planning Horizon: 2021 through2030									
35	Pine Drive	Minor Arterial	Lincoln Avenue to Ponderosa Drive	Widen from 2 to 4 lanes	3.0	100%	3.0	0%	-
36	Pine Drive	Minor Arterial	Ponderosa Drive to Pine Lane	Widen from 2 to 4 lanes	3.0	100%	3.0	0%	-
37	Pine Drive	Minor Arterial	Pine Lane to Inspiration Drive	Widen from 2 to 4 lanes	6.0	100%	6.0	0%	-
38	Pine Drive	Minor Arterial	Inspiration Drive to Aurora Pkwy	New 4 lane Minor Arterial	10.0	20%	2.0	80%	8.0
42	Daniels Park Road	Collector	Shadowbrook / Valleybrook Circle to Grigs Road	Upgrade from unpaved to 2 lane Collector	10.0	100%	10.0	0%	-
44	Canyonside Blvd	Major Arterial	Hess Rd to Crowfoot Valley Rd	New 4 lane Major Arterial	20.0	0%	-	100%	20.0
46	I-25/Happy Canyon Interchange (Initial)	Interchange	I-25/Happy Canyon Rd (initial for west side connection)	Improve interchange - connect only west side to Liggett	8.0	63%	5.0	38%	3.0
47	Crowfoot Valley Rd	Major Arterial	Founders Pkwy to Canyonside Blvd	Widen from 2 to 4 lanes, Minor to Major Arterial	16.0	25%	4.0	75%	12.0
48	Crowfoot Valley Rd	Major Arterial	Canyonside Blvd to Macanta (north access into Canyons South)	Widen from 2 to 4 lanes, Minor to Major Arterial	12.0	25%	3.0	75%	9.0
48	Crowfoot Valley Rd	Major Arterial	Macanta (north access into Canyons South) to Pradera Pkwy	Widen from 2 to 4 lanes, Minor to Major Arterial	20.0	100%	20.0	0%	-
49	Crowfoot Valley Rd	Major Arterial	Pradera Pkwy to Bayou Gulch Road / Chambers Road	Widen from 2 to 4 lanes, Minor to Major Arterial	6.0	50%	3.0	50%	3.0
50	Crowfoot Valley Rd	Major Arterial	Bayou Gulch Road / Chambers Road to Stroh Road	Widen from 2 to 4 lanes, Minor to Major Arterial	20.0	0%	-	100%	20.0
51	Founders Parkway / SH 86	Major Arterial	Crowfoot Valley Road to Fifth Street / Ridge Road	Widen from 4 to 6 lanes	28.0	0%	-	100%	28.0
53	West I-25 Frontage Road	Major Arterial	Plum Creek Pkwy to Crystal Valley Parkway	New 4 lane Major Arterial	24.0	12.5%	3.0	88%	21.0
54	US 85	Expressway	Highlands Ranch Parkway to Titan Road	Widen from 4 to 6 lanes	8.0	25%	2.0	75%	6.0
58	US 85	Expressway	SH 115 / SH 67 (Sedalia) to Meadows Parkway	Widen from 2 to 4 lanes, Major Arterial to Expressway	60.0	15%	9.0	85%	51.0
62	SH 83	Major Arterial	SH 86 to Douglas / El Paso County Line (Palmer Divide Road)	Safety Improvements	16.0	25%	4.0	75%	12.0
65	SH 86	Major Arterial	Founders Pkwy / Ridge Road to Enderud Road	Widen from 2 to 4 lanes	10.0	50%	5.0	50%	5.0
66	Fifth Street	Minor Arterial	Woodlands Blvd to Ridge Road / Founders Parkway	Widen from 2 to 4 lanes	8.0	25.0%	2.0	75%	6.0
67	West I-25 Frontage Road**	Minor Arterial	Crystal Valley Parkway / Territorial Road to Tomah Road	New Arterial (required for new interchange)	12.5	40%	5.0	60%	7.5

2040 Douglas County Transportation Improvement Summary - Roads (Updated May 20, 2019)									
Project ID No.	Roadway	2040 Roadway Classification	Location	Improvement / Upgrade	Planning Level Cost Estimate (Using 2018 Costs)				
					Cost	Project Financial Partners			
					($ Millions)	% from Douglas County	Amt. from Douglas County	% from Other Agencies or Developers	Amt. from Other Agencies or Developers
68	Crystal Valley / I-25 Interchange**	Interchange	Includes relocate W. I-25 Frontage Rd** (Crystal Valley to Tomah Rd)	New Interchange (requires relocated frontage road)	70.0	10%	7.0	90%	63.0
69	Wolfensberger Road	Major Arterial	Coachline Road to Prairie Hawk Road	Widen from 2 to 4 lanes	8.0	50%	4.0	50%	4.0
72	E-470 Public Highway Authority	Tollway	I-25 to Parker Road	Widen from 6 to 8 lanes	45.0	0%	-	100%	45.0
				Subtotal 2021-2030 Horizon:	**$780.0**		**$237.0**		**$543.0**
Proposed Roadway Improvements / Upgrades for Planning Horizon:2031 through 2040									
1	County Line Road	Major Arterial	US 85 to Broadway	Widen from 2 to 4 lanes	24.0	25%	6.0	75%	18.0
3	Lincoln Avenue	Major Arterial	Quebec Street to Yosemite Street	Widen from 4 to 6 lanes	30.0	100%	30.0	0%	-
8	Mainstreet / East Parker Road	Minor Arterial	Canterberry Pkwy to Delbert Road	Widen from 2 to 4 lanes	28.0	100%	28.0	0%	-
9	Titan Road	Minor Arterial	Rampart Range Road to Moore Road	Widen from 2 to 4 lanes	16.0	50%	8.0	50%	8.0
10	Titan Road	Major Arterial	Moore Road to US 85 (Including Interchange Improvements)	Widen from 2 to 4 lanes	20.0	25%	5.0	75%	15.0
11	Rampart Range Road	Minor Arterial	Waterton Road to Titan Road	Widen from 2 to 4 lanes	15.0	67%	10.0	33%	5.0
16	Pine Lane	Minor Arterial	SH 83 to Dixon Drive	Widen from 2 to 4 lanes	12.0	25%	3.0	75%	9.0
18	Singing Hills Road	Major Arterial	Hilltop Road to Delbert Road	Widen from 2 to 4 lanes, Collector to Major Arterial	12.0	100%	12.0	0%	-
22	North Pinery Parkway	Collector	BayouGulchRoadtoSH83	New 2 lane Collector	14.0	50%	7.0	50%	7.0
24	Interlocken Street	Collector	Scott Road to Old Schoolhouse Road	Upgrade to 2 lane Collector	4.0	25%	1.0	75%	3.0
26	Peoria Street	Major Arterial	Lincoln Avenue to RidgeGate Pkwy	Widen from 2 to 4 lanes	10.0	50%	5.0	50%	5.0
27	Chambers Road	Major Arterial	E-470 to Lincoln Avenue	Widen from 4 to 6 lanes	14.0	100%	14.0	0%	-
28	Chambers Road	Major Arterial	Lincoln Avenue to Mainstreet/RidgeGate Pkwy	Widen from 4 to 6 lanes	10.0	100%	10.0	0%	-
29	Chambers Road	Major Arterial	Mainstreet/RidgeGate Pkwy to Hess Road	Widen from 4 to 6 lanes	16.0	25%	4.0	75%	12.0
34	Chambers Road	Major Arterial	Hess Road to Stroh Road	Widen from 4 to 6 lanes	10.0	0%	-	100%	10.0
33	Chambers Road	Major Arterial	Stroh Road to Crowfoot Valley Road	Widen from 4 to 6 lanes	10.0	0%	-	100%	10.0

2040 Douglas County Transportation Improvement Summary - Roads (Updated May 20, 2019)									
Project ID No.	Roadway	2040 Roadway Classification	Location	Improvement / Upgrade	Planning Level Cost Estimate (Using 2018 Costs)				
					Cost	Project Financial Partners			
					($ Millions)	% from Douglas County	Amt. from Douglas County	% from Other Agencies or Developers	Amt. from Other Agencies or Developers
32	Bayou Gulch Road	Major Arterial	Scott Road to Pradera Parkway	Widen from 2 to 4 lanes	14.5	0%	-	100%	14.5
31	Bayou Gulch Road	Major Arterial	Pradera Parkway to Old Schoolhouse Road/SH83	Widen from 2 to 4 lanes	18.0	100%	18.0	0%	-
39	Delbert Road	Major Arterial	Singing Hills Road to County Line Road	Widen from 2 to 4 lanes, Collector to Major Arterial	50.0	25%	12.5	75%	37.5
40	Monarch Blvd	Minor Arterial	McArthur Ranch to Castle Pines northern City Limits	Widen from 2 to 4 lanes	16.0	100%	16.0	0%	-
41	Monarch Blvd	Minor Arterial	Castle Pines northern City Limits to Castle Pines Pkwy	Widen from 2 to 4 lanes	20.0	25%	5.0	75%	15.0
46	I-25/Happy Canyon Interchange (Ultimate)	Interchange	I-25/Happy Canyon Rd (ultimate w/SPUI for eastside connection)	Improve interchange-connect eastside to Canyonside	20.0	25%	5.0	75%	15.0
45	Happy Canyon Road (EastofI-25)	Collector	I-25/Happy Canyon to Canyonside Blvd (requires ultimate interchange)	New 2 lane Collector	4.0	0%	-	100%	4.0
52	Ridge Road	Collector	Castle Rock boundary to Lake Gulch Road	Upgrade from unpaved to 2 lane Collector	17.5	100%	17.5	0%	-
57	US85	Expressway	Private Road to SH 67/SH 105 (Sedalia)	Upgrade Major Arterial to Expressway	20.0	0%	-	100%	20.0
59	SH83	Expressway	South Pinery Pkwy to Bayou Gulch Road	Widen from 4 to 6 lanes	4.0	0%	50.0	100%	4.0
60	SH83	Major Arterial	Bayou Gulch Road to Castle Oaks Drive	Widen to 6 lanes	20.0	0%	-	100%	20.0
61	SH83	Major Arterial	Castle Oaks Drive to SH 86	Widen from 2 to 4 lanes	16.0	0%	-	100%	16.0
62	SH83	Major Arterial	SH 86 to Douglas/El Paso County Line(Palmer Divide Road)	Widen from 2 to 4 lanes	250.0	0%	-	100%	250.0
63	SH86	Major Arterial	Enderud Road to SH 83	Widen from 2 to 4 lanes	40.0	0%	-	100%	40.0
64	SH86	Major Arterial	SH 83 to Delbert Road	Widen from 2 to 4 lanes	45.0	0%	-	100%	45.0
				Subtotal 2031-2040 Horizon:	**$800.0**		**$267.0**		**$583.0**

Subtotal 2019-2020 Horizon:	**$957.0**		**$120.0**	**$837.0**
Subtotal 2021-2030 Horizon:	**$780.0**		**$237.0**	**$543.0**
Subtotal 2031-2040 Horizon:	**$800.0**		**$267.0**	**$583.0**
Total(2019thru2040)	**$2,537.0**		**$624.0**	**$1,963.0**

APPENDIX A.
TRANSPORTATION GOALS, OBJECTIVES AND POLICES

The 2040 Douglas County Comprehensive Master Plan Transportation Element was set within the broader context of the 2040 Douglas County Comprehensive Master Plan with the vision for a transportation network comprised of diverse types of transportation facilities, supports improved access and mobility; it shapes the way we travel and the development of our communities. For the following transportation-related goals and objectives established with the Comprehensive Master Plan, policies and strategies will be developed to guide the TMP process and recommendations.

GOAL 7-1

Develop an efficient, multifunctional transportation network designed to ensure safety, promote user access, and facilitate cost-effective operations and maintenance.

Objective 7-1A

Ensure consistency between the Transportation Master Plan and local and regional transportation plans.

Policy 7-1A.1

Coordinate planning and development review efforts with municipalities and other agenices to ensure integration and continuity of the transportation network.

Policy 7-1A.2

Support partnerships at the local and regional level, and between the public and private sector, to improve the transportation network.

Objective 7-1B

Integrate all appropriate modes of travel within the Transportation Master Plan.

Policy 7-1B.1

Provide a comprehensive multi-modal transportation network plan and prioritization framework within the Transportation Master Plan.

Objective 7-1C

Consider safety a major element of transportation improvements in the County.

Policy 7-1C.1

Design transportation corridors that are safe for all users and sensitive to the community context.

Policy 7-1C.2

Encourage design solutions to enhance both vehicular and non-vehicular user safety, including but not limited to pedestrian, bicycle, and wildlife corridor grade-separated crossings, and roundabouts, where feasible, as an alternative to traffic signals.

GOAL 7-2

Develop and maintain an efficient and safe road network in harmony with natural features and existing neighborhoods.

Objective 7-2A

Plan and construct an efficient road network.

Policy 7-2A.1

Through the design process, ensure that collector and arterial road rights-of-way are sufficient to accommodate all identified street users and functions. These may include vehicles, transit, pedestrian facilities, on-street bicycle lanes, off-street shared use trails, landscaping and roundabouts. Traffic calming features should be included to improve safety and increase pedestrian and bicyclist safety.

Policy 7-2A.2

Promote connectivity and continuity in local, collector, and regional roads between adjacent neighborhoods and in regional roads between neighborhoods and commercial and employment areas to minimize unnecessary driving.

Policy 7-2A.3

Prior to road widening as a means to improve capacity, evaluate the costs and benefits of alternative capacity enhancement strategies.

Objective 7-2B

Ensure new development pays its fair share.

Policy 7.2B.1

Ensure development-generated road construction is consistent with the Douglas County Capital Improvements Plan (CIP).

Policy 7-2B.2

Ensure that developers cause construction of, or provide fair-share financial contributions to, development-required public capital improvements and facilities.

Policy 7-2B.3

Ensure developers contribute to, and mitigate, impacts to off-site transportation infrastructure. Traffic Impact Studies should account for off-site conditions and impacts.

Objective 7-2C

Provide adequate primary, secondary, and emergency connections for subdivisions.

Policy 7-2C.1

Provide connections between residential neighborhoods with collector and local roads, and future road connections, where appropriate, to support alternative travel routes.

Policy 7-2C.2

Ensure road layouts and connections support desired response requirements for emergency service and efficient school bus service.

Policy 7-2C.3

Plan major new roads to minimize negative impacts on existing neighborhoods.

Policy 7-2C.4

Evaluate requests for right-of-way vacation in light of current and future transportation needs, which may include road network modifications multi-use trail corridors, and other public purposes.

Objective 7-2D

Design local roads to serve the purpose and scale of the neighborhood.

Policy 7-2D.1

Support local road design that encourage walkable environments and foster sense of place.

Policy 7-2D.2

Design neighborhood streets to calm traffic and discourage traffic volumes in excess of adopted standards.

Policy 7-2 D.3

Ensure that land area is provided to allow adequate berming for visual relief and noise abatement, outside of the right-of-way if necessary.

Policy 7-2 D.4

Road designs should complement and minimize impact to natural features and landscape.

Policy 7-2 D.5

Design transportation corridor improvements to carefully minimize impacts to, and allow coexistence with, significant open space, riparian areas, and wildlife movement corridors.

GOAL 7-3

Support enhanced public transit in Douglas County.

Objective 7-3A

Facilitate an integrated transit plan as a component of the Transportation Master Plan.

Policy 7-3A.1

Coordinate and support existing and future transportation services provided by other agencies to fulfill service demands of County residents, including older adults and people with disabilities.

Objective 7-3B

Incorporate transit facilities within development in urban areas.

Policy 7-3B.1

Support land development patterns and practices that strengthen and create multi-modal transportation options and transit-oriented development within the Primary Urban Area, and in the Separated Urban Areas, as appropriate.

GOAL 7-4

Coordinate transportation and land use planning design, programs, and policies to reduce traffic congestion, provide alternatives to automobile use, improve air quality, and create healthy, desirable living environments.

Objective 7-4A

Reduce traffic congestion through implementation of Transportation Demand Management (TDM) and land planning principles.

Policy 7-4A.1

Encourage employers to establish programs that include the use of staggered work hours that support off-peak travel, four-day work weeks, telecommuting, non-typical work shifts, formal van pool or company ridesharing programs and/or transit passes.

Policy 7-4A.2

Provide incentives to businesses to reduce employee commuting and automobile

use, if supported by adopted TDM policies or programs, as described in the Transportation Master Plan.

Objective 7-4B

Use land-use planning to reduce travel by automobile and improve access to community resources.

Policy 7-4B.1

Ensure all new development and redevelopment projects incorporate bicycle and pedestrian facilities that connect community uses and destinations, including employment centers, residential areas, shopping, parks, transit facilities, schools and other community activity centers, where possible.

Policy 7-4B.2

Encourage mixed-use development, with appropriate scale and pattern of uses, that supports a variety of travel options and connects community uses and destinations.

Policy 7-4B.3

Coordinate and provide multi-modal links with the County's regional trail system.

Policy 7-4B.4

Ensure new and existing developments promote connectivity through road and off-street path design to reduce trip lengths, provided multiple alternative travel routes between community uses and destinations and provides alternatives to automobile use.

GOAL 7-5

Refine land use compatibility within the Centennial Airport Review Area Overlay District (CARA) to ensure air and ground safety.

Objective 7-5A

Achieve consistency in land-use planning within the CARA.

Policy 7-5A.1

Apply CARA land use regulations, where applicable, in addition to underlying zoning regulations, to ensure the future operations of Centennial Airport.

Policy 7-5A.2

Coordinate land use planning with the Arapahoe County Public Airport Authority and apply principles established in the DRCOG Airport Compatible Land Use Design handbook, where applicable.

Objective 7-5B

Coordinate land-use planning activities with other jurisdictions adjacent to the CARA.

Policy 7-5B.1

Develop a regional framework, achieved through consensus, regarding future land use planning surrounding Centennial Airport.

GOAL 7-6

Achieve compatibility between the railways, other transportation corridors, and surrounding land uses.

Objective 7-6A

Reduce all at-grade crossings involving public roads as well as private roads, where possible.

Policy 7-6A.1

Encourage grade-separated crossings for both new and existing development to enhance public safety and efficiency.

Objective 7-6B

Achieve land-use compatibility between the railways and adjoining land uses.

Policy 7-6B.1

Ensure all new land uses located in the vicinity of rail lines are compatible with railway noise, air quality, visual, fire, and access impacts.

Objective 7-6C

Continue to pursue commuter rail service.

Policy 7-6C.1

Support commuter rail that connects the County with other areas in the Front Range.

APPENDIX B.
TRAVEL FORECAST MODEL VALIDATION

Travel demand for the 2040 Transportation Master Plan (TMP) for Douglas County was performed using the regional DRCOG TransCAD travel demand model (FOCUS 2.1). Sub area analysis was performed for the Douglas County TMP by updating the land use input data provided by the County and agreed by DRCOG to be in line with the regional control totals. The network model inputs including roadway lane geometries and functional classifications were provided by Douglas County, and by the City of Lone Tree and the Towns of Parker and Castle Rock based on their respective transportation plans.

The subarea model base year was 2015. Traffic counts from Douglas County, DRCOG and CDOT were used in the validation process. The following validation measurements were used to quantify the validation using the traffic counts and base year model volumes:

Vehicle Miles of Travel (VMT): The VMT comparison for the model was performed at the county level. Total Douglas County vehicle miles of travel from the model are compared to VMT from the traffic counts. This comparison is done for the links with traffic counts. Based on VMT, this model received a high validation. Table A-1 presents the comparison data.

Table A-1: Vehicle Miles of Travel (VMT) Validation

	All Facilities	Non-Freeway
VMT on links with counts	2,867,387	1,524,621
Count-VMT	3,060,786	1,628,561
VMT/ Count-VMT	0.94	0.95

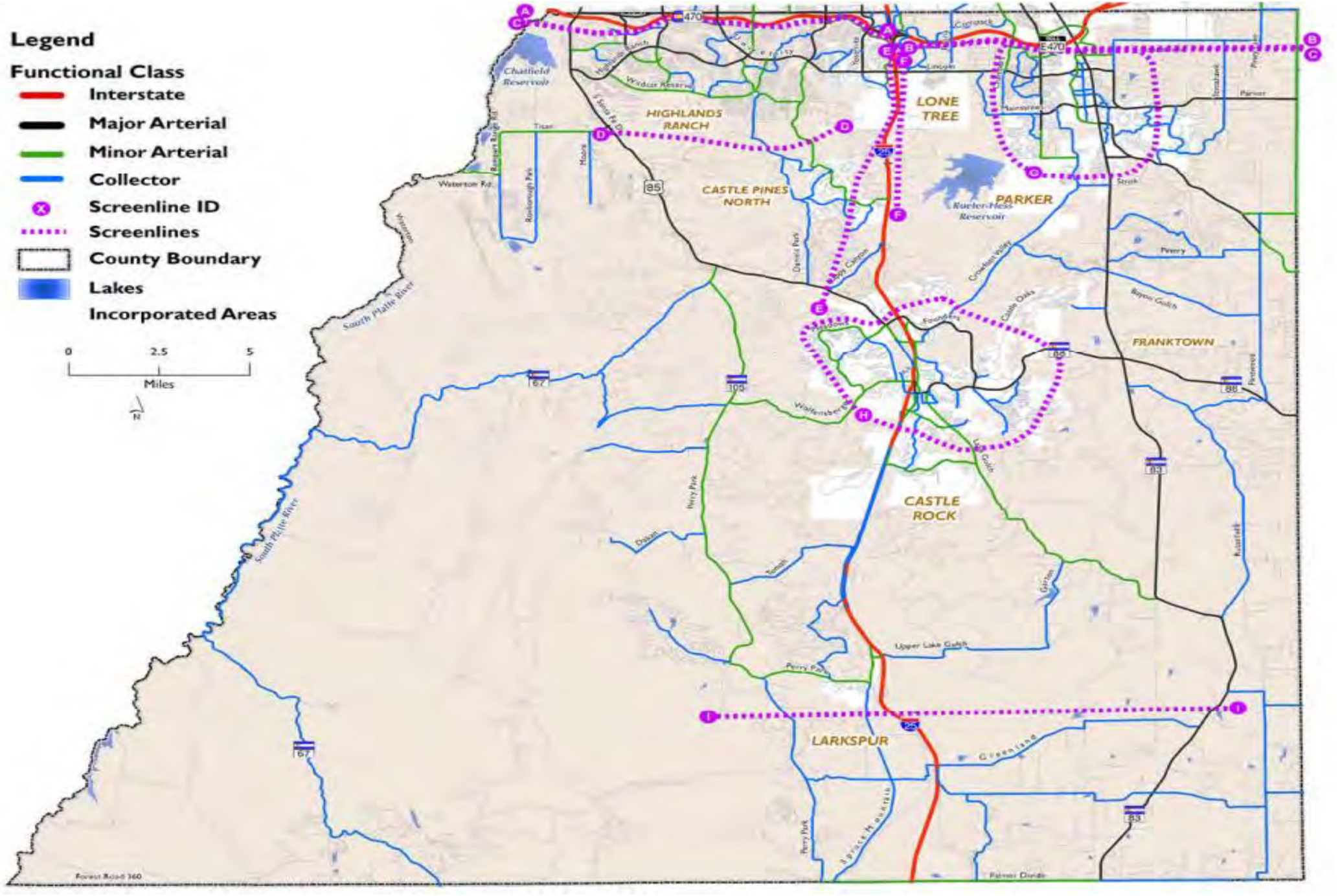
Screenline Comparison: The screenline validation is a comparison of model volumes and observed traffic counts along the screenlines. Screenlines are imaginary lines that extend across a series of roadway links that form a logical basis for evaluation of regional travel movements in the model. Screenlines used in the Douglas County transportation model are presented in Figure A-1. Table A-2 presents the comparison data.

Table A-2: Screenline Comparison

Screeline Description	Traffic Count	Model Volume	Percent Difference
A - North County Line (West)	207,730	213,657	-2.9%
B - North County Line	173,000	173,420	-0.2%
C - Highlands Ranch South	44,411	46,715	-5.2%
D - West of I-25	120,068	93,205	22.4%
E - East of I-25	91,101	81,521	10.5%
F - Parker Cordon	125,000	110,628	11.5%
G - Castle Rock Cordon	247,229	229,377	7.2%
H - South County Line	80,146	81,356	-1.5%

Overall, the screenline comparison indicates that the model is well calibrated. Most of the screenlines were less than 10% different or better between traffic counts and model volumes.

Figure A-1: Traffic Model Screenlines



The R-Squared value comparison of traffic counts and model volumes was 0.98. Based on model validation standards, an R-squared value greater than 0.85 is considered well calibrated.

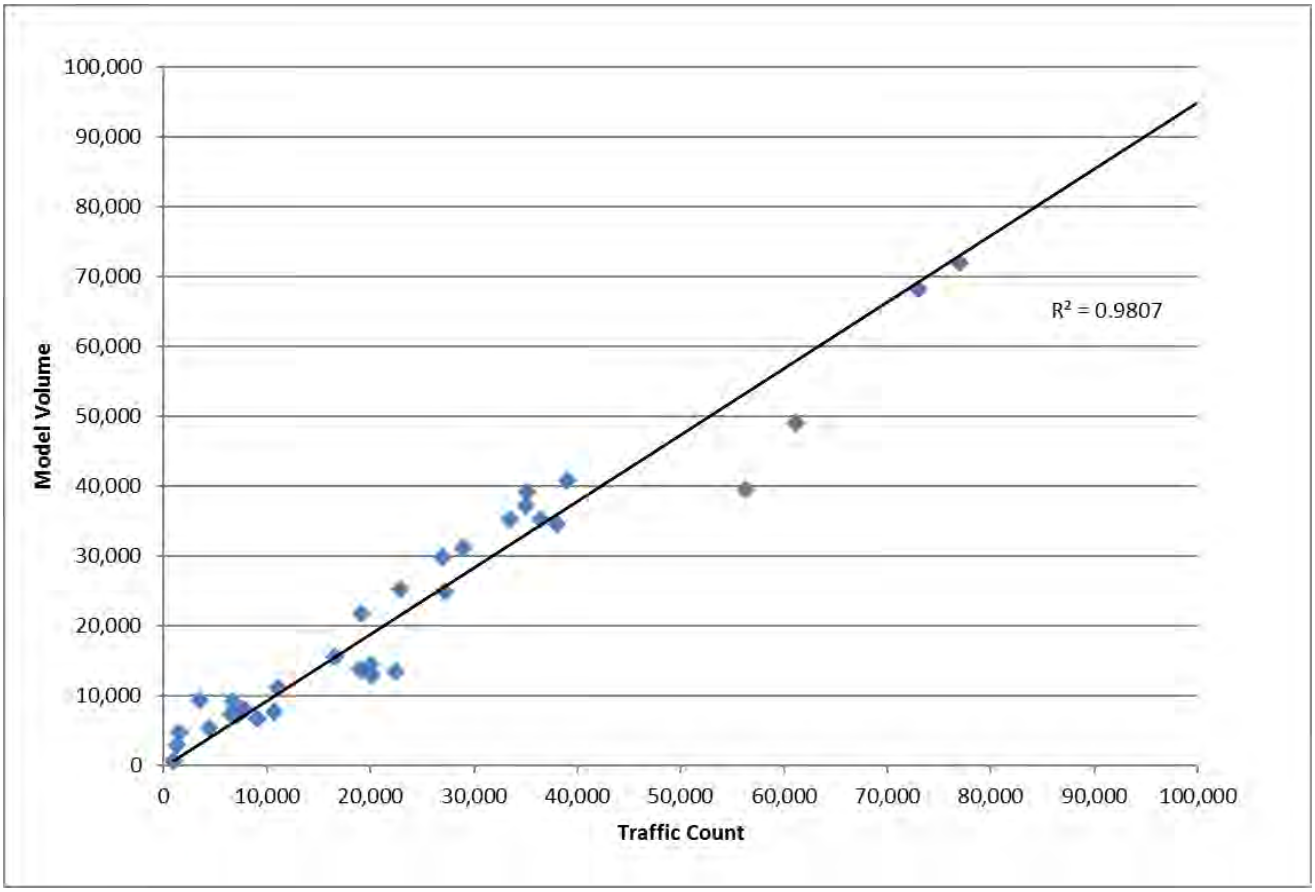


Table A-3 presents the screenline data of 2015 traffic counts and model volumes for reference:

Table A-3: Screenline comparison data- 2015 Counts and Model Volumes

Model Validation Screenline ADT Volumes

Screenline	Roadways	Between		Jurisdiction	2015 Counts	Year	2015 Model Volumes	Source
A	SH 85	Town Center Dr	C470	CDOT	35,000	2016	37,191	http://dtdapps.coloradodot.info/otis/TrafficData#ui/0/0/0/criteria//35/true/true/
	Lucent Blvd	C470	Town Center Dr	DC	33,453	2015	35,186	https://apps.douglas.co.us/gis/TrafficCount/
	Broadway	C470	Highlands Ranch Pkwy	DC	35,174	2015	39,214	https://apps.douglas.co.us/gis/TrafficCount/
	University Blvd	C470	Highlands Ranch Pkwy	DC	28,917	2015	31,143	https://apps.douglas.co.us/gis/TrafficCount/
	Colorado Blvd	C470	University Blvd	DC	19,597	2015	13,851	http://gis.drcog.org/trafficcounts/
	Quebec St	C470	University Blvd	DC	36,484	2013	35,228	https://apps.douglas.co.us/gis/TrafficCount/
	Yosemite St	C470	Lone Tree Pkwy	Lone Tree	19,105	2010	21,844	http://gis.drcog.org/trafficcounts/
B	I-25	Lincoln Ave	C470/E470	CDOT	173,000	2016	173,420	http://dtdapps.coloradodot.info/otis/TrafficData#ui/0/0/0/criteria//35/true/true/
C	SH 85	Highlands Ranch Pkwy	Titan Rd	CDOT	27,000	2016	29,828	http://dtdapps.coloradodot.info/otis/TrafficData#ui/0/0/0/criteria//35/true/true/
	Grigs Rd	Wildcat Reserve Pkwy	Daniels Park Rd	DC	6,696	2015	9,194	http://gis.drcog.org/trafficcounts/
	Monarch Blvd	McArthur Ranch Rd	Daniels Gate Rd	DC	10,715	2015	7,693	http://gis.drcog.org/trafficcounts/
D	SH 85	Happy Canyon	Daniels Park	CDOT	20,100	2015	12,996	http://dtdapps.coloradodot.info/otis/TrafficData#ui/0/0/0/criteria//35/true/true/
	Castle Pines Pkwy	I-25	Monarch Blvd	Castle Pines	27,190	2015	24,949	http://gis.drcog.org/trafficcounts/
	RidgeGate Pkwy	I-25	Park Meadows Blvd	Lone Tree	16,500		15,677	Lone Tree provided
	Lincoln	I-25	Park Meadows Blvd	Lone Tree	56,278	2015	39,583	http://gis.drcog.org/trafficcounts/
E	Hess Rd	e/of Havana St		DC	7,114	2017	7,229	https://apps.douglas.co.us/gis/TrafficCount/
	RidgeGate Pkwy	I-25	Peoria St	DC	22,805	2014	25,287	https://apps.douglas.co.us/gis/TrafficCount/
	Lincoln	I-25	Havana St	DC	61,182	2015	49,005	http://gis.drcog.org/trafficcounts/
F	Lincoln Ave	Chambers Rd	Meridian Village Pkwy	Parker	38,000	2012	34,674	http://www.parkeronline.org/DocumentCenter/Home/View/78
	Mainstreet	Chambers Rd	Stepping Stone Cir	Parker	20,000	2015	14,456	http://www.parkeronline.org/DocumentCenter/Home/View/78
	Motsenbocker Rd	Stroh Rd	Hess Rd	Parker	9,000	2015	6,760	http://www.parkeronline.org/DocumentCenter/Home/View/78
	Parker Rd (SH 83)	Stroh Rd	Hess Rd	CDOT	39,000	2015	40,864	http://www.parkeronline.org/DocumentCenter/Home/View/78
	Mainstreet	Pine Dr	Canterberry Pkwy	Parker	19,000	2015	13,874	http://www.parkeronline.org/DocumentCenter/Home/View/78
G	SH 86	SH 83	Enderud Blvd	CDOT	11,000	2016	11,119	http://dtdapps.coloradodot.info/otis/TrafficData#ui/0/0/0/criteria//35/true/true/
	Lake Gulch	Crystal Valley	Plum Creek Pkwy	DC	3,532	2013	9,305	https://apps.douglas.co.us/gis/TrafficCount/
	Plum Creek Blvd	Plum Creek Pkwy	Crystal Valley Pkwy	Castle Rock	952	2014	645	http://gis.crgov.com/maps/trafficcounts.html
	I-25	Crystal Valley Pkwy	Plum Creek Pkwy	CDOT	77,000	2016	72,000	http://dtdapps.coloradodot.info/otis/TrafficData#ui/0/0/0/criteria//35/true/true/
	Wolfensberger	Plum Creek Pkwy	Perry Park Rd	DC	6,500	2013	7,365	https://apps.douglas.co.us/gis/TrafficCount/
	SH 85	Meadows	Happy Canyon	CDOT	22,426	2015	13,413	http://gis.drcog.org/trafficcounts/
	I-25	Meadows-Founders Interchange	Happy Canyon Interchange	CDOT	118,000	2016	107,404	http://dtdapps.coloradodot.info/otis/TrafficData#ui/0/0/0/criteria//35/true/true/
	Crowfoot Valley	Founders Blvd	Bayou Gulch	DC	7,819	2013	8,126	https://apps.douglas.co.us/gis/TrafficCount/

Screenline	Roadways	Between		Jurisdiction	2015 Counts	Year	2015 Model Volumes	Source
H	Perry Park Road	Perry Park Ave	Noe Rd	DC	1,459	2015	4,709	https://apps.douglas.co.us/gis/TrafficCount/
	Spruce Mtn Rd	Noe Rd	Perry Park Ave	DC	1,330	2016	2,949	https://apps.douglas.co.us/gis/TrafficCount/
	I-25	Greenland Exit	Upper Lake Gulch Rd	CDOT	73,000	2016	68,177	http://dtdapps.coloradodot.info/otis/TrafficData#ui/0/0/0/criteria//35/true/true/
	SH 83	Greenland Exit	Gillian Ave	CDOT	4,357	2015	5,521	http://gis.drcog.org/trafficcounts/

APPENDIX C.
TRAFFIC ANALYSIS ZONES

Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2349	400	200	1,700	900	2,780	1,865
2350	970	50	2,000	850	3,453	2,000
2351	175	20	3,000	800	7,000	2,000
2352	2	300	2	400	2	585
2353	107	0	110	35	113	74
2354	8	0	11	90	14	284
2355	14	0	40	15	146	36
2356	2	0	50	25	221	135
2357	1,584	335	1,600	500	1,655	708
2358	247	50	365	70	365	77
2359	562	30	625	100	810	420
2360	2	0	10	5	62	22
2361	52	5	72	20	99	29
2362	265	0	300	40	331	120
2363	170	0	200	20	239	37
2364	66	10	69	30	72	46
2365	90	0	100	10	108	23
2366	560	50	650	175	738	248
2367	57	1,000	58	1,200	58	1,355
2368	400	200	500	400	507	622
2369	344	500	344	600	344	772
2370	0	1,300	0	1,100	0	787
2371	1,329	200	1,329	350	1,329	503
2372	1,334	300	1,358	375	1,358	410
2373	1,804	75	1,804	200	1,804	436
2374	0	2,500	0	2,200	0	2,096
2375	100	4,000	480	5,000	480	5,300
2376	1,500	1,250	2,000	1,400	2,113	1,441
2377	700	1,000	1,400	1,200	1,625	1,209
2378	18	3,500	18	2,900	18	1,774
2379	528	300	528	400	528	442
2380	1,184	100	1,184	200	1,184	368
2381	705	45	705	90	705	124
2382	1,225	75	1,225	150	1,225	321

Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2383	517	25	517	50	517	69
2384	3,010	350	3,010	550	3,010	836
2385	1,099	1,500	1,088	1,300	1,088	1,211
2386	2,146	80	2,146	200	2,146	478
2387	1,960	200	1,971	500	1,971	509
2388	2,049	350	2,477	600	2,477	815
2389	812	75	813	500	813	611
2390	156	5	161	30	166	77
2391	3	350	3	200	3	143
2392	5	1,050	5	1,150	5	1,783
2393	46	75	66	200	83	444
2394	0	0	0	0	2	0
2395	42	5	50	300	144	936
2396	3	0	3	0	3	0
2397	19	130	24	200	30	430
2398	75	900	100	1,100	136	1,454
2399	11	400	50	500	186	1,112
2400	1,239	440	1,239	400	1,239	390
2401	2	1,600	2	1,400	2	1,199
2402	1,715	1,475	1,715	1,500	1,715	1,503
2403	1,584	650	1,700	900	1,708	1,638
2404	1,082	205	1,100	400	1,148	691
2405	1,448	50	1,448	100	1,448	193
2406	982	200	982	250	982	272
2407	1,274	300	1,275	500	1,275	726
2408	3,319	1,200	3,319	1,400	3,319	1,560
2409	777	10	777	20	777	22
2410	475	20	475	100	475	301
2411	0	2,000	100	1,800	446	1,405
2412	0	6,900	0	5,500	0	4,817
2413	400	2,700	400	2,600	400	2,266
2414	0	900	0	1,100	0	1,219
2415	994	1,500	994	1,400	994	1,259
2416	2,066	600	2,070	1,000	2,072	1,335

Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2417	792	425	792	462	792	462
2418	1,920	6,000	1,920	5,000	1,920	4,633
2419	1,900	5,000	2,000	6,000	2,000	6,965
2420	1,216	125	1,216	200	1,216	257
2421	618	0	700	100	717	192
2422	35	5	37	10	37	10
2423	175	15	250	50	325	81
2424	782	100	797	200	797	318
2425	1,470	20	1,500	175	1,529	283
2426	1,340	75	1,600	500	1,702	1,249
2427	930	30	1,000	100	1,024	361
2428	450	900	800	1,200	901	1,276
2429	20	0	500	1,000	789	2,570
2430	252	1,250	252	1,150	252	1,138
2431	96	1,650	96	1,500	96	1,455
2432	421	2,000	500	2,100	565	2,168
2433	0	3,700	0	5,000	0	5,349
2434	0	2,800	0	2,850	0	2,850
2435	0	2,000	0	3,000	0	4,007
2436	0	2,300	0	4,000	0	4,441
2437	1,150	100	1,150	250	1,150	356
2438	50	300	280	750	282	1,036
2439	286	20	286	10	286	13
2440	1,100	300	1,153	450	1,153	559
2441	375	680	376	670	376	660
2442	1	1,000	176	1,500	176	1,684
2443	1,512	500	1,500	750	1,449	914
2444	1,800	550	2,000	2,000	2,089	2,580
2445	220	50	520	600	550	700
2446	940	150	940	1,500	940	4,000
2447	0	770	0	770	0	770
2448	0	1,600	200	2,000	200	2,452
2449	0	3,500	200	3,800	200	3,972
2450	0	2,500	200	3,200	200	3,742

Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2451	221	1,400	221	1,300	221	1,189
2452	288	610	288	575	288	547
2453	800	50	2,500	5,000	3,719	10,762
2454	500	1,000	2,500	1,800	3,388	2,369
2455	1,450	50	1,475	400	1,500	580
2456	1,431	300	1,434	400	1,434	448
2457	580	20	765	150	1,099	313
2458	1,669	75	1,669	150	1,669	272
2459	580	50	1,100	650	1,400	884
2460	1	0	1	250	1	472
2461	400	50	2,900	700	3,208	1,399
2462	1,125	50	1,242	500	1,242	918
2463	1,192	30	1,192	500	1,192	539
2464	600	200	767	300	767	369
2465	600	75	877	325	877	392
2466	10	35	50	100	117	159
2467	365	90	445	100	535	121
2468	250	30	500	100	547	189
2469	100	0	2,000	350	3,243	812
2470	0	0	0	0	0	0
2471	0	0	30	10	79	23
2472	0	0	0	0	0	0
2473	20	0	500	100	1,120	308
2474	24	0	80	30	200	66
2475	10	0	2,085	500	2,780	662
2476	150	15	1,200	150	1,370	321
2477	1,600	0	2,100	200	2,305	616
2478	855	0	1,500	300	2,236	479
2479	27	5	33	10	33	11
2480	200	20	300	150	396	548
2481	820	1,400	1,150	1,350	1,454	1,302
2482	1,100	0	1,800	400	2,094	1,059
2483	260	20	420	100	462	131
2484	7	0	12	0	18	3

Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2485	400	600	426	1,200	426	1,420
2486	308	180	606	195	606	195
2487	6	0	50	20	403	95
2488	300	0	1,100	200	1,562	379
2489	650	0	1,200	200	1,696	381
2490	220	10	300	150	500	328
2491	430	10	460	100	480	262
2492	400	2,500	400	2,750	401	2,983
2493	16	300	17	400	17	493
2494	500	600	591	700	591	795
2495	650	420	660	480	662	485
2496	329	2,700	329	2,500	329	2,126
2497	422	2,900	422	3,000	422	3,009
2498	815	30	925	100	1,075	188
2499	85	10	100	20	113	35
2500	900	40	920	175	929	251
2501	854	15	856	50	856	70
2502	970	50	990	200	995	503
2503	602	800	750	800	750	820
2504	600	2,000	600	2,000	600	1,536
2505	1	640	1	750	1	963
2506	204	80	204	130	204	191
2507	370	500	516	675	516	901
2508	1,190	40	1,338	100	1,338	168
2509	500	20	747	100	747	145
2510	925	40	1,069	200	1,069	432
2511	265	30	350	80	400	136
2512	49	0	75	20	107	35
2513	150	15	172	40	196	80
2514	100	50	200	100	226	208
2515	130	120	180	200	197	333
2516	1,380	700	1,508	1,000	1,508	1,041
2517	90	70	100	500	177	2,320
2518	865	20	869	100	869	260

Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2519	800	20	988	190	988	194
2520	60	0	90	15	135	35
2521	792	20	862	900	862	954
2522	520	15	535	200	535	223
2523	500	10	763	190	763	192
2524	112	15	113	40	113	65
2525	15	375	15	400	15	500
2526	520	250	650	350	1,059	621
2527	133	5	150	20	176	54
2528	225	10	315	50	350	101
2529	170	10	250	40	329	84
2530	1,580	40	1,580	200	1,580	391
2531	620	400	800	500	914	550
2532	1,100	2,600	1,383	3,000	1,383	3,243
2533	1	10	1	10	1	9
2534	1	150	1	500	1	1,118
2535	31	700	31	900	31	1,204
2536	727	15	727	30	727	38
2537	589	10	590	100	590	156
2538	1,134	20	1,143	75	1,143	174
2539	650	40	701	300	701	604
2540	525	100	525	200	525	295
2541	300	5	603	50	603	111
2542	75	5	152	150	152	334
2543	675	20	675	75	675	101
2544	770	300	1,167	800	1,167	863
2545	3	500	0	1,000	0	2,153
2546	0	1,750	0	2,100	0	2,720
2547	57	1,700	57	1,500	57	1,340
2548	214	140	500	350	1,325	510
2549	924	20	987	100	987	150
2550	2	1,000	2	1,200	2	1,398
2551	417	500	417	516	417	516
2552	210	30	300	60	367	117

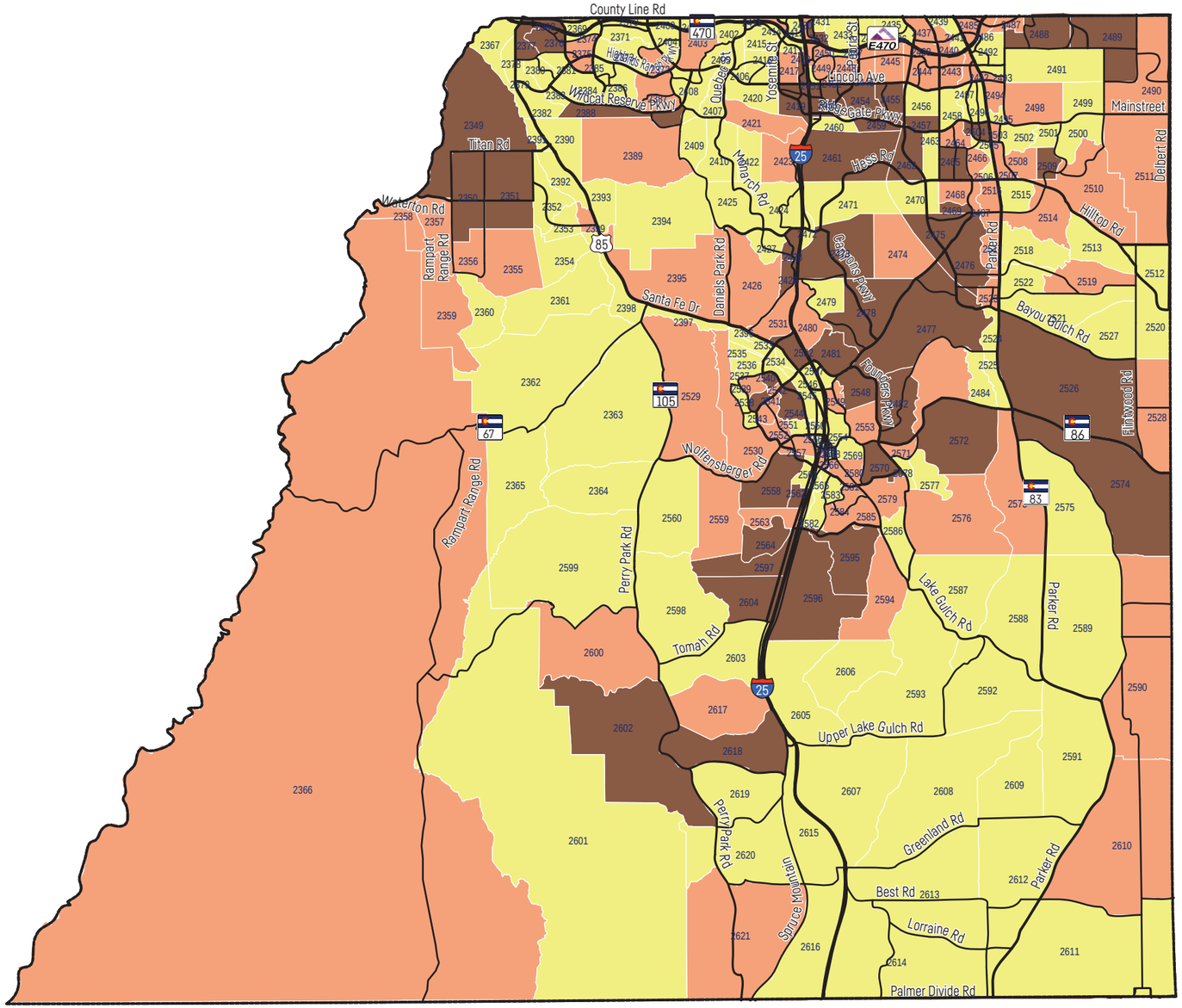
Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2553	525	40	590	80	766	156
2554	681	140	698	200	698	431
2555	25	580	25	600	25	621
2556	69	525	69	500	69	432
2557	417	1,200	510	1,300	510	1,359
2558	101	10	150	1,000	609	2,541
2559	150	25	250	50	513	156
2560	245	15	255	35	258	56
2561	11	10	17	500	17	725
2562	8	0	15	0	1,004	250
2563	37	0	50	50	248	1,068
2564	17	0	500	50	2,096	506
2565	4	400	20	600	62	917
2566	157	900	257	1,350	257	1,622
2567	75	750	75	1,200	75	1,858
2568	153	100	153	115	153	115
2569	435	30	501	70	501	79
2570	415	25	600	150	1,526	443
2571	166	250	400	300	596	350
2572	1,140	25	1,500	250	2,166	530
2573	38	6	100	60	287	313
2574	560	100	750	250	1,169	510
2575	40	0	60	15	87	28
2576	150	15	200	40	447	105
2577	1,527	35	1,550	100	1,572	173
2578	676	10	678	20	678	30
2579	460	25	700	70	913	179
2580	713	15	760	80	814	211
2581	174	350	275	400	376	446
2582	384	1,000	385	1,250	385	1,530
2583	730	50	730	100	730	209
2584	443	25	447	50	447	87
2585	334	30	400	80	526	162
2586	6	0	20	10	103	29

Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2587	3	0	15	5	79	18
2588	16	5	24	10	24	13
2589	25	0	46	10	71	23
2590	90	10	135	25	185	40
2591	25	0	50	10	80	26
2592	52	0	64	10	78	19
2593	41	243	65	200	98	121
2594	266	30	400	70	541	129
2595	900	50	2,000	600	3,458	937
2596	324	100	400	450	1,828	613
2597	65	0	300	500	1,638	2,027
2598	150	0	165	10	188	35
2599	123	0	135	5	150	18
2600	42	0	60	15	231	50
2601	17	0	18	0	18	0
2602	820	50	1,250	100	1,726	573
2603	30	10	50	30	107	50
2604	72	30	175	70	1,012	253
2605	6	10	7	8	7	8
2606	6	0	20	0	83	18
2607	6	0	13	4	13	4
2608	9	0	15	0	21	3
2609	8	0	14	5	14	8
2610	82	10	140	30	219	81
2611	90	10	130	40	175	130
2612	36	0	44	5	59	13
2613	120	10	140	20	163	47
2614	197	0	220	20	266	76
2615	35	100	38	200	38	438
2616	9	0	9	0	9	0
2617	450	20	500	100	538	183
2618	280	100	350	200	833	831
2619	103	17	145	50	200	202
2620	86	0	110	15	173	50

Table C-1: Total Households and Employment Assumed for 2020, 2030, and 2040						
	2020		2030		2040	
TAZ	Households	Employment	Households	Employment	Households	Employment
2621	200	10	280	50	342	188
Total	128,878	123,406	167,315	168,535	201,962	220,276
Prepared by Douglas County Department of Community Development, January 2018						

2040 Douglas County Transportation Master Plan

DOUGLAS COUNTY GROWTH IN HOUSEHOLDS 2012 TO 2040



Legend

xxxx Traffic Analysis Zone Number

Growth in Households

- Limited Growth
- Low Growth
- High Growth

Limited Growth: Little to No Change

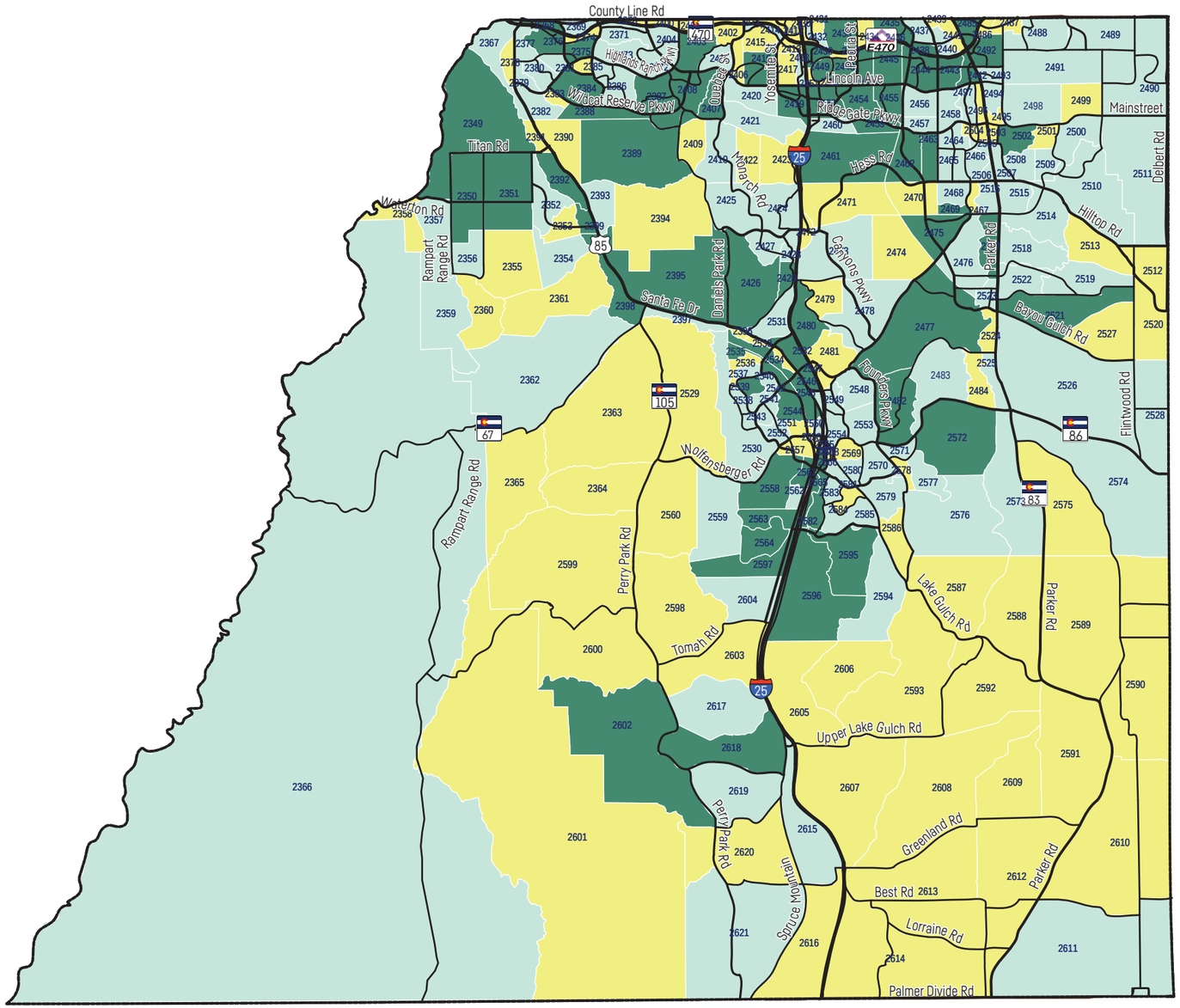
Low Growth < 500 Household Increase

High Growth > 500 Household Increase

0 2 4 6 8 10 Miles

2040 Douglas County Transportation Master Plan

DOUGLAS COUNTY GROWTH IN JOBS 2012 TO 2040



Legend

xxxx Traffic Analysis Zone Number

Growth in Jobs

- Limited Growth
- Low Growth
- High Growth

Limited Growth: Little to No Change

Low Growth < 500 Employee Increase

High Growth > 500 Employee Increase

0 2 4 6 8 10 Miles

2040 TRANSPORTATION MASTER PLAN

Douglas County
Transportation
Master Plan