Denver Regional Council of Governments

2040 Fiscally Constrained Regional Transportation Plan

RTC and Board Action Draft

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1. INTRODUCTION

The Denver region's quality of life depends greatly on mobility. Mobility refers to the ease of moving people and goods from place to place, how accessible destinations are, and having a variety of travel options available. Rapid growth in the region poses a challenge to providing adequate mobility. By 2040, an additional 1.2 million residents and more than half a million additional jobs will place much greater demands on the transportation system. The *2040 Fiscally Constrained Regional Transportation Plan* (2040 RTP) addresses the challenges and guides the development of a multimodal transportation system over the next 25 years.

A. What is the 2040 Regional Transportation Plan?

DRCOG is the designated metropolitan planning organization (MPO) for the Denver area. As such, it is federally charged with developing a long-range regional transportation plan that defines the integrated, multimodal, metropolitan transportation system. This *2040 Fiscally Constrained Regional Transportation Plan* (2040 RTP) addresses federal requirements for the process of developing, and the content to be included within, a long-range transportation plan. Specifically, the 2040 RTP defines transportation elements and services to be provided over the next 25 years based on reasonably expected revenues. Revenues must be reasonably expected to fund construction of these major projects, as well as to maintain and operate the transportation system. Future revenues are also preserved for transit service, bicycle, pedestrian, preservation and maintenance, operations, and air quality projects. Reasonably expected revenues fall far short of allowing the 2040 RTP to fully address future transportation needs and desires. However, the 2040 RTP does provide for high-priority strategic investments in the Denver region's multimodal transportation system.

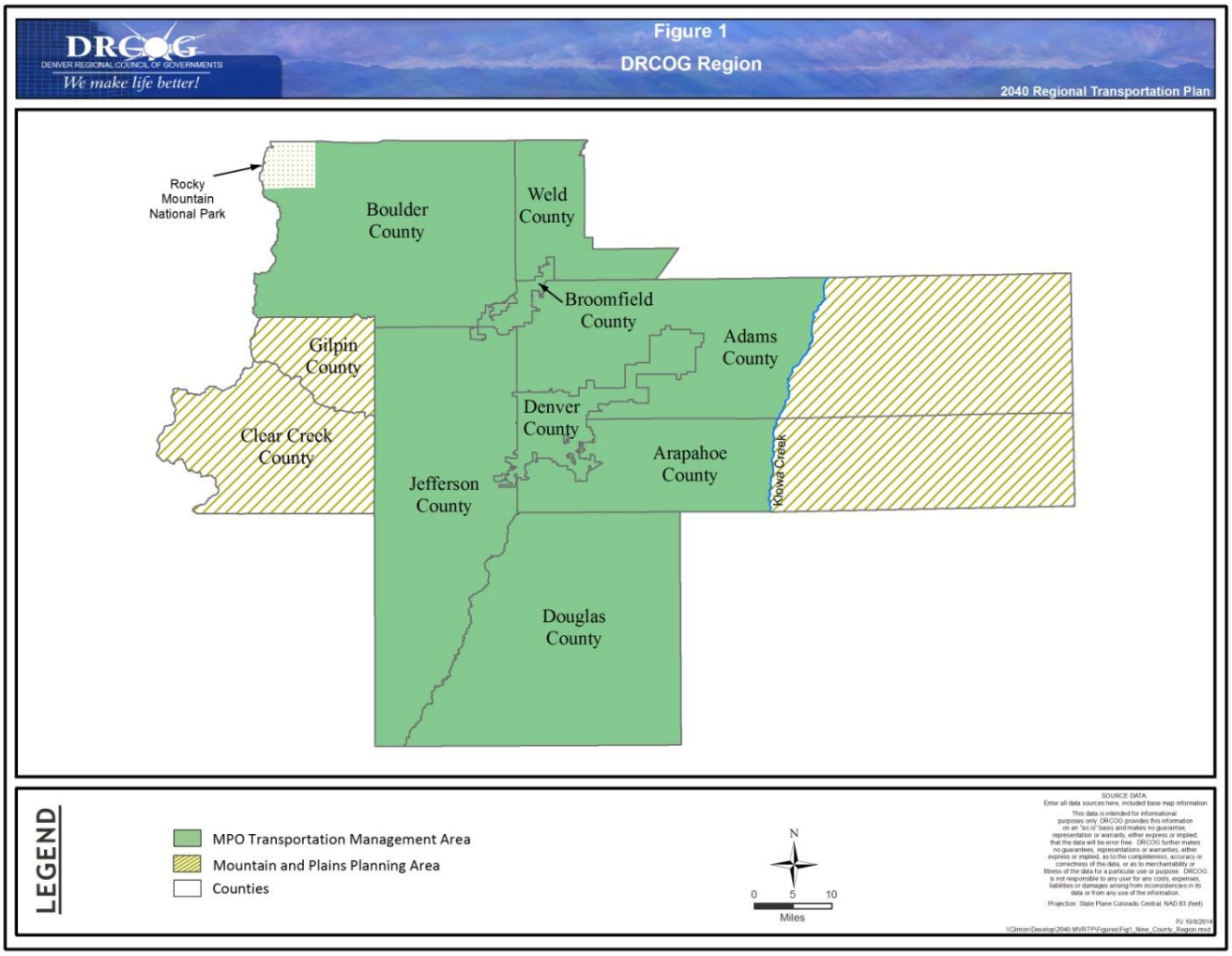
For Further Detail…

This 2040 RTP addresses the components of the region's transportation system that will be implemented with available revenues through 2040. See the 2035 Metro Vision Regional Transportation Plan for information about the Denver region's transportation vision, goals, policies, multimodal system background, and other important context.

The 2040 RTP will be implemented through Transportation Improvement Programs (TIPs). The TIP identifies all current federally funded transportation projects to be completed in the Denver region over a six-year period with federal, state or local funds.

Regionally significant projects must be identified in a fiscally constrained long-range plan before they can be funded and constructed through a TIP. Further, the federal Clean Air Act Amendments of 1990 require transportation plans, programs, and projects in non-attainment/maintenance areas for air quality to conform to the State Implementation Plan (SIP) for air quality. The 2040 RTP is DRCOG's fiscally constrained regional transportation plan for federal funding purposes, and has been prepared to assure conformity with Colorado's SIP.

The 2040 RTP defines transportation facilities, improvements, and services for the entire DRCOG region. It includes the MPO Transportation Management Area (TMA) and the mountainous and plains areas of the transportation planning region, as shown in Figure 1.



To plan for meeting current and future challenges, the 2040 RTP:

- Enhances the relationship between transportation and land use development;
- Provides for maintenance of the existing system;
- Incorporates transportation management actions to increase the existing system's efficiency;
- Includes travel demand management efforts to reduce single-occupant vehicle trips;
- Identifies transit and roadway improvements to increase the system's people-carrying and freight movement capacity;
- Adds bicycle and pedestrian facilities;
- Prioritizes improvements given limited reasonably expected revenues;
- Integrates plan components to yield a connected and complete system, and
- Encourages coordination between neighboring communities and between agencies.

DRCOG developed the 2040 RTP in cooperation with local governments, the Colorado Department of Transportation (CDOT), the Regional Transportation District (RTD), the Regional Air Quality Council (RAQC), and the Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment (CDPHE). Decisions were made through the transportation committee structure and by the DRCOG Board of Directors with consideration of public input. DRCOG also coordinated with CDOT as it prepared its 2040 Statewide Transportation Plan and related modal and operations plans.

B. Relationship to DRCOG's Metro Vision Plan and Metro Vision Regional Transportation Plan

The Metro Vision Plan is the long-range growth and development strategy for the Denver region. Its goal is to protect the quality of life that makes the region such an attractive place to live, work, play, and raise a family. It integrates plans for growth and development, transportation, and environmental quality into a single comprehensive foundation for regional planning. Metro Vision calls for a balanced multimodal surface transportation system. The current *Metro Vision 2035 Plan* was adopted in 2011.

The *Metro Vision 2035 Plan* establishes a vision of how the future multimodal transportation system will serve the people and businesses of the Denver region. An overall goal statement of Metro Vision integrates mobility, land use, and development, and is supported by 14 policies to guide the implementation of the transportation system.

The *Metro Vision Regional Transportation Plan* (MVRTP) implements the transportation element of Metro Vision. The MVRTP contains an unconstrained vision plan, outlining the region's total

transportation needs, as well as the Fiscally Constrained RTP, which includes those projects that can be implemented given reasonably expected revenues.

DRCOG is in the process of preparing new 2040 plans – Metro Vision 2040 and the 2040 MVRTP – with anticipated adoption in mid-2015. To meet federal requirements and timeframes relating to air quality conformity, DRCOG must adopt this *2040 Fiscally Constrained RTP* (2040 RTP) in early 2015. The 2040 RTP will be integrated into the 2040 MVRTP in mid-2015.

The 2040 RTP is based on the goals and policy direction of *Metro Vision 2035* along with input received to date for *Metro Vision 2040*. Specifically, the process for selecting regionally significant roadway capacity projects used updated Metro Vision-based criteria adopted by the DRCOG Board in April 2014.

C. Federal Requirements

This 2040 RTP addresses federal requirements pertaining to MPO long-range transportation plans related to the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU) and *Moving Ahead for Progress in the 21st Century* (MAP-21) legislations. Key federal requirements include:

- ***Fiscal constraint.*** Reasonably expected revenues will be available to pay for the project costs identified in the 2040 RTP, and specifically project costs do not exceed available revenues.

- ***Air quality conformity.*** The 2040 RTP conforms with the SIP for air quality, meaning the network of fiscally constrained projects do not violate established emissions budgets for pollutants.

- ***Public involvement.*** The 2040 RTP planning process included meaningful and accessible opportunities for public input and engagement throughout the plan development process.

- ***Environmental justice.*** Regionally significant, regionally funded fiscally constrained projects will provide extensive benefits and not disproportionally impact areas with identified concentrations of low income and/or minority populations.

- ***MAP-21 planning factors.*** The 2040 RTP and metropolitan planning process consider projects and strategies that will address the eight "planning factors" relating to safety, security, economic vitality, and other national priorities.

- ***Planning emphasis areas.*** The 2040 RTP addresses the topics identified by FHWA and FTA as "planning emphasis areas" for the metropolitan planning process.

Each of these federal requirements is discussed in the appropriate section or appendix of the 2040 RTP.

D. Transportation Challenges & Planning Assumptions

There are many challenges to be considered in the regional transportation planning process. Major challenges are summarized below, with more detail to be provided in the 2040 MVRTP.

1. Growth Challenges

- ***Population and economic growth.*** The population of the Denver region is expected to increase from about 3.1 million in 2015 to more than 4.3 million by 2040, an increase of almost 40 percent. The number of jobs is forecast to increase from about 1.8 million in 2015 to almost 2.4 million by 2040, an increase of about 30 percent. People living in, working in, and visiting the region in 2040 will make more than 16 million total trips (14 million vehicle trips) and drive about 105 million miles each and every weekday. Table 1 and Figure 2 display past, current, and forecast population, households, and employment for the Denver region.

  Population and employment growth outside the current DRCOG planning area in Elbert County, El Paso County, Larimer County, and Weld County will also affect the Denver region. Congestion on major interregional highways such as I-25, I-70, US-85, and US-287 will be impacted by the increase in commuter and visitor trips to and from the region. The estimated number of daily work commuters between neighboring counties and the Denver region in 2010 are shown in Figure 3. According to 2006-2010 American Community Survey (ACS) data, almost 61,000 workers traveled into the region and about 24,000 residents traveled out of the region to work.

Table 1 DRCOG Region Population, Households, and Employment									
	Population			Households			Employment		
	1980	2015	2040	1980	2015	2040	1980	2015	2040
Denver TMA	1,607,400	3,091,100	4,277,900	656,000	1,261,500	1,745,900	915,100	1,807,600	2,348,300
Mountains & Plains	14,800	28,400	35,700	6,700	12,100	15,000	5,400	10,700	11,400
DRCOG Region Total	**1,622,200**	**3,119,500**	**4,313,600**	**662,700**	**1,273,600**	**1,760,900**	**920,500**	**1,818,300**	**2,359,700**

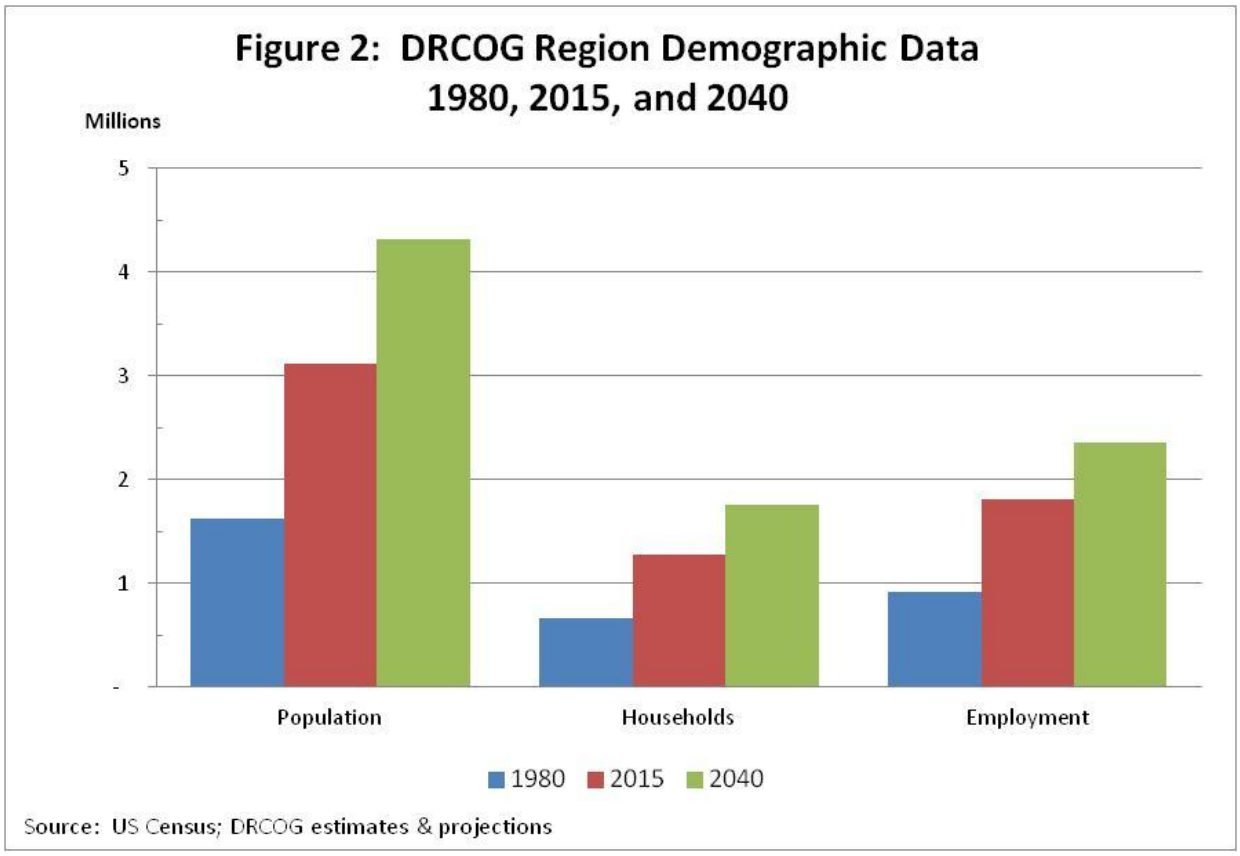


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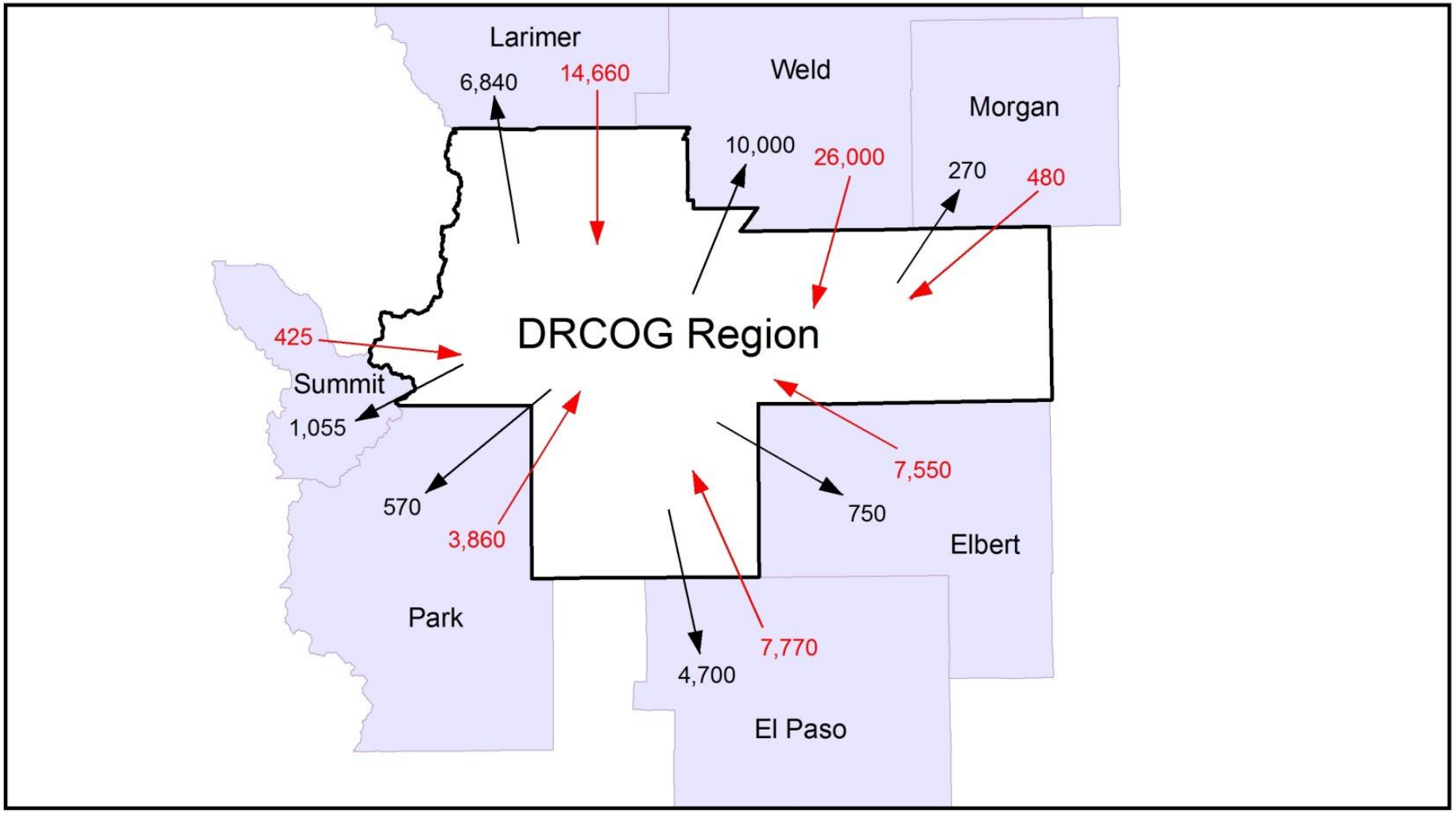
Figure 3
Work Trips Between DRCOG Region and Neighboring Counties

2040 Regional Transportation Plan



LEGEND

Work Trips From the DRCOG Region

Work Trips To the DRCOG Region

(U.S. Census Bureau, ACS 2006-2010 5 Year Est., Special Tabs for CTPP)

N

0 10 20

Miles

SOURCE DATA:
Enter all data sources here, included base map information

This data is intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no guarantee, representation or warranty, either express or implied, that the data will be error free. DRCOG further makes no guarantees, representations or warranties, either express or implied, as to the completeness, accuracy or correctness of the data, or as to merchantability or fitness of the data for a particular use or purpose. DRCOG is not responsible to any user for any costs, expenses, liabilities or damages arising from inconsistencies in its data or from any use of the information.

Projection: State Plane Colorado Central, NAD 83 (feet)

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2. Land Development Challenges

- ***Location of growth.*** Most of the expected increase in the region's population and employment will occur within the urban growth boundary/area. In addition, much of it will be concentrated in urban centers (Figure 4). However, growth will also occur in locations far from the Denver Central Business District (CBD). As the region's urban development expands, some people and businesses will inevitably have to make longer trips, placing greater demands on the transportation system. In selected areas, urban centers will absorb a significant amount of growth and offer more convenient accessibility via bus or rail transit and opportunities for shorter nonmotorized trips via walking and bicycling.

- ***Less efficient development patterns.*** Developments with poor pedestrian connections and bicycle facilities, and those with separated or disconnected residential and commercial areas can result in an increased reliance on the automobile. The lack of direct pedestrian or bicycle access between subdivisions and arterial streets, commercial centers, and other community resources (e.g., bus stops) discourages walking and bicycling.

3. Social Challenges

- ***Automobile dominance.*** The automobile (including cars, vans, pick-ups, and sport utility vehicles) is the region's dominant form of household transportation. And for most trips, the automobile contains only a single occupant, the driver. The 2008-2012 ACS data showed that about 76 percent of workers traveled alone in their automobiles to work. About six percent worked at home, and the remaining 18 percent carpooled, walked, bicycled, or took transit.

- ***Increased travel.*** Vehicle miles traveled (VMT) increased 4.7 percent annually between 1990 and 2000, but remained flat between 2006 and 2011. Starting in 2012, VMT began increasing again, but at a slow rate (1-2 percent). VMT is currently forecast to increase through 2040 due to population and employment growth. However, per capita VMT growth is forecast to remain relatively flat, or even slightly decline, from 25.4 in 2015 to 24.3 by 2040. This means that, while both population and total VMT will increase significantly by 2040, their growth rates will be very similar. Past VMT trends and future forecasts are displayed in Figure 5.

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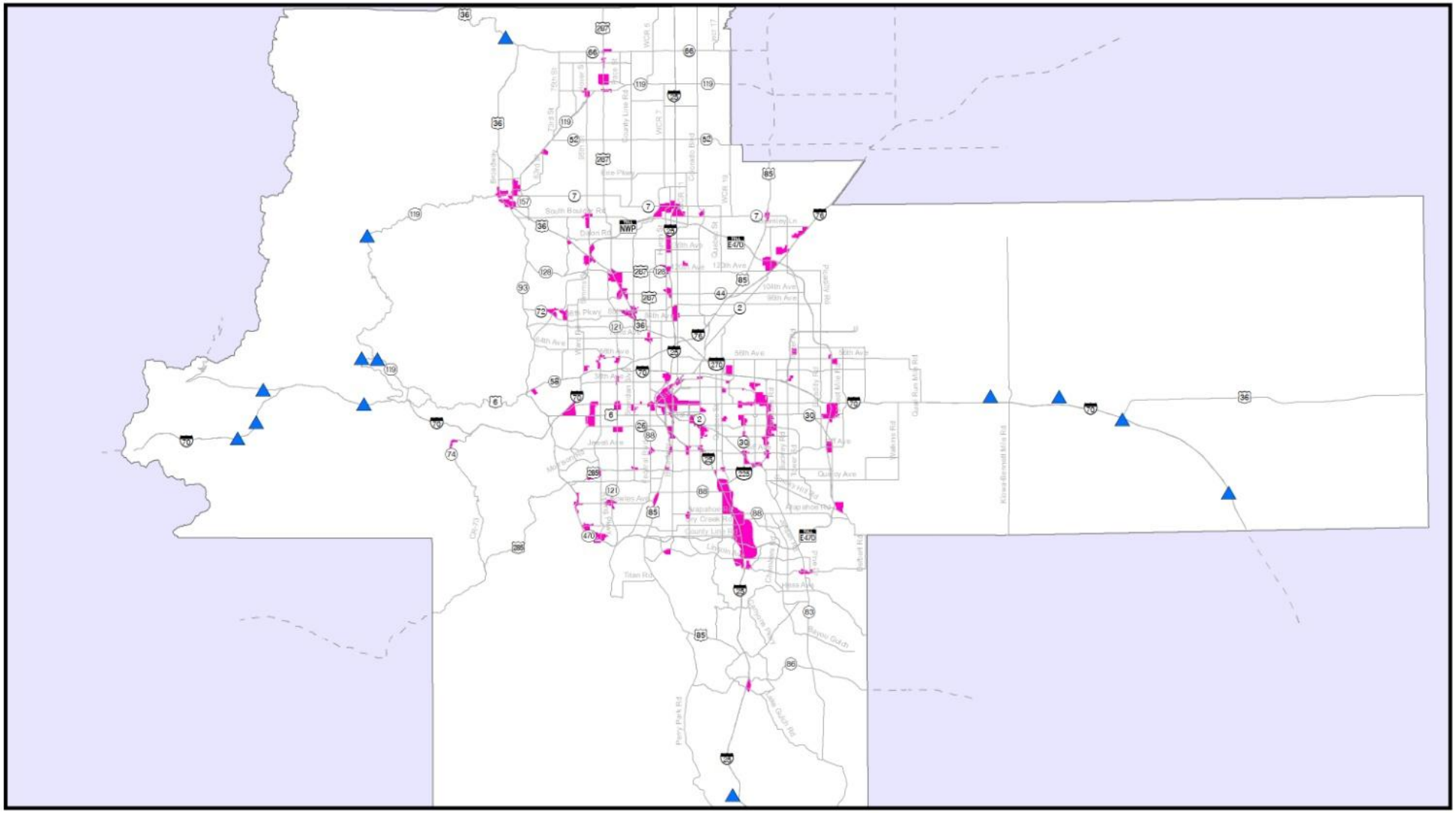
Figure 4
Existing Urban Centers and Rural Town Centers

2040 Regional Transportation Plan



LEGEND

- Urban Centers
- Rural Town Centers

N

0 5 10
Miles

SOURCE DATA:
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Projection: State Plane Colorado Central, NAD 83 (feet)

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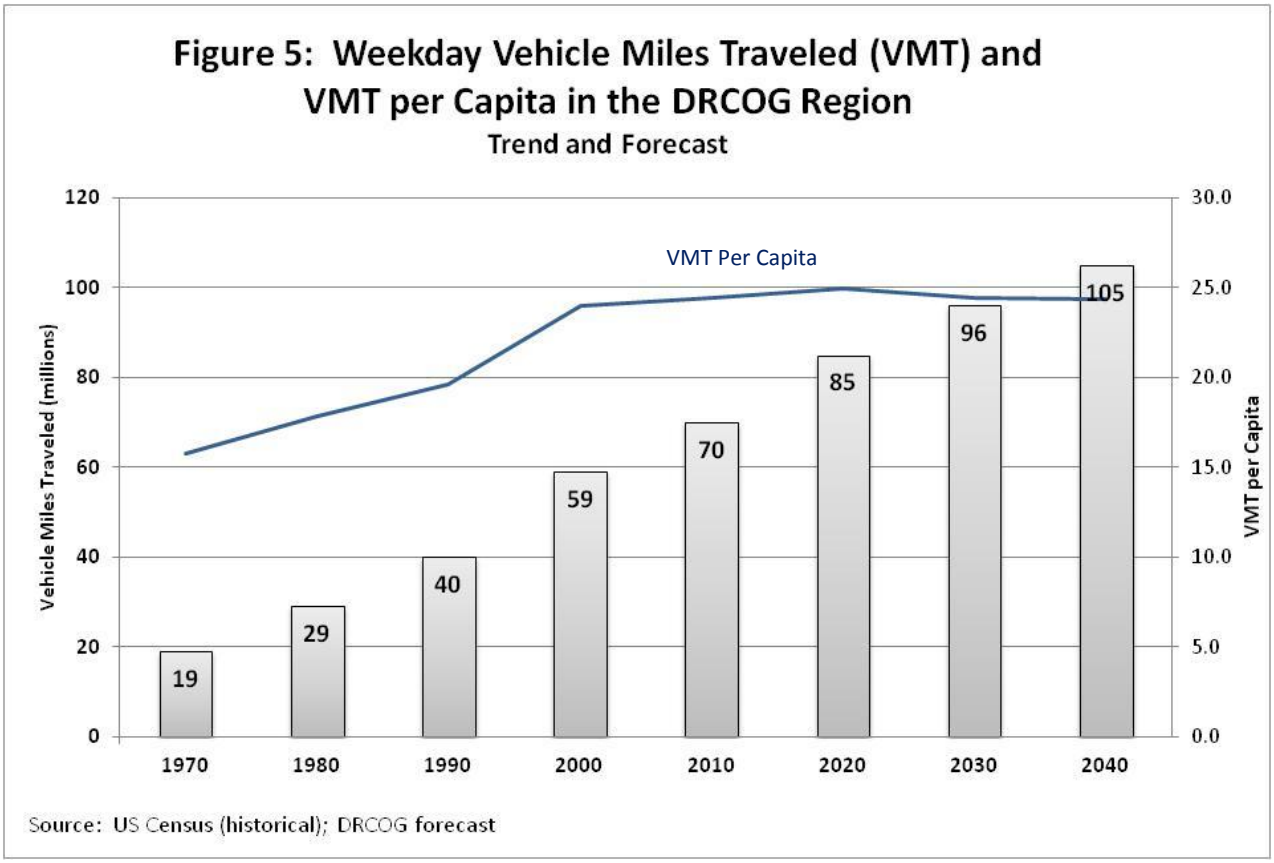

- ***Jobs/housing balance.*** In areas that lack a good balance of jobs and housing, there are fewer opportunities to live close to work. It is also less likely that nonmotorized modes can be used to travel to work. A good balance of jobs and housing provides more opportunities to live close to work, though that outcome is not assured. People change jobs frequently and housing costs impact where workers can live.

- ***Growth of older adult population.*** The older adult population is growing at rates faster than the general population. Between 2015 and 2040, the number of area residents aged 60 and older is expected to double from approximately one in eight to one in four. Additionally, many older adults will choose to age in place, creating the need for the region's communities to retrofit existing transportation facilities and expand transportation services to serve the rapidly growing aging population.

4. Transportation Challenges

- ***Mobility options for persons without a car.*** According to the 2010 Census, about 40,000 households in the Denver region did not have an automobile available for work. People living in these households may choose not to drive, or may not drive because of health or income reasons. They still have a need to travel to work, health facilities, schools, stores, and other destinations. Friends or family members may provide rides, but it is important to also offer

public transit services, carpool assistance, ridesharing and carsharing services, and facilities for convenient walking and bicycling trips.

- ***Traffic congestion.*** Recent growth in VMT combined with little increase in highway capacity has resulted in about 386 miles of freeways and arterials identified with severe congestion in 2011 (corridors with a DRCOG congestion mobility grade of D or F as shown in Figure 6)**.** The number of congested miles is expected to increase by almost 50 percent, to 569 miles by 2040. Figure 6 identifies key congested locations on the regional roadway system anticipated in 2040.
- ***Impacts of expansion and construction*****.** Many travel corridors in the region are densely developed with little available room for expansion. Roadways and railroad lines in these areas are fronted with residences or businesses, often close to the travelway. The ability to widen a roadway or provide a rapid transit corridor is costly and often requires residential and business acquisitions that may cause community and economic impacts.
- ***Increase in traffic crashes.*** There will likely be more annual crashes in 2040 because of the growth in population and VMT. The number and severity of crashes in the future will also be dependent on legislative, law enforcement, technological, and social actions. The 57,700 reported crashes for the Denver region in 2010 resulted in approximately 7,000 injuries and 161 fatalities, and hours of congestion delay for travelers.
- ***Recreational traffic.*** The Denver region's quality of life depends upon the abundant recreational opportunities nearby. Thousands of people travel to and from recreational activities in the mountainous areas of Colorado, both within the region and adjacent to it. Traditionally, they travel around the same general time. Roadways such as I-70 and US-285 experience extreme congestion during weekend peak periods, such as Sunday afternoons. Local communities are impacted by this congestion, which affect the ease of making local trips, emergency response to traffic crashes, and noise, air, and water quality.
- ***Future unknowns.*** There are many unknown and unpredictable trends that will influence transportation and mobility between now and 2040. These include fuel prices and availability, alternative fuels, connected and driverless vehicles, and others. Technology is constantly evolving, and macroeconomic and other trends could have significant implications that are as yet unknown.

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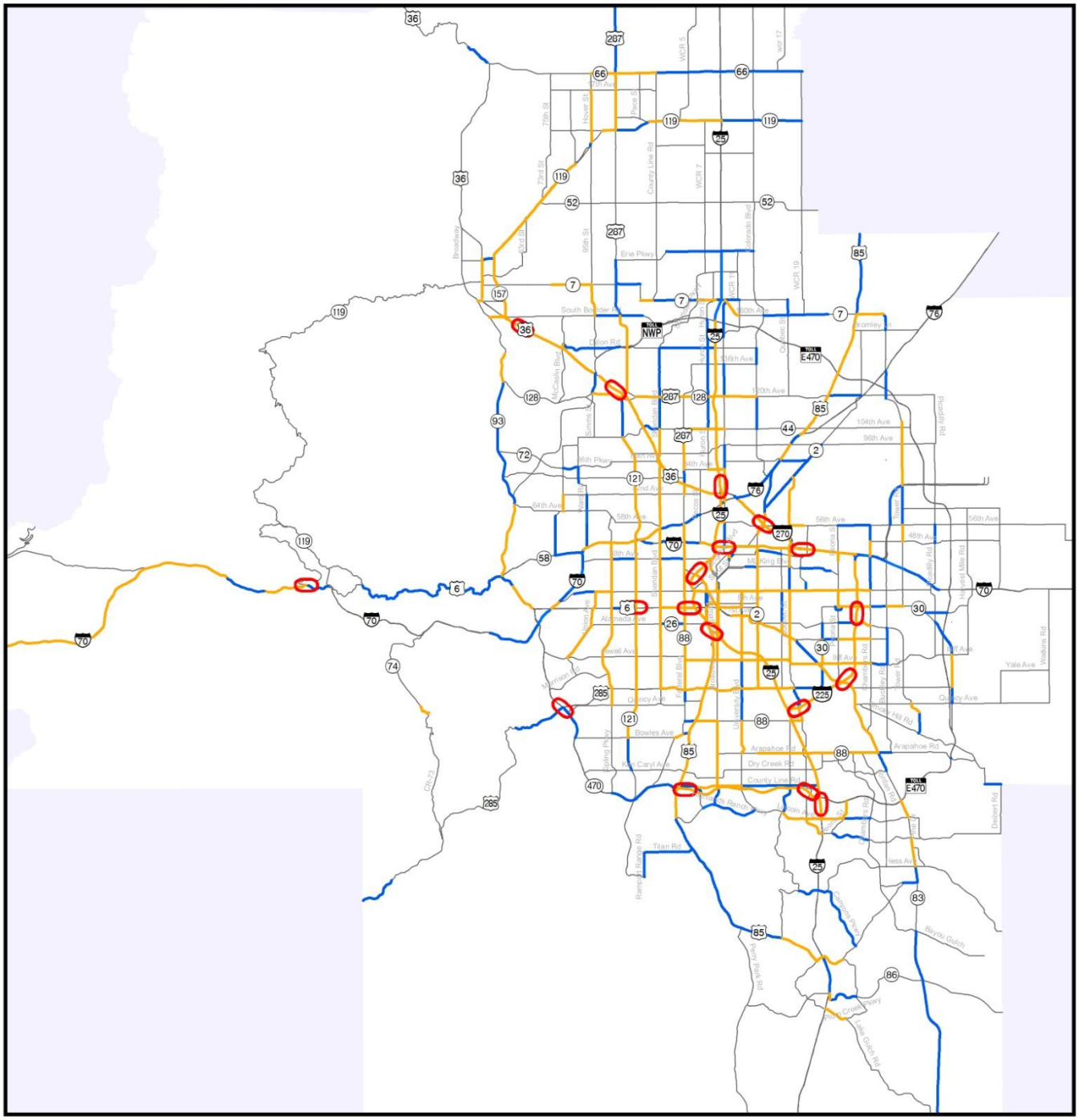
Figure 6
Key Congested Locations in 2011 and 2040
2040 Regional Transportation Plan



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Congested Corridors in 2011 and 2040
(Congestion Mobility Grade of D or F)
- Corridor Congested in 2011
- Corridor Congested by 2040
- 2011 Freeway Bottleneck Points

N

0 4.5 9
Miles

SOURCE DATA:
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Projection: State Plane Colorado Central, NAD 83 (feet)

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5. Environmental Challenges

- ***Air quality.*** Emissions from mobile sources, (e.g., automobiles and trucks), are a major contributor to air pollution. The number of pollutant violations recorded in the region has decreased from the 1980s, primarily due to automobile pollution control equipment, the state's inspection and maintenance program, the oxygenated fuels program, and changes in street sanding and sweeping practices.

  Ground-level ozone is currently of greatest concern in the Denver region. It is formed in the summertime when volatile organic compounds and nitrogen oxides mix and react in the presence of sunlight. Results for the three-year period 2005-2007 showed that the region did not achieve the EPA pollutant standard for the designated Denver-North Front Range ozone non-attainment area. The lead air quality agencies prepared an ozone attainment SIP that contains necessary control measures and the motor vehicle emissions budgets that the region is using for air quality conformity to attain the standard.

  Even with continued technological improvements to automobile pollution control equipment, expected VMT growth may jeopardize air quality. Consequently, continued efforts to slow the growth in travel demand, promote optional modes of travel, and pursue technological improvements and cleaner fuels need to be made.

- ***Water quality.*** Water pollution is caused by many factors related to regional development, including the construction and operation of the transportation infrastructure. Growth in traffic can cause increased runoff of pollutants created by brakes and tires. As the physical transportation network expands, the amount of impervious surface increases, resulting in greater runoff.

6. Funding Challenges

- ***Limited funds***. Financial resources for transportation over the next 25 years of the plan are currently expected to be far less than needed to maintain the current transportation system to high standards, let alone expand it. Transportation funding has not kept pace with the continued growth in travel demand or increases in transportation construction costs. Fewer than half of the capacity improvements identified for the Metro Vision transportation system can be funded. Additional federal, state, local, and private revenue sources must be found. A variety of locally-derived funding sources, such as local government funds, public private partnerships, and other creative sources, are currently helping to fill a small part of the gap in transportation funding.

E. Summary Transportation System Description

The Denver region's transportation system consists of a multimodal network of integrated regional transportation facilities and services. Integration refers to travel modes acting in unison (e.g., a roadway with bike lanes and sidewalks), as well as transfers between modes. The components of the multimodal transportation system are briefly summarized below; the *2035 Metro Vision Regional Transportation Plan* provides further details and context.

Roadway System

The Denver region has numerous freeways, tollways and managed lanes, interchanges, state highways, federal land access roads, and major local streets. For transportation planning purposes, DRCOG designates a *Regional Roadway System* consisting of freeways, tollways, major regional arterials, and principal arterials ("freeways" may include managed lanes or optional tolled segments). The Regional Roadway System is the planning network DRCOG uses for air quality conformity analysis, transportation project eligibility (for the RTP and TIP), and for summarizing RTP data tabulations.

Rapid Transit System

The region's rapid transit system includes an expanding network of light rail, future commuter rail, future bus rapid transit, Denver Union Station, other transit stations and park-n-Ride lots, and existing and future bus/high-occupancy vehicle (HOV) lanes, some of which also function as high-occupancy toll (HOT) lanes. Other regional and intercity transit elements include Amtrak service, Greyhound and other intercity bus service, and future inter-regional express bus service planned by CDOT. RTD's FasTracks Rapid Transit System is discussed in more detail later in the 2040 RTP.

Fixed Route Bus and Other Transit Services

RTD and other public and private operators provide important services to the region's growing population. A variety of services address the mobility needs of persons who cannot drive and those who desire an alternative to the private motor vehicle. Bus routes provide extensive service to customers along most major streets. Denser urban areas are served by high-frequency bus service with more moderate service provided in other areas. RTD also provides call-n-Ride curb-to-curb transit service with smaller buses in suburban areas and freestanding communities that do not have sufficient demand to warrant fixed-route service. RTD call-n-Ride is also used to support the rapid transit system. RTD provides Americans with Disabilities Act (ADA) service through its access-a-Ride program. Additional service is provided by private non-profit agencies and local government-sponsored providers. Senior centers and places of worship also provide many trips.

Pedestrian Facilities

Walking is a popular travel mode in the Denver region. Pedestrians travel on sidewalks, along roadway shoulders, through parking lots, across lawns, or on multipurpose trails (e.g., bike paths) to go places. Walking is the most flexible mode of travel, and is a part of nearly all trips. However, pedestrian trips cover much shorter distances than other travel modes. The 2035 MVRTP calls for the provision of pedestrian and bicycle facilities and services by local and state governments, recreation districts, and other agencies to encourage walking and bicycling for transportation.

The provision of pedestrian facilities will be specifically addressed in all new transportation design and planning studies. Arterial roadway projects selected by DRCOG for inclusion in the TIP that are within the UGB/A must assure that sidewalks or adjacent multipurpose trails are provided. Local governments should adopt policies that consider the provision of pedestrian facilities in conjunction with all new development and redevelopment.

Bicycle Facilities

The Denver region has one of the highest rates of bicycle use in the nation. The climate, relatively concentrated urban development, extensive off-street trail system, and numerous mixed-use developments contribute to the popularity of bicycling. Bicycles provide an efficient means of transportation for short- to medium-length trips. Bicyclists primarily use the street system as well as the 1,800 miles of bike lanes and off-street trails that crisscross the region. Bicycling is legally allowed on most roadways within the region, with the exception of urban freeways. Thus, in essence, nearly the entire system of roads and off-street trails constitutes the available regional bicycle system.

Several hundred miles of bicycle travel facilities exist or are planned in the Denver region. Existing and planned bicycle facilities include signed routes; striped bicycle lanes, protected bicycle lanes; off-street multi-use or shared facilities. Other supporting facilities include bicycle parking at transit stations and park-n-Ride lots and activity centers; and marked bicycle-sensitive signal detection on intersection approaches. Regional and community bicycle corridors were identified as part of a system to ensure connections among various parts of the region and are shown from the 2035 MVRTP in Figure 7.

The provision of bicycle facilities will be specifically addressed in all new transportation design and planning studies. Arterial roadway projects selected by DRCOG for inclusion in the TIP that are within the UGB/A must assure that on-street bicycle facilities or adjacent multipurpose trails are provided. Local governments

should adopt policies that consider the provision of bicycle facilities in conjunction with all new development and redevelopment.

Multimodal Passenger Facilities

Several major facilities serve as hubs for the movement of passengers between travel modes. These transfer points provide connections to locations throughout the region, the state, the nation, and even the world. Denver International Airport is the most important transfer point in the state for air passenger traffic, providing connections to national and international destinations. Denver Union Station, open in 2014, is a major intermodal passenger terminal serving as the hub for the Denver region as well as for intercity and national rail and bus service. Commuter rail, light rail, intercity rail, Amtrak, special rail services, RTD buses, intercity buses, cars, taxis, trucks, bicyclists, and pedestrians all converge at Denver Union Station. Other major facilities include Civic Center Station, Boulder Transit Center, and major transfer stations between FasTracks rail lines.

Aviation

Air transportation is an important element of the regional transportation system. It is critical to the regional and statewide economy. Tourists, business professionals, air cargo shippers, and many other people depend on airports for their livelihood and quality of life.

CDOT's Division of Aeronautics is responsible for overall aviation planning in Colorado, with one primary tool being the *Colorado Aviation System Plan* (CASP) 2011 Technical Report update. The CASP covers the state's system of airports, including those in the Denver region, except for Denver International Airport. The Denver region's existing (and 2040) airport system is comprised of one air carrier airport (Denver International Airport), one military, four reliever, and two general aviation airports. The 2035 MVRTP contains more detailed information about airport activity, capacity, and expansion for the Denver region's aviation facilities. However, Denver International Airport's continued growth and economic importance to the region and state are worth emphasizing. In 2013, the airport served 52.5 million passengers, making it the fifth-busiest airport in the United States. Additionally, more than 30,000 people work at the airport.

Freight Facilities

The efficient movement of freight, goods, and packages is extremely important to the Denver region's economy. These items are moved by railcars, trucks, vans, airplanes, and pipelines. They move to, from, and within points in the region or pass through without a delivery or pickup. Major intermodal terminals transfer large amounts of cargo between the various travel modes and trucks.

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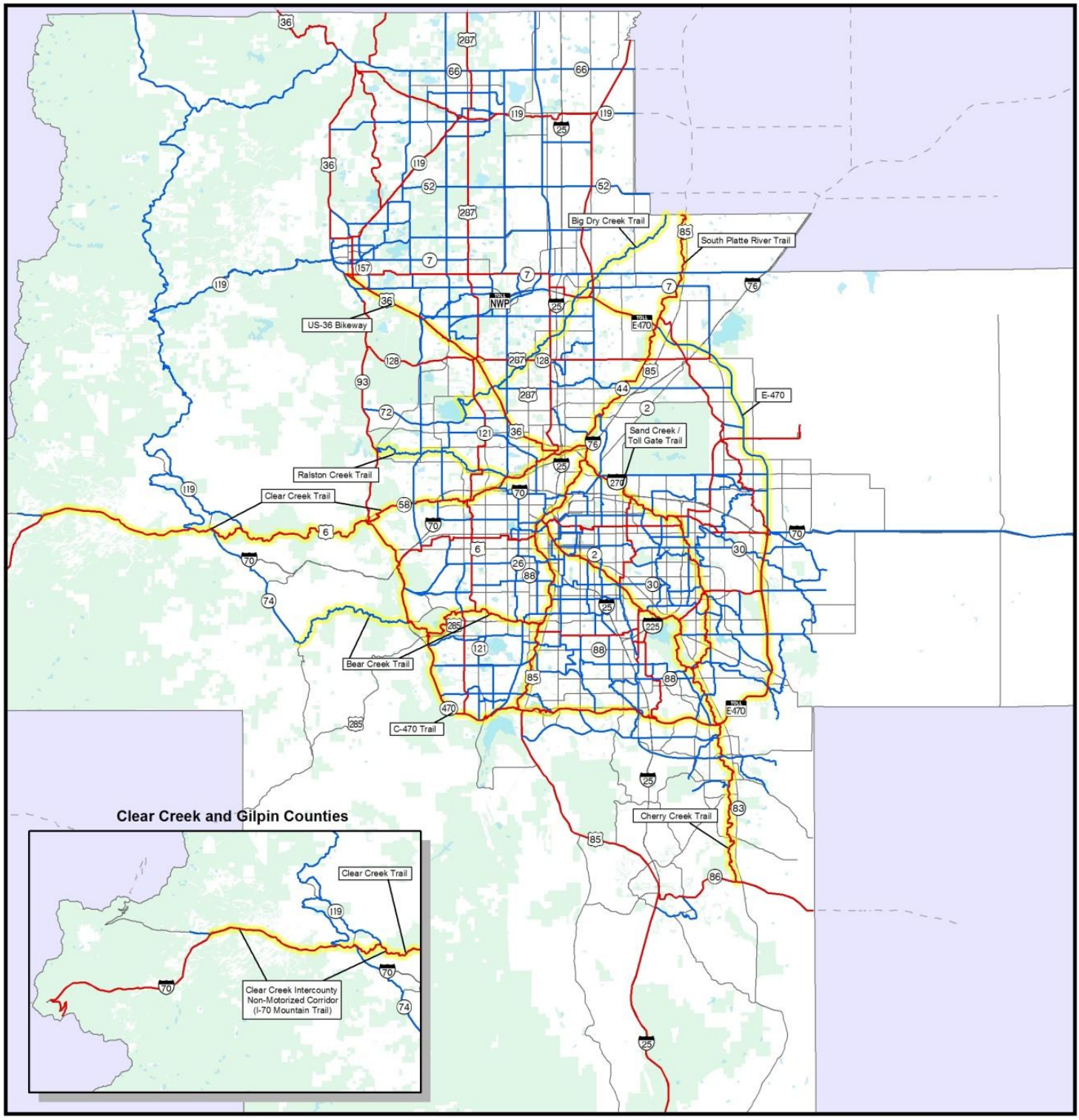
Figure 7
2040 Regional Bicycle Corridor System Vision

2040 Regional Transportation Plan



LEGEND

- Regional Corridors
- Community Corridors
- Key Multi-use Trails

Corridors Note: The specific facility representing a corridor may be directly on the route depicted or may be parallel within 1/4 mile. No more than one facility may represent the defined corridor.

- Regional Roadway System
- Roads Outside Region
- Lakes and Reservoirs
- Open Space and Parks

N

0 5 10
Miles

SOURCE DATA:
Enter all data sources here, included base map information

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Projection: State Plane Colorado Central, NAD 83 (feet)

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Overall, about 105 million tons of freight are shipped to and from the DRCOG region, and another 37 million tons are distributed internally. About 86 percent by weight is shipped by truck. Rail accounts for 10 percent. The remaining freight is shipped by air, pipeline, or a combination of modes. The data in the 2010 Freight Analysis Framework (FAF) indicates that the Denver region was a net importer of freight with an import to export ratio of 2.1. The reliability of freight movements is critical to the operation of many businesses in the region. Such establishments often require just-in-time deliveries of raw materials. Congestion on the transportation system can therefore severely delay production and delivery of final products. Figure 8 shows the rail, air, and intermodal freight network. In 2012, CDOT prepared the *Colorado State Freight and Passenger Rail Plan* to improve the overall effectiveness of the state's freight and passenger rail system, create a vision for rail improvements, and to meet the requirements of the Passenger Rail Investment and Improvement Act. As of late 2014, CDOT is finalizing the Colorado Freight Plan to address highway-based freight.

System Management and Operational Improvements

The overall objective of transportation system management and operational (TSM&O) strategies is to provide more reliable travel times and reduce the amount of delay faced by drivers, passengers, and trucks on the roadway and transit system. The strategies also have a positive impact on safety, congestion, and air quality. To make the best use of the region's transportation system, two classes of system management and operations strategies are implemented: site-specific operational improvement projects and active management of the transportation system. Examples of site-specific operational improvement include queue jump lanes, intersection treatments, access management, wider shoulders, and grade separations. Active management strategies involve personnel and technology to actively manage the transportation system, provide real-time traveler information, and assure efficient and effective day-to-day operations. This class of actions generally falls under the umbrella of Intelligent Transportation Systems (ITS). Finally, pricing strategies will also be explored for implementation in severely congested corridors and in areas with high demand for parking.

Transportation Demand Management

Transportation demand management (TDM) is a set of strategies to reduce the demand for motor vehicle travel, especially in the peak travel periods. TDM strategies promote and facilitate the use of options to single-occupant vehicle (SOV) travel. Such options include ridesharing, vanpooling, transit, bicycling and walking, as well as varying travel times through teleworking and alternative work schedules. They also help to ensure personal mobility options for residents of the region. TDM strategies fall into the following four general categories:

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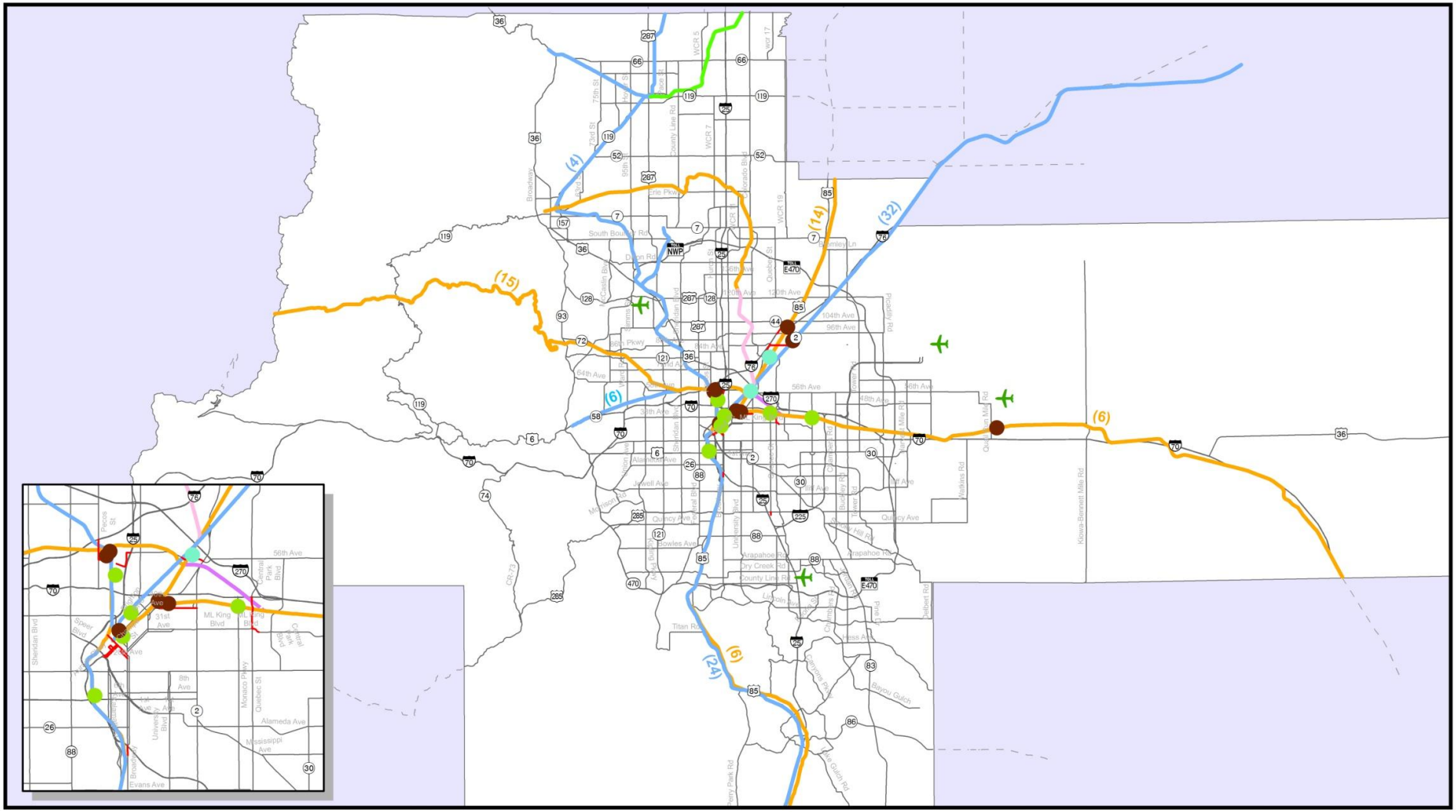
Figure 8
Rail, Air and Intermodal Freight Network
2014

2040 Regional Transportation Plan



LEGEND

- Union Pacific Railway
- BNSF Railway
- Great Western Railroad
- Regional Transportation District (RTD)
- Denver Rock Island Railroad
- (#) Approximate Number of Trains Per Day (2004)
- National Highway System Connectors

- Rail-Truck Transfer Facility
- Pipeline Terminal
- Rail Yard
- Air Cargo Operation

N

0 5 10
Miles

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Projection: State Plane Colorado Central, NAD 83 (feet)

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- ***Promoting options to single-occupant vehicle travel.*** Carpool/vanpool/schoolpool services, guaranteed ride home programs, Bike to Work Day, travel choice information, EcoPass, bicycle sharing programs, and others.
- ***Promoting changes in work travel patterns.*** Teleworking, alternative work schedules, traveler information, and similar strategies.
- ***Incentives to encourage the use of travel mode options.*** Transit fare reductions, parking management strategies, car-sharing and ride-sharing programs, location-efficient mortgages, and others.
- ***Promoting efficient land development designs.*** Transit-oriented development; urban centers; pedestrian/bicycle connections; first and last mile connections between transit and employment; bicycle storage racks and lockers, and others.

The Denver region has a robust network of TDM service providers anchored by DRCOG's *Way to Go* program at the regional level and several transportation management organizations and local governments.

Asset Management & System Preservation

In recognition of the considerable investment in the transportation system, managing and preserving facilities (assets) is increasingly important. The transportation system (roadways, transit system, sidewalks, etc.) naturally deteriorates due to use, time, and climate. Over the life of the 2040 RTP, major reconstruction projects will be needed in most corridors of the region, and costs are steadily rising. To optimize system preservation activities, the 2040 RTP embraces an asset management philosophy of collecting asset condition information regularly over time, and analyzing that data to optimize and prioritize actions. CDOT, for example, has developed a pavement management system, while RTD is responsible for "State of Good Repair" asset management and system preservation activities for its system. Local governments maintain their streets and accompanying sidewalks as well as off-street multi-use trails.

Safety

Traffic crashes result in economic loss from damaged vehicles and goods, personal pain and suffering due to injury, and, occasionally and catastrophically, in loss of life. Crashes are also a major cause of congestion. Motor vehicles crashes are the most common safety concern regarding the transportation system. Roadways will never be crash-free, but efforts will be made to physically improve facilities to reduce the likelihood and severity of crashes. Even stronger efforts will be made to reduce the human errors that are the primary cause of about 80 percent of the crashes in the Denver region. Law enforcement and legislative actions addressing transportation safety are evaluated and considered by regional communities and

lawmakers. Past advancements in safety improvements within vehicles have helped reduce vehicle occupant fatality rates (e.g., air bags). Future technologies, such as vehicle-to-vehicle communication warning systems, hold promise for further reductions to both in-vehicle and out-of-vehicle pedestrian and bicyclist fatalities.

DRCOG, CDOT, and local governments routinely analyze annual crash data to identify roadways and intersections with a high number or rate of crashes. Stand-alone safety projects are then identified and implemented, with many physical safety improvements built as a component of a larger project. Safety elements of candidate projects and existing facility crash rates are also prioritized during the development of TIPs.

Transportation Security

Security for the transportation system and its users involves numerous federal, state, regional, and local agencies. In this region, security is included in emergency management planning, which is coordinated by the public safety community. DRCOG actively participates in the North Central All-Hazards Emergency Management Region (NCR) and the Denver Urban Area Security Initiative (UASI) to address regional transportation security issues. Both organizations coordinate emergency planning personnel from local governments within the DRCOG region as well as key divisions within the Colorado Department of Public Safety. These organizations program federal grant funds available through the Department of Homeland Security (DHS) and the Governor's Office of Homeland Security. These organizations also organize and conduct multi-jurisdictional training and exercises to enhance preparedness.

Emergency management planning is generally subdivided into four phases: preparedness, prevention, response, and recovery. The transportation system is recognized as a critical resource that must be available to assist emergency response and recovery; therefore, the transportation community also has a role to assist in preparedness and prevention as it pertains to protecting the transportation system. Several aspects of security incidents must be planned for such as prevention measures, response plans, coordination and communication protocols, monitoring, and information distribution. Security-focused improvements include coordination, assessments, cameras, patrolling, inspection (such as trucks and railroad tracks), screening (such as at Denver International Airport), monitoring, and information distribution.

2. PROJECT EVALUATION & SELECTION PROCESS

A. Background

The 2040 RTP classifies transportation projects into two broad categories: those that are *regionally significant* for air quality conformity purposes, and those that are not.

Regionally significant projects must be listed individually in the RTP, and the transportation networks containing these projects must be modeled to demonstrate compliance with federal air quality conformity requirements. Non-regionally significant projects are not identified in the 2040 RTP. Rather, estimated expenditure amounts are listed by project type through 2040, such as for reconstruction, maintenance, transit service, and bicycle and pedestrian facilities. Non-regionally significant projects are developed by project sponsors and identified in short-range TIPs.

What are regionally significant projects? They are major roadway, interchange, and rapid transit projects that significant change the capacity of the transportation network. Examples of regionally significant projects include the following:

- ***Roadway capacity.*** Adding (or deleting) at least one continuous through-lane-mile on the designated Regional Roadway System, such as widening a roadway from two lanes to four lanes.
- ***Interchange capacity.*** Building a new interchange, adding a "missing" movement to an existing interchange, or upgrading a "diamond" arterial-freeway interchange by adding flyover ramps.
- ***Rapid transit capacity.*** Constructing a rapid transit corridor/segment or transit station.

Making intersection improvements, adding turn lanes, or periodically adjusting bus routes and schedules are all examples of non-regionally significant project types.

B. Project Evaluation & Selection Process

Regionally significant roadway capacity and rapid transit projects were evaluated for inclusion in the 2040 RTP based on processes and methodologies consistent with prior Regional Transportation Plans. Roadway capacity project selection is discussed first, followed by rapid transit project selection.

Roadway Capacity Projects

This section summarizes the evaluation and selection of regionally significant roadway capacity projects desiring competitive federal and state funding in the RTP. A more detailed description of the roadway scoring and selection process is included in Appendix 1.

a. Regional Roadway System

The first step in evaluating and selecting roadway capacity projects was to update the Regional Roadway System (RRS). Working through the Transportation Advisory Committee (TAC) and Regional Transportation Committee (RTC), DRCOG staff solicited additions, deletions, or changes to the 2035 RRS from DRCOG's local governments and CDOT to create the 2040 RRS. The designated DRCOG RRS has been an important component of long-range transportation plans for more than 20 years. The RRS represents the most heavily traveled and important connecting roadways in the region. It accounts for over 75 percent of the VMT traveled in the region. The 2040 RRS is shown in Figure 9.

The RRS identifies existing and planned freeways (and tollways), major regional arterials, and principal arterials – from a regional perspective. RRS-designated principal arterials do not necessarily match those denoted in local government plans, which may have more customized roadway classification designations. The RRS also establishes eligibility for some types of roadway projects funded through the TIP, such as operational and reconstruction projects.

Many of the specific attributes of the 2040 RRS are not known at this time, particularly for future facilities. Exact alignments for roadways and design elements, such as the number of lanes, will be determined through future studies. Alignments and lanes depicted on the system maps are best estimates at this time.

The number of lane miles on the system is will increase from 7,150 in 2015 to about 8,300 on the fiscally constrained system by 2040. Lane-miles represent the number of through lanes multiplied by the roadway length. For example, a four-lane road that is three miles long equals 12 lane-miles. Parking lanes and turning lanes are not included.

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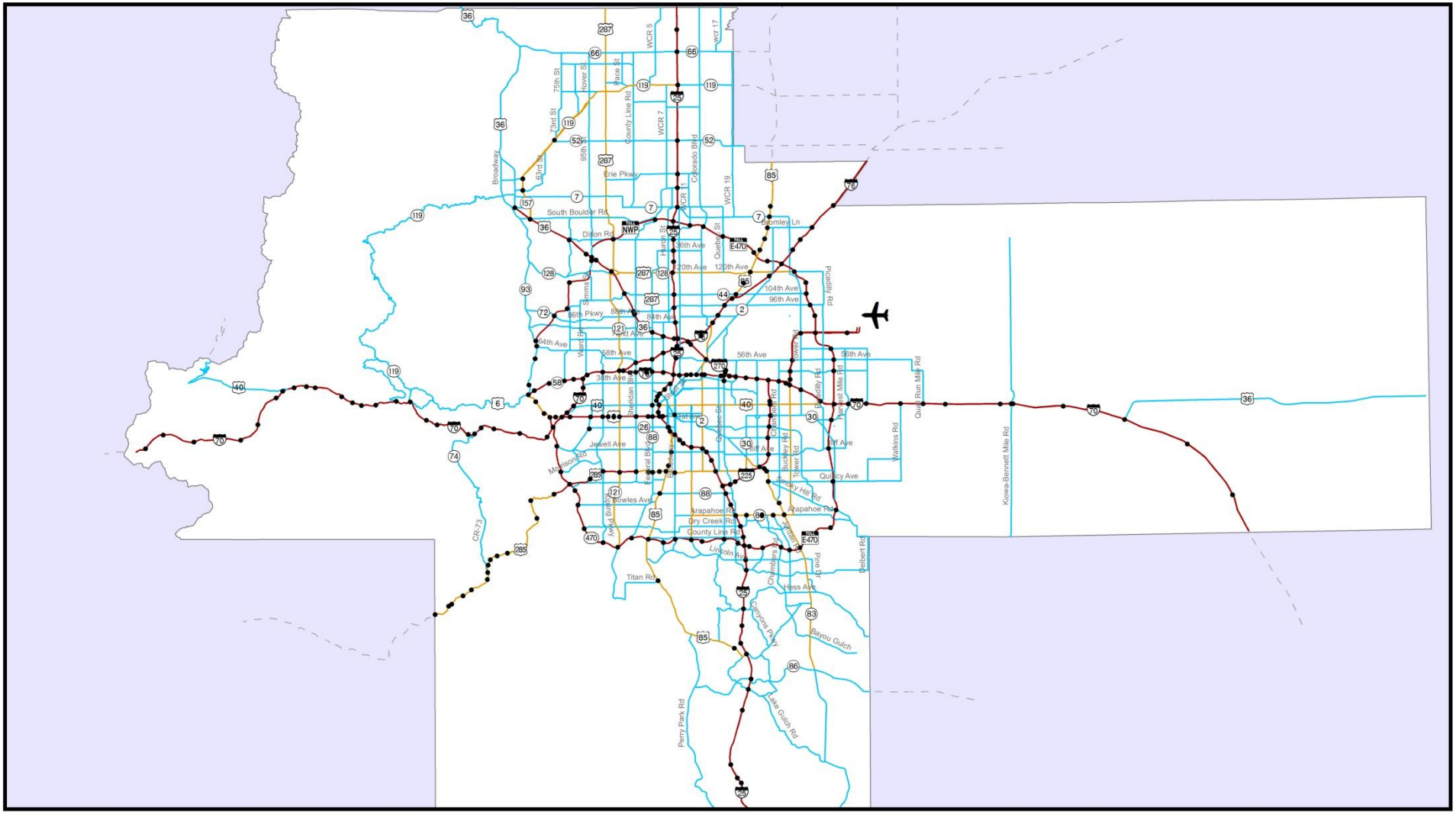
Figure 9
2040 Regional Roadway System

2040 Regional Transportation Plan



LEGEND

Facility Type

- Freeway/Tollway
- Major Regional Arterial
- Principal Arterial
- Roadways Outside Region

- Interchanges
- Denver International Airport

N

0 5 10
Miles

SOURCE DATA:
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Projection: State Plane Colorado Central, NAD 83 (feet)

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Roadways on the 2040 RRS are classified as one of three facility types:

- ***Freeway/Tollway.*** Divided highways with access restricted to grade-separated interchanges. Some may be tolled fully (tollways, such as E-470 and Northwest Parkway). Others may be partially tolled and include specific managed Bus/HOV or HOT lanes as part of the facility, such as I-25 north and US-36. About 32 percent of all vehicle miles traveled in the region are on the freeway system.
- ***Major regional arterials.*** Divided and undivided roadways that provide for key intraregional connections and high traffic volumes by minimizing left turns, side access, and cross-streets. They permit at-grade access and crossings, but some interactions with other major facilities might be grade-separated. They form the backbone of the regional roadway system along with freeways. Examples include Wadsworth Boulevard, Colorado Boulevard, and SH-119.
- ***Principal arterials.*** M*a*jor connecting streets primarily serving through-traffic, with at-grade intersections and side access permitted but regulated. Several principal arterials in older established areas serve as multimodal streets with a high amount of pedestrian, transit, and commercial activity. Principal arterial examples include Alameda Avenue, Kipling Street, 104th Avenue, and SH-42/95th Street.

Interchanges are also part of the roadway system and include the following types:

- Freeway-to-freeway interchanges (e.g., I-70 at I-25 "Mousetrap");
- Arterial-at-freeway interchanges (e.g., Alameda Avenue at I-225); and
- Grade-separated arterial interchanges that replace at-grade intersections (e.g., Evans Avenue at US-85).

Once the RRS was updated, candidate roadway projects were solicited, scored, and considered for regional funding. This process is described further in Appendix 1.

b. Locally-Derived Funded Projects

The other category of fiscally constrained regionally significant roadway capacity projects are those funded entirely with non-state and non-federal funding sources. These are typically, but not exclusively, projects funded by local governments through one or more local funding sources they control, such as general fund revenues, developer contributions, or other revenue sources.

DRCOG asked project submitters to review the locally-derived funded project list from the 2035 RTP and update as necessary, such as by deleting or adding projects. Because these projects were eligible

candidate projects to compete for regional funding, many of those not selected as fiscally constrained for regional funding were added back to this list or deleted as desired by project submitters.

Rapid Transit Projects

This section describes the evaluation and selection of regionally significant rapid transit projects.

a. FasTracks

RTD updated the 2035 RTP fiscally constrained portion of FasTracks for inclusion in the 2040 RTP. Through action by its Board, RTD communicated to DRCOG the following two FasTracks changes:

- Advance the completion of the Southeast Rail Line Extension from the 2025-2034 air quality conformity network staging period to the 2015-2024 staging period.
- Change the operating plan of the initial segment of the Northwest Rail Line (DUS to Westminster Station) so that trains will not stop at the 41st/Fox and Pecos Junction Stations shared with the Gold Line at this time. (RTD will reevaluate the operating plan after the first year of service.)

b. Other Regional Transit

As part of the roadway project scoring and evaluation process described previously, RTD (with Boulder County) and the City and County of Denver each submitted candidate bus rapid transit (BRT) projects to evaluate for potential regional funding. These two BRT projects were evaluated with the candidate roadway capacity projects because they are regionally significant from an air quality perspective, as they add (SH-119 BRT) or remove (Colfax BRT) roadway capacity as part of each project. Both projects scored highly in the project evaluation process and were selected by the DRCOG Board as fiscally constrained projects for regional funding in the 2040 RTP.

List of Fiscally Constrained Projects

The fiscally constrained regionally significant projects are shown in Figure 10 (roadways), Figure 11 (rapid transit), and listed in Appendix 4, which has four components:

- Roadway capacity projects funded with DRCOG-controlled funds;
- Roadway capacity projects funded with CDOT-controlled funds;
- Roadway capacity projects with 100 percent locally-derived funds, and
- Regional transit projects (FasTracks components and other regional transit projects).

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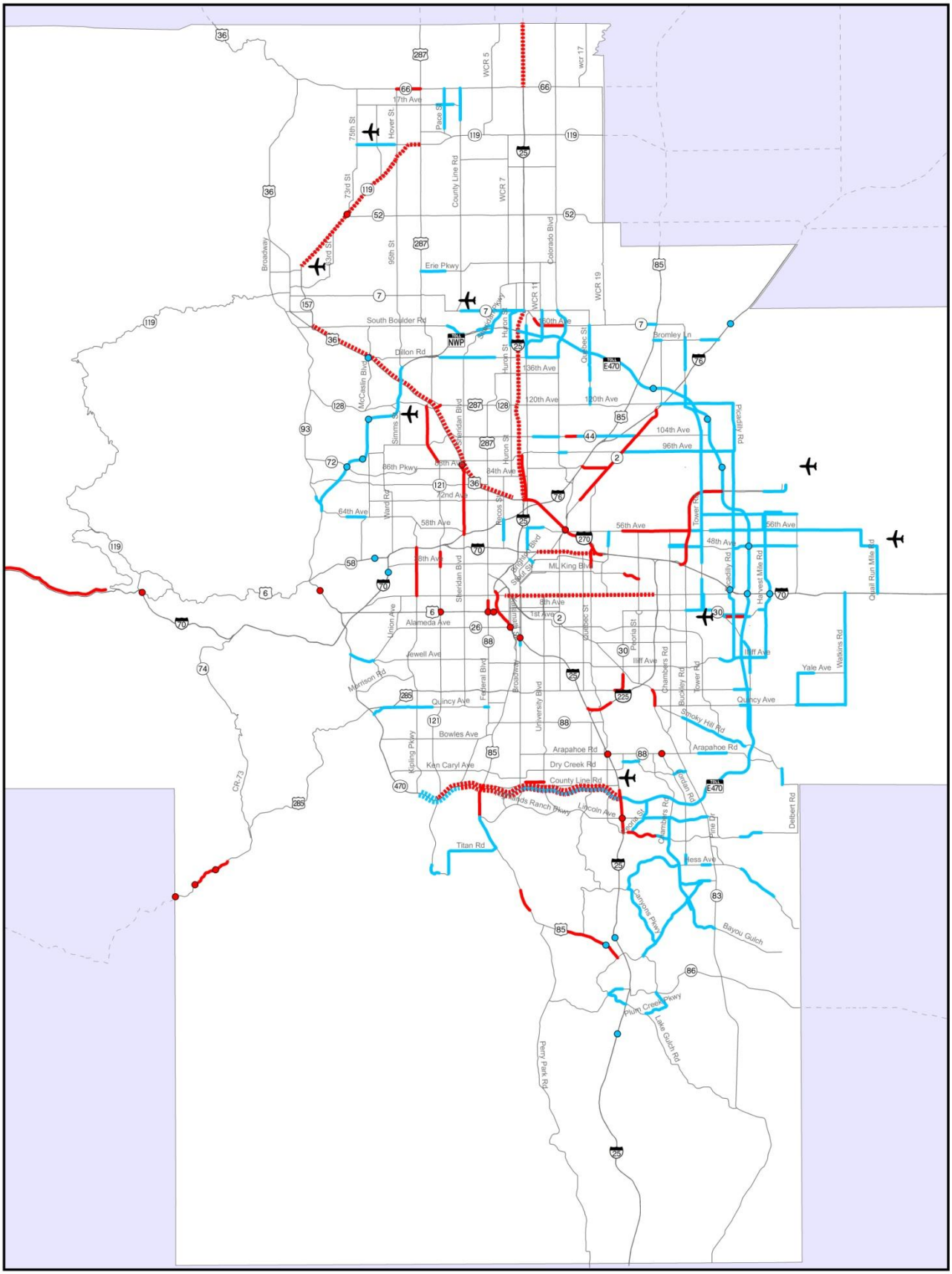
Figure 10
Fiscally Constrained Roadway System Capacity Improvements
(See Appendix 4 for list and description of projects)

2040 Regional Transportation Plan



LEGEND

Regionally Funded	100% Locally Funded		
		Interchange Capacity	Regional Roadway System
		Add General Purpose Lanes	Roads Outside Region
		Add Managed Lanes	Airports

N

0 5 10
Miles

SOURCE DATA:
Enter all data sources here, includes base map information

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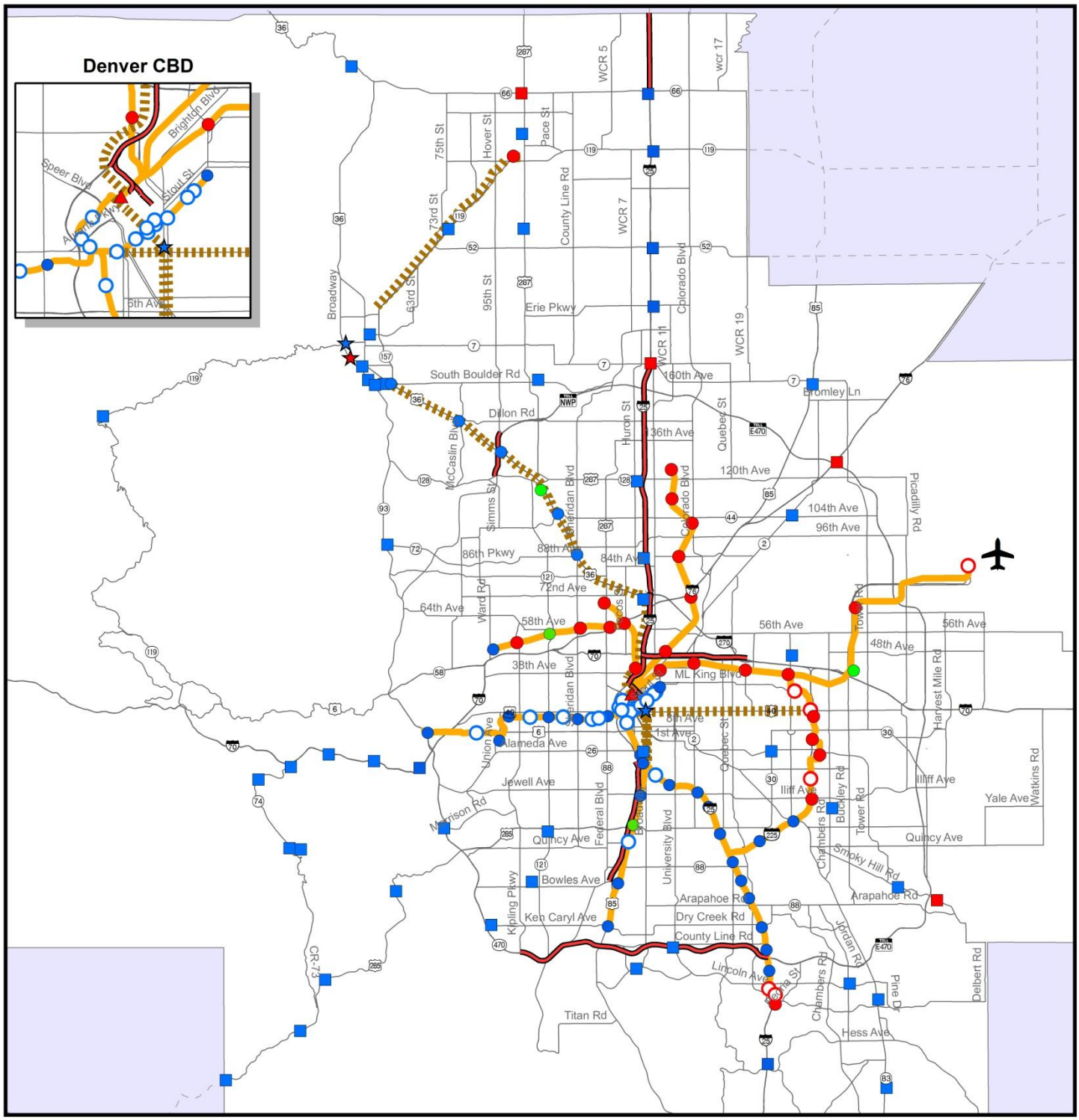
Figure 11
Fiscally Constrained Rapid Transit, Park-n-Ride, & Station Locations

2040 Regional Transportation Plan



LEGEND

existing	expand	new	
●	●	●	Rapid Transit Station with Parking
○		○	Rapid Transit Station without Parking
■	■	■	Park-n-Ride Lot
		▲	Denver Union Station
★		★	Other Stations/Transit Centers.

- Fiscally Constrained Rapid Transit Rail
- BRT or Busway
- Managed Lanes
- Regional Roadway System

N

0 5 10
Miles

SOURCE DATA:
Enter all data sources here, included base map information

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Projection: State Plane Colorado Central, NAD 83 (feet)

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3. FISCAL CONSTRAINT: PROJECT COSTS, REVENUES & EXPENDITURES

This section describes the project cost, revenue, and expenditure assumptions underpinning the selection of fiscally constrained projects described previously and the other fiscally constrained components of the 2040 RTP.

The unconstrained future transportation system of projects, preservation, services, and strategy needs has been identified (known as the Metro Vision transportation system). The portions of the system that can be accomplished with the funds reasonably expected to be available through 2040 is by definition the *2040 Fiscally Constrained Regional Transportation Plan*.

The Metro Vision transportation system would cost about $153 billion in 2015 constant dollars. The fiscally constrained portion will cost about $106 billion in 2015 dollars.

The revenues expected to be available to the DRCOG region have been developed cooperatively in three arenas:

- ***Transit.*** RTD annually prepares a FasTracks financial plan, which includes a comprehensive assessment of resources available to the entire RTD system. This is subject to detailed scrutiny by the DRCOG Board.
- ***Regional roadways and other state highways.*** CDOT's Division of Transportation Development (DTD) and Office of Financial Management and Budget lead a multi-agency process for developing estimates of long-range funding. This process is known as Program Distribution.
- ***Local revenues.*** These are estimated by DRCOG staff based on information obtained from local governments, special districts, and authorities.

The revenue estimates are presented in more detail later in this section. In round terms, in 2015 constant dollars, approximately $106 billion from 2016 through 2040 is expected to be available. This is only 69 percent of the $152.5 billion needed to accomplish the unconstrained plan. It is evident the 2040 RTP will not adequately respond to the congestion and mobility problems faced by the residents and businesses of the region, nor will it maintain the transportation system to the quality desired by users.

The 2040 RTP identifies the highest-priority projects and pooled expenditures that can be accomplished with future expected revenues. Those projects and expenditures retained in the 2040 RTP provide the greatest transportation benefit to the region in the key multimodal corridors and the most benefit toward implementing the overall Metro Vision Plan.

The 2040 RTP focuses on the regional transportation system more than the local street system. Regionally significant projects must be identified as accurately as possible in the 2040 RTP to be eligible for future federal or state funding. Smaller-scale projects have to be consistent with eligibility standards for the applicable category from which they will obtain funding. Funding will be allocated to projects by DRCOG through TIPs and by CDOT through the State Transportation Improvement Program (STIP). Final designs and alignments for federally funded projects must be determined through studies done in accordance with the National Environmental Policy Act (NEPA). Such studies will also evaluate the environmental impacts of projects and determine mitigation actions.

A. Preparation Process

The 2040 RTP was built from the 2035 RTP and the process used to prepare it. The following steps were followed to prepare the 2040 RTP:

- ***Costs.*** Total Metro Vision transportation needs identified in the 2035 RTP for all expenditure categories were reconsidered, validated, and updated. Cost estimates for regionally funded roadway projects in the *Fiscally Constrained 2035 RTP* were reviewed in detail. All costs were updated from a 2008 constant dollar basis to a 2015 constant dollar basis for the 2040 RTP.
- ***Revenues*.** Revenues from CDOT, RTD, the U.S. Department of Transportation, local governments, private entities, and other sources were estimated.
    - *Regionally funded roadway projects.* DRCOG participated in CDOT's Program Distribution process, which identified specific revenue sources and anticipated amounts through 2040 for all federal and state funds. The revenue estimates were based on existing federal and state sources and include only what could be generated under current law and "average" economic conditions into the future.
    - *Transit.* RTD annually updates the FasTracks financial plan through its Annual Program Evaluation (APE) process. DRCOG reviewed the current APE as part of its state-required FasTracks review responsibilities and incorporated its financial assumptions in the 2040 RTP.

- *Local revenues.* Local government roadway revenue forecasts were derived from the receipts and expenditure reports provided to CDOT annually. The 1984 through 2012 revenues were converted into 2015 dollars per person by revenue group—local government general funds, local government special assessments, Colorado Highway Users Tax Fund (HUTF), developer/private, and other sources. The final results were adjusted to 2015 constant dollars and to year of expenditure dollars.

- ***Allocations.***
  - DRCOG collaborated with CDOT to determine what proportion of the total statewide amount for each revenue source would flow to the DRCOG region. Of that amount, the percentage to allocate to capacity projects was determined based on historical trends and other factors. DRCOG vetted the revenue assumptions through its committee process. The process sought to strike a balance between trying to maintain the system while still funding needed capacity projects.
  - Transit allocations were based on updated RTD estimates.
  - Local funds were allocated to preservation/maintenance, regional roadways, non-regional roadways, and other activities based on information obtained from local governments, special districts, and authorities.

B. Estimated Revenues & Expenditures

DRCOG, in coordination with CDOT, RTD, local governments, special districts and authorities, paratransit operators and various special funding agencies, estimated the total revenue available for transportation purposes. The financial analysis covers the 26-year period of 2015 through 2040. Values in the text are presented in constant current (2015) year dollars. Table 4 also shows the revenues in year of expenditure (YOE) inflated dollars, per federal planning regulations. With inflation, revenues/costs presented in year of generation/expenditure are always larger numbers than when presented in constant current dollars.

CDOT calculates revenues in Program Distribution in both constant year dollars and YOE dollars. RTD primarily uses the YOE approach, but worked with DRCOG staff to generate constant dollar estimates for FasTracks. Local resource estimates were generated in current 2015 dollars and were assumed to grow over time for year of generation/expenditure.

Revenues

Estimated revenues (FY 2015$) are illustrated in Figure 12 and detailed in Table 2. RTD will administer the largest individual-entity share of revenues, about $28 billion. The largest source of funding for transportation will be locally-derived sources, providing about $95 billion. This amount includes almost $70 billion from local governments, private sources, and tolls, and about $25 billion in sales tax and fares from RTD. These revenue estimates assume that transit fares will be increased in line with inflation.

The second-largest individual allocation of funds, $6.7 billion, will be administered by CDOT. Federal and state fuel taxes are the primary source. CDOT combines all of the federal funds with state funds and then redistributes them through several categories as shown in Table2. All federal funds expended in the Denver TMA must be approved by DRCOG for inclusion in six-year TIPs.

Figure 12. Revenues Available for Use in the Denver Region

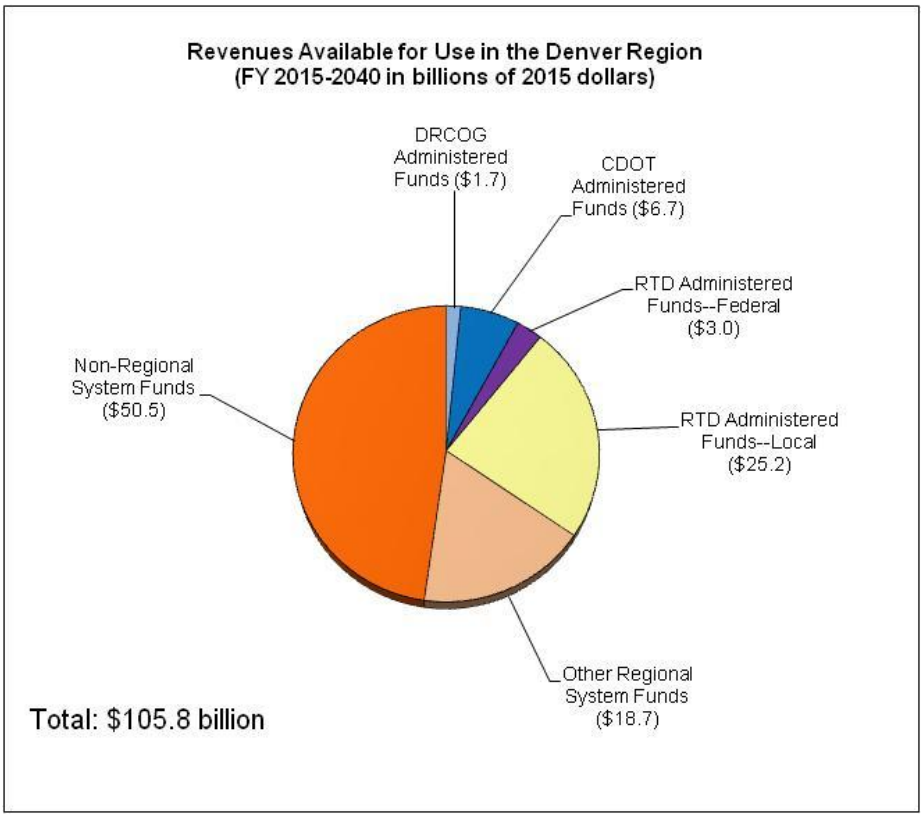


Table 2
2040 Fiscally Constrained RTP Revenues (2016 to 2040)

Funding Source/Administrator	Revenues ($ millions)	
	Constant (FY 15$)	Inflated (YOE $)
DRCOG Administered Funds		
STP-Metro (Federal)	$540	$720
Non-Federal Match for STP-Metro	$360	$480
Transportation Alternatives Program (TAP)	$50	$60
Local Match/Overmatch for TAP	$20	$30
Congestion Mitigation/Air Quality (CMAQ)	$540	$720
Local Match/Overmatch for CMAQ	$140	$190
DRCOG Subtotal:	**$1,650**	**$2,200**
CDOT Administered Funds		
Asset Management - Maintenance	$1,830	$2,440
Asset Management - Surface Treatment Program	$1,340	$1,780
Asset Management - Structures On-System	$370	$490
Bridge Enterprise	$280	$370
Bridge Enterprise Bonding	$850	$1,130
Bridge - Off System	$70	$90
Regional Priority Program (RPP)	$350	$470
FASTER Safety	$560	$750
Strategic Projects (SB 228) (through 2020)	$280	$370
Strategic Projects - Transit (SB 228) (through 2020)	$30	$40
FASTER Transit (Local)	$40	$50
FASTER Transit (Statewide)	$70	$90
FTA Formula Funds (5310, 5311)	$120	$160
TSM&O: Congestion Relief	$70	$90
Transportation Alternatives Program (TAP)	$50	$70
Toll Revenue	$400	$530
CDOT Subtotal:	**$6,710**	**$8,920**
RTD Administered Funds		
RTD Sales and Use Tax (Base System & FasTracks)	$21,750	$28,970
Farebox Revenues	$3,430	$4,560
FTA New Starts (5309)	$450	$600
FTA Formula Funds (5307, Other FTA Grants)	$2,270	$3,020
Other FasTracks Financing	$310	$410
RTD Subtotal:	**$28,210**	**$37,560**
Other Revenues for Regional System		
Local/Private Funding for Improvements	$2,370	$3,160
Local Funding for Regional Operations & Preservation	$11,720	$15,610
Toll Authority Funding for Improvements	$790	$1,050
Toll Authority Funding for Preservation, Operations, & Debt	$2,990	$3,980
Local Funding for Transit Operations	$520	$690
Local & GOCO Lottery Funding for Bike/Ped	$310	$410
Other Regional System Subtotal:	**$18,700**	**$24,900**
Revenues for Non-Regional Facilities *		
Local/Private Funds for Non-Regional Facilities	$33,400	$44,500
Local Funds for Non-Regional System Preservation	$17,090	$22,770
Non-Regional Subtotal:	**$50,490**	**$67,270**
GRAND TOTAL:	**$105,800**	**$140,850**

* CDOT funds for non-regional facilities included in CDOT totals

DRCOG will administer and select projects for three FHWA formula categories – STP-Metro, CMAQ, and Transportation Alternatives Program (TAP); CDOT will also administer some TAP funds. Including match, these total approximately $1.7 billion. STP-Metro funds can be used on a variety of project types, most commonly on roadway improvements. With FHWA approval, the DRCOG Board adopted the overall long-range planning assumption of 40% average non-federal matching funds for STP-Metro revenues. TAP funds are primarily used for bicycle and pedestrian projects. Congestion Mitigation/Air Quality (CMAQ) funds will be used for several types of projects and activities related to improving air quality. Example CMAQ projects include:

- DRCOG Way to Go Program and TDM pool;
- Regional Traffic Signal System Improvement Program;
- Regional ITS Pool;
- New bus services (start-up) and transit stations;
- New rapid transit facilities;
- Street sweepers, vacuums, and liquid deicers;
- Intersection modifications, and
- Other air quality improvement projects (e.g., diesel retrofits).

Local governments, along with private developers and tollway authorities, are anticipated to have available about $19 billion in revenues to complete projects on and preserve and operate the regional transportation system. Some of these revenues are reported in Table 5 as local match to DRCOG or CDOT administered funds. An additional $50 billion will be spent on non-regional facilities. This estimate is primarily based on applying historic trends of private and local government expenditures to the forecast growth in population and local street mileage.

Periodically, federal revenues are awarded through grant programs such as the TIGER (Transportation Investments Generating Economic Recovery) Program, the Recreational Trails Program, and other programs. Projects chosen to receive funding from these programs must be included in the TIP. The 2040 RTP does not include estimates for these types of revenues nor identify specific projects that might receive them since they are competitive discretionary grant programs, not formula-based allocations. DRCOG will endorse those programs and projects identified in or consistent with the goals and policies of *Metro Vision* and other applicable DRCOG plans.

RTD's FasTracks financial plan includes assumptions about receipt of federal New Starts funding over the life of the plan. Those assumptions have been validated through the Senate Bill 90-208 review process and are identified in Table 5. No other federal discretionary awards or transit earmarks are explicitly included in the estimated revenues.

Expenditures

Table 3 displays the estimated needed costs for categories of transportation activities and the fiscally constrained revenues estimated to be expended through 2040 to address them.

Table 3 Metro Vision Transportation System Costs & 2040 Fiscally Constrained RTP Expenditures (2016 to 2040)		
	(FY 15 $ millions)	
System Category	Total Metro Vision Needs Estimated Cost	Fiscally Constrained Revenues to Expend
1. Preserve & Maintain Existing System		
A. Regional Roadway System		
Day-to-Day Maintenance, Snow & Ice, etc.	$11,250	$8,580
Resurfacing & Reconstruction	$4,700	$3,490
Bridge (Specific Projects + Pool)	$3,400	$970
Toll Operations	$700	$520
B. Off-Street Bicycle/Pedestrian Facility Maintenance	$44	$40
C. Non-Regional Roadway System		
Non-Regional Roadways	$17,300	$16,970
Non-Regional Bridges	$1,000	$770
Preserve & Maintain System Subtotal:	**$38,400**	**$31,340**
2. Invest in Base Transit Services		
RTD System Facilities & Fleet	$2,430	$2,430
Base RTD Bus & Rail Service	$13,400	$13,400
Base RTD Complementary ADA Service	$2,980	$2,980
Maintain Other Transit Services	$1,950	$780
Invest in Base Transit Services Subtotal:	**$20,800**	**$19,590**
3. Management, Operations & Air Quality		
Roadway Operations, Multimodal, RR Grade Separations	$1,180	$410
Transportation Management (Capital), ITS, Signal Systems	$440	$220
Transp. Mgmt. (Operate & Maintain), ITS, Signal Systems	$4,000	$2,080
Safety-Specific Improvements	$460	$220
DRCOG Way to Go Program & Regional TDM	$170	$110
Air Quality Conformity Programs & Purchases	$120	$60
Management, Operations & Air Quality Subtotal:	**$6,400**	**$3,100**
4. New Capacity on Regional System & Other Facilities		
A. Regional Roadway System		
New/Additional Capacity (GP Lanes & Interchanges)	$15,790	$3,660
Bus, Toll & Managed Lanes	$2,510	$2,340
B. Regional Transit System		
Construct FasTracks through 2040 (Rail & Bus)	$7,190	$5,590
Other Rapid Transit (Tier 1 BRT)	$140	$140
Other Rapid Transit (Tier 2)	$800	$0
State Intercity Corridors (Tier 2)	$14,900	$0
Other Conceptual Rapid Transit (Tier 3)	$4,500	$0
C. Other Capacity		
New Bicycle/Pedestrian Facilities	$1,260	$530
Eastern Freight Railroad Bypass	$300	$0
New Minor Arterials & Collectors	$10,500	$10,500
New Local (developer) Streets	$22,900	$22,900
Roadway & Rapid Transit Capacity Subtotal:	**$80,800**	**$45,660**
5. Debt Service (Tollways & RTD)		
RTD FasTracks Debt Service	$3,820	$3,820
Toll Highway Debt Service	$2,260	$2,260
Debt Service Subtotal:	**$6,100**	**$6,080**
GRAND TOTAL:	**$152,500**	**$105,800**

Figure 13 displays the surface transportation expenditure categories shown in Table 3. Table 4 displays the fiscally constrained expenditure information in year of expenditure dollars. The following generalized categories are presented:

1. Preservation and maintenance of the regional roadway system, off-street bicycle and pedestrian system, and the local street system;
2. Provision of base transit services;
3. Future management, operational, and air quality projects and services;
4. Capital improvements and expansion of the regional roadway, transit, bicycle, local street, and freight railroad systems, and
5. Debt service payments.

These five categories represent the surface transportation system. In most categories of expenditures, only a portion of total costs can be covered by fiscally constrained revenues.

Figure 13. 2040 Metro Vision System Cost & Fiscally Constrained Revenues by Expense Category

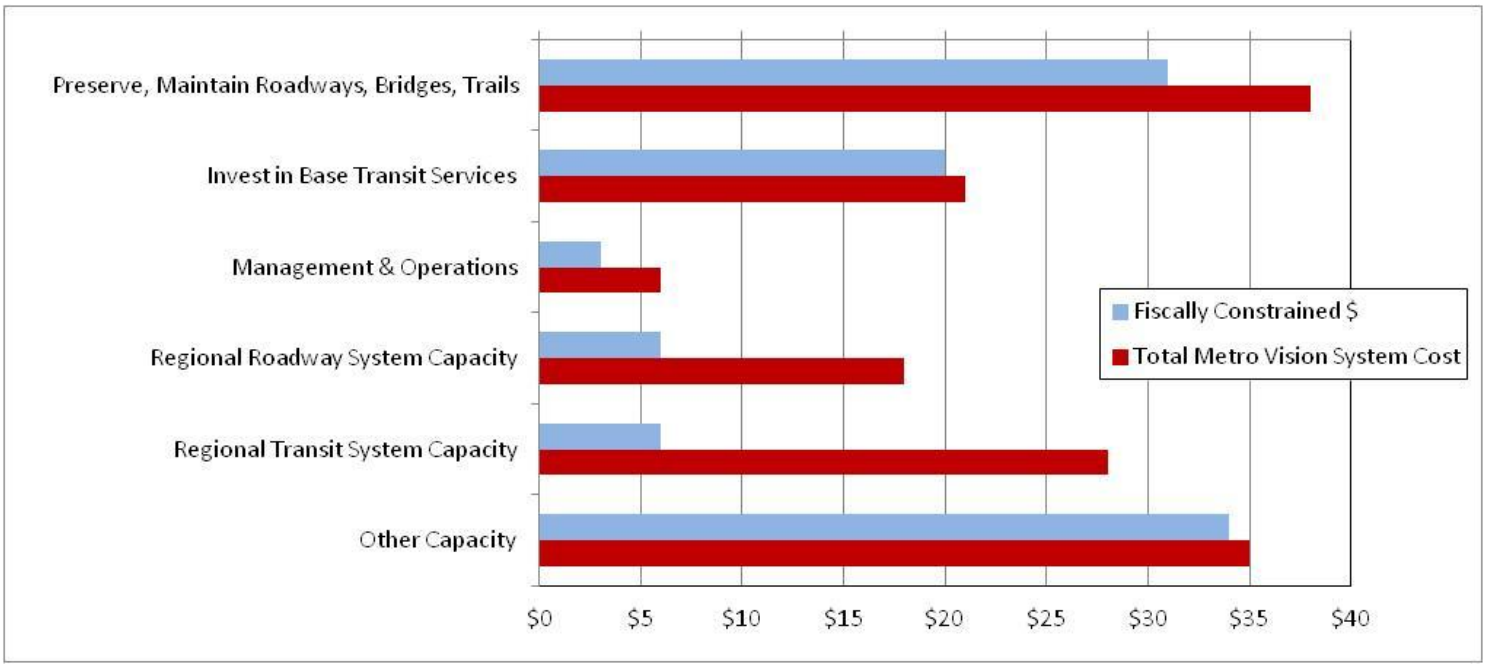


Table 4 2040 Fiscally Constrained RTP Expenditures (2016 to 2040 in YOE $ millions)	
System Category	**Fiscally Constrained Revenues**
1. Preserve & Maintain Existing System	
A. Regional Roadway System	
Day-to-Day Maintenance, Snow & Ice, etc.	$11,420
Resurfacing & Reconstruction	$4,650
Bridge (Specific Projects + Pool)	$1,300
Toll Operations	$690
B. Off-Street Bicycle/Pedestrian Facility Maintenance	$50
C. Non-Regional Roadway System	
Non-Regional Roadways	$22,600
Non-Regional Bridges	$1,020
Preserve & Maintain System Subtotal:	**$41,730**
2. Invest in Base Transit Services	
RTD System Facilities & Fleet	$3,240
Base RTD Bus & Rail Service	$17,840
Base RTD Complementary ADA Service	$3,970
Maintain Other Transit Services	$1,040
Invest in Base Transit Services Subtotal:	**$26,090**
3. Management, Operations & Air Quality	
Roadway Operations, Multimodal, RR Grade Separations	$540
Transportation Management (Capital), ITS, Signal Systems	$290
Transp. Mgmt. (Operate & Maintain), ITS, Signal Systems	$2,780
Safety-Specific Improvements	$300
DRCOG Way to Go Program & Regional TDM	$140
Air Quality Conformity Programs & Purchases	$80
Management, Operations & Air Quality Subtotal:	**$4,130**
4. New Capacity on Regional System & Other Facilities	
A. Regional Roadway System	
New/Additional Capacity (GP Lanes & Interchanges)	$4,880
Bus, Toll & Managed Lanes	$3,110
B. Regional Transit System	
Complete FasTracks (Rail & Bus)	$7,450
Other Rapid Transit (Tier 1 BRT)	$190
Other Rapid Transit (Tier 2)	$0
State Intercity Corridors (Tier 2)	$0
Other Conceptual Rapid Transit (Tier 3)	$0
C. Other Capacity	
New Bicycle/Pedestrian Facilities	$700
Eastern Freight Railroad Bypass & UPRR Improvements	$0
New Minor Arterials & Collectors	$13,970
New Local (developer) Streets	$30,500
Roadway & Rapid Transit Capacity Subtotal:	**$60,800**
5. Debt Service (Tollways & RTD)	
RTD FasTracks Debt Service	$5,090
Toll Highway Debt Service	$3,010
Debt Service Subtotal:	**$8,100**
GRAND TOTAL:	**$140,850**

Preservation and Maintenance of the Roadway System and the Base Transit System

Almost half (48 percent) of the funds spent on transportation will be used for preservation, maintenance, and operation of the roadway system and base transit system. Table 3 details the expenditure of $51 billion in these activities. Of that, about $13.6 billion will be available to preserve and maintain the regional roadway system; far less than the $20.1 billion estimated need. About $17.7 billion will be available to preserve and maintain non-regional roads and bridges, again less than the $18.3 billion needed. RTD and other transit operators have identified about $19.6 billion to provide base transit service.

As inferred by the disparity between needs and fiscally constrained expenditures, roadway system quality will likely decrease. Even if **all** "regional roadway capacity" funds were moved to preservation and maintenance activities, the needs would not be met. Simply put, current sources of revenue are insufficient to maintain the system at a desired level.

a. Management and Operation of the Roadway System

About $3.1 billion will be used for operational, safety, and management activities to enable more efficient travel on the transportation system. Management and operational strategies are very important in light of the limited revenues that will be available for expansion of the system. However, anticipated management and operational expenditures cover only about half of the identified need.

b. Transportation Demand Management

About two-thirds of the envisioned cost for providing TDM services will be funded in the 2040 RTP. Extensive services will still be provided with the $110 million allotted to future programs run by DRCOG, transportation management organizations, local governments, and other entities. With limited funding available for expansion of the roadway system, TDM services will be critical to reducing motor vehicle travel demand and offering mobility options.

C. Regional System Improvements

Excluding debt service on bonds, about $11.7 billion will be available for roadway and transit capacity and other major improvements to the regional surface transportation system.

The characteristics of the fiscally constrained 2040 surface transportation system are compared to the existing 2015 system in Table 5. Table 5 also shows the characteristics for the full unconstrained Metro Vision transportation system.

Table 5 Fiscally Constrained 2040 RTP System Characteristics			
System Characteristic	**2015**	**2040 Fiscally Constrained**	**2040 Metro Vision**
Regional Roadway Lane-Miles			
Freeways/Tollways	1,980	2,290	2,502
Major Regional Arterials	1,040	1,100	1,210
Principal Arterials	4,130	4,940	5,517
Total Regional Roadway System Lane Miles:	**7,150**	**8,330**	**9,229**
Interchanges			
On Freeways/Tollways	223	236	245
On Major Regional Arterials, not Freeways	26	33	55
Rapid Transit Centerline Miles			
Light Rail	48	61	64
Commuter Rail	0	53	93
Intercity Passenger Rail	0	0	176
Bus Rapid Transit/Busway (exclusive right of way)	6	50	134
Total Rapid Transit System Miles:	**54**	**164**	**468**
Transit Service Characteristics			
Fixed Route Fleet (incl. spares)	914	1,066	n/a
MallRide, MetroRide, and Call-n-Ride	107	107	n/a
ADA Paratransit	334	580	n/a
Rail Cars	172	272	n/a
Bus Hours (millions in annual revenue service)	3.98	5.13	n/a
Bus Miles (millions in annual revenue service)	35	35	n/a
Stations: Transit Stations and Park-n-Ride Lots (number of parking spaces)			
Rapid Transit Stations (*with Parking*)	25 (16,653)	48 (36,287)	n/a
Current Park-n-Rides that are Future Rapid Transit Stations with Parking	9 (5,970)	9 (7,240)	n/a
Rapid Transit Stations (*without Parking*)	22	27	n/a
Transit/Transfer Centers	3	3	n/a
RTD Park-n-Ride Lots	43 (8,462)	44 (8,084)	n/a
CDOT Carpool Lots	6 (926)	6 (926)	n/a
Total Parking Spaces	(32,011)	(48,667)	n/a

The key fiscally constrained roadway improvements are presented below.

Freeways/Tollways:

- I-25 widening from Alameda Avenue to Walnut Street
- I-25 widening from US-36 to SH-7
- I-25 widening from SH-66 to Weld County Road 38
- I-270 widening from I-25 to I-270
- I-70 peak period shoulder lanes from Empire Junction to Twin Tunnels (east of Idaho Springs)
- I-70 reconstruction from Brighton Boulevard to I-270
- Pena Boulevard widening from I-70 to E-470
- C-470 managed toll lanes from Kipling Parkway to I-25
- E-470 widening from I-25 south to I-25 north
- Jefferson Parkway from SH-93 to SH-128

New Freeway/Tollway Interchanges:

- I-25/Crystal Valley
- I-25/Castle Gate
- I-70/Harvest Mile Road
- E-470 at 48th Avenue, 88th Avenue, 112th Avenue, Potomac Street, and Quebec Street
- Jefferson Parkway at SH-72, Candelas Parkway, and Indiana Street

New Movements at Freeway Interchanges:

- I-70/Picadilly/Colfax
- US-36/Wadsworth Boulevard/120th Avenue

Major Improvements of Freeway Interchanges:

- I-25 at Lincoln Avenue, Arapahoe Road, Alameda Avenue/Santa Fe Drive, and US-6
- I-70 at 32nd Avenue
- US-6 at Wadsworth Boulevard and Federal Boulevard/I-25
- US-36 at Sheridan Boulevard
- I-225 at Yosemite Street

Elimination of Freeway Interchanges:

- I-70 reconstruction (will eliminate some interchange movements between Brighton Boulevard and Colorado Boulevard)
- US-6/Bryant

Major Regional Arterial Roadways:

- 120th Avenue from east of US-36 to US-287 new roadway
- Arapahoe Road (SH-88) widening operational improvements from I-25 to Potomac Street
- US-85 widening from Meadows Parkway to Louviers Avenue and from Titan Road to County Line Road
- Wadsworth Boulevard widening from 36th Avenue to 46th Avenue and from 92nd Avenue to SH-128
- Parker Road widening (SH-83) from Quincy Avenue to Hampden Avenue
- US-285 widening from Pine Junction to Richmond Hill

Major Regional Arterial Grade-Separated Intersections:

- Longmont Diagonal (SH-119)/Mineral Road (SH-52)
- US-85/ North Meadows Drive
- US-285/ Pine Valley Road and Kings Valley Drive
- US-6/ 19th Street

Principal Arterials

About 810 lane-miles of new principal arterial roadways are planned for construction as part of the 2040 RTP. Improvements are concentrated within the DRCOG urban growth boundary/area (UGB/A) except for arterials that connect non-contiguous UGB/A sections, such as freestanding communities. Improvements to principal arterial roadways are detailed in Appendix 4.

Other Roadway Improvements

Many other improvements to the regional roadway system are anticipated in the 2040 RTP but are not classified as regionally significant for purposes of air quality conformity modeling, nor have exact locations for such been defined. Such improvements are not illustrated on the system improvement map but are eligible for future TIP funding from the following categories:

- Safety
- Operational, management and ITS
- Reconstruction
- Bridges

Fiscally Constrained 2040 Improvements that Address Freight

Freight concerns largely relate to mobility and access issues. Mobility issues pertain to smooth and reliable traffic conditions on the region's freeways, major regional and principal arterials, and at-grade crossings with freight railroad tracks. Access issues deal with road geometrics, bridge clearances and weight restrictions, and severe bottlenecks between the regional system roadways and major freight facilities. The following fiscally constrained roadway improvements will especially benefit the movement of freight:

- Reconstruction of I-70 east of I-25;
- Widening of I-270, I-25 north of US-36 and north of SH-66;
- Widening key arterials such as US-85 north of Castle Rock, 56th Avenue, Sheridan Boulevard, and SH-7 east of I-25;
- Widening of US-36 and north I-25 (HOT/HOV lanes);
- Improvements to I-70 and US-285 in the mountains;
- Other improvements to the regional roadway network (widenings, new interchanges, interchange reconstruction);
- Operational and reconstruction pool projects to be selected in future TIPs; and
- Expansion of the ITS facilities and traffic management capabilities.

Fiscally Constrained 2040 Improvements that Address System Quality

Practically all of the regionally funded roadway improvements shown on Figure 10 include reconstruction of the current facility and structures in the estimated cost. Obvious exceptions are entirely new roadways and interchanges. Some of the projects with notable reconstruction aspects include:

- I-70 widening from I-25 to I-270;
- I-270 widening from I-25 to I-70;
- C-470 widening from Kipling to I-25;
- US-285 widening from Pine Junction to Richmond Hill;
- US-85 widening from Meadows Parkway to Louviers Avenue; and
- Major improvements of freeway interchanges such as I-25/Alameda/Santa Fe/US-6, I-70/Vasquez, US-6/Wadsworth, US-6/Federal, and US-36/Sheridan.

Fiscally Constrained 2040 Transit System

The 2040 rapid transit system includes four primary types of service/vehicle technologies:

- ***Light rail transit.*** Electric-powered, lighter-weight vehicles, high-frequency service (e.g., 5- to 15-minute peak headways), and numerous stations (as low as one-mile spacing);
- ***Commuter rail.*** Diesel- or electric-powered heavy vehicles, moderate frequency service (20- to 30-minute peak headways), and limited stations (average four-mile spacing);
- ***BRT and managed lanes.*** Exclusive travelway within or parallel to a highway right-of-way, bus rapid transit or frequent bus service, may serve park-n-Ride lots or specialized bus rapid transit stations. Managed lanes include high-occupancy vehicle lanes, high-occupancy toll lanes, and toll lanes with congestion pricing;
- ***Intercity rail.*** Diesel-powered heavy vehicles, low-frequency service, longer-distance trips, and very few stations (located in selected communities).

The fiscally constrained rapid transit system contained in the 2040 RTP is depicted in Figure 11 and the improvements are listed in Appendix 4. Park-n-Rides and station locations are shown in Appendix 2. The 2040 RTP also includes the fixed-route bus network and the other components described below.

Fiscally Constrained 2040 Rapid Transit System

In April 2013, the West Rail Line opened for service. It represents a significant first step toward the completion of the 2040 fiscally constrained rapid transit system depicted in Figure 11. The portion of FasTracks that is fiscally constrained will build all or parts of six additional light rail, commuter rail, and bus rapid transit lines. FasTracks is funded in large part by a 0.4 percent sales and use tax.

Two non-FasTracks projects are included in the fiscally constrained rapid transit system, both bus rapid transit (BRT) projects. One project would provide new BRT service between Boulder and Longmont on SH-119. BRT is also planned for the Colfax corridor between the light rail stations serving the Auraria campus in Denver and the Anschutz campus in Aurora.

Bus and managed lanes (HOV/HOT) make up another component of the rapid transit system. The current facilities along Santa Fe Drive, Broadway/Lincoln, the 16th Street Mall, and US-36 will be complemented by the extension of a bus/HOV/HOT facility to Boulder along US-36. The US-36 lanes will be enhanced with special stations, ramps, and vehicles to serve as a BRT system. The I-25 Express lanes north of downtown will also be expanded northward.

2040 Fixed-Route Bus and Other Services

RTD will expand its fixed-route public bus service within its boundary. Fixed-route service includes scheduled regional, express, and local routes. Overall bus service is anticipated to have a net increase of

about 29 percent between 2015 and 2040, from 3.98 million to 5.13 million bus service hours. Key elements of the 2040 system include:

- Increasing the fixed route bus fleet (including spares) from 914 to 1,066;
- Many bus routes will be adjusted to serve as feeders to rapid transit stations;
- Suburb-to-suburb crosstown bus service will expand significantly;
- New bus routes will be added;
- Physical and operational improvements will be made to multimodal streets that will have high-frequency bus service;
- RTD will facilitate expanded bus service through an integrated system of timed transfer points;
- RTD's complementary ADA service will significantly expand to help meet the needs created by the region's rapidly aging population, and
- Non-RTD transit services for seniors and individuals with disabilities will also significantly expand as funding permits.

RTD provides federally-required complementary ADA paratransit service (Access-a-Ride) within a ¾-mile buffer of its fixed route transit system. RTD also provides Access-a-Cab to augment Access-a-Ride. In addition to RTD, there are several smaller transportation providers throughout the region that provide accessible transportation. Like Access-a-Cab, they offer an alternative to Access-a-Ride. Many of the services go beyond the requirements of ADA and provide door-to-door and door-through-door services to those who need it. Two key agencies providing this type of service are Seniors' Resource Center, located in Jefferson County, and Via Mobility Services in Boulder. Funding sources include, but are not limited to, Older Americans Act, grants such as FTA 5310 Enhanced Mobility of Seniors and Individuals with Disabilities, and assistance from local governments. The Denver Regional Mobility and Access Council (DRMAC) is the regional entity tasked with facilitating the coordination of these services.

Significant growth in the region's older adult population will likely correspond with a similar growth in demand for accessible transportation. The provision of alternatives to RTD's complementary paratransit services, like those mentioned above, may reduce or slow the growth in demand for traditional paratransit and its associated higher cost.

There are also some transportation services available for persons with low-income offered in areas where there are limited or no RTD services available. The focus is typically employment-related trips.

Many of these services were previously funded with the Job Access/Reverse Commute program under FTA 5316 and are now funded with FTA 5307 and 5311.

Another type of transit service available in the Denver region is intercity bus, such as Greyhound. These types of intercity bus services are funded in part by FTA 5311(f) through CDOT. CDOT will also fund and operate a commuter-oriented bus service starting in 2015 along I-25 (Fort Collins and Colorado Springs to Denver), and along I-70 (mountain corridor to Denver).

Park-n-Ride Lots, Stations, and Transfer Points

RTD's park-n-Ride lots provide an important place for thousands of patrons to access transit service. They are an integral part of the rapid transit and bus systems. Several existing lots fill up early in the morning each weekday, prohibiting more commuters from using transit. Many new lots will be constructed by 2040 and several existing lots will be expanded (see Figure 11 and Appendix 2). Park-n-Ride lots can be associated with rapid transit stations or can serve bus routes only. By 2040 the following facilities will be available:

- 101 RTD park-n-Ride lots (stand-alone and rail stations with parking);
- 6 carpool lots (CDOT-operated), and
- Approximately 50,000 parking spaces.

In addition to the park-n-Ride transit stations, there are numerous existing and planned stations without parking (see Appendix 2). There are currently 22 rapid transit stations without parking. An additional five fiscally constrained stations without parking are planned in the FasTracks program.

More than 10,000 bus stops will be located around the region to serve transit patrons. Several bus stops will be enhanced to become key timed-transfer points in the system. They will enable convenient bus-to-bus, bus-to-rail, and rail-to-bus transfers. Others will receive enhanced station-like treatments for passengers to allow BRT buses to load more quickly.

To improve efficiency, new systems will transmit information to variable message signs on the roadways to inform drivers of the space availability in key park-n-Ride lots. Transit information kiosks will be provided at major park-n-Ride lots, transfer points, and BRT bus stops to provide riders with information regarding the arrival and departure of transit vehicles.

Other Funding Considerations

- Fiscally constrained 2040 roadway system improvements on Figure 10 indicated to be funded with 100 percent locally-derived revenues are not eligible for FHWA formula funds;
- Nearly all federal TAP funds expected to be available will be used for bicycle and pedestrian improvements. Some TAP funds will be used for other eligible improvements. Additional bicycle and pedestrian improvements are expected to be part of roadway capacity improvements;
- Specialized transit services will be funded through RTD; FTA Section 5310, 5311, and 5317 funding sources; and money generated by private carriers. Transit services for job access/reverse commute trips will be funded by FTA Section 5307 funding sources; and
- To demonstrate conformity, interim years of the *Fiscally Constrained 2040 RTP* must be examined. DRCOG and air quality planners defined these interim modeling years to be 2025 and 2035. DRCOG, local governments, CDOT, and RTD identified, for modeling purposes, best estimates as to which projects in the Fiscally Constrained 2040 RTP would be completed by the end of each of these interim staging years. Consideration was given to funding source, project schedule, status of studies, project scores, reconstruction needs, and interest/availability of local match. For regionally funded roadway projects, each of these staging periods was fiscally constrained to reasonably expected revenues. FasTracks implementation assumptions were based on RTD's current SB 208 report to DRCOG (known as the *2014 FasTracks Baseline Report*). Appendix 4 identifies the Fiscally Constrained 2040 RTP roadway projects and the staging year the improvements are estimated to be completed. This staging process is neither a guarantee nor a prohibition of funding in a certain period. It reflects current best estimates. Actual project funding is determined through the TIP process (within the TMA) and the STIP process in the non-TMA portion of the region. Staging adjustments necessitated by TIP/STIP awards would be reflected in the TIP conformity and an associated revision to conformity of the RTP.

4. TRANSPORTATION BENEFITS AND IMPACTS OF THE 2040 FISCALLY CONSTRAINED RTP

The 2040 RTP elements play a major role in improving the quality of life, economy, environmental quality, and mobility for the residents of the Denver region. Potential benefits of the 2040 RTP's balanced approach include:

- Multimodal travel facilities and service options are provided;
- Urban centers thrive;
- Senior citizens maintain their mobility or receive in-home services efficiently;
- Low- and moderate-income workers reach their job sites;
- Business owners bring in customers or ship out products;
- Children travel to and from school more safely;
- Tourists and residents travel to, from, and within recreation sites;
- Greenhouse gas emissions are reduced, and
- People breathe clean air.

Negative impacts of the transportation system are intended to be minimized and mitigated for new projects as determined through the environmental and project development process.

Current funding constraints, however, will limit the benefits that could be realized. The 2040 RTP makes the best use of insufficient funds to achieve important benefits, but these benefits will fall short of those envisioned. The lack of sufficient revenues necessitates prioritizing transportation funding decisions.

A. Transportation System Performance

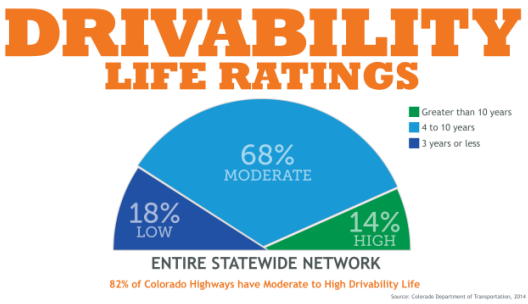
This section presents measures comparing the performance of the 2015 transportation system with that of the 2040 fiscally constrained system. Note that MAP-21 performance-based planning rules are not yet finalized and some additional or modified measures may be required to be reported on in the future.

The growth in population and employment, the distribution of that growth, and the provision of transportation facilities and services will impact future travel patterns. Changes in region-wide travel measures between 2015 and 2040 are shown in Table 6. Key points from Table 6 include the following:

- The number of vehicle trips and VMT will increase at a rate noticeably less than population growth, meaning that VMT per capita will stay relatively flat or even slightly decrease.

- Bicycle and walking trips will increase 50 percent, a much higher rate than population and VMT growth.
- Vehicle hours of travel will increase at a much greater rate, reflecting a substantial increase in overall traffic congestion and vehicle delay. Peak hour vehicle speeds will average less than 28 miles per hour.
- The percentage of miles traveled in severe congestion will nearly double.
- Total transit trips will increase by two-thirds. Transit ridership on the rail lines will increase by about 70 percent.
- The transit-job accessibility measure for all residents, and especially those living in low-income and minority communities, will increase, due primarily to the RTD FasTracks rapid transit and bus improvements.

DRCOG has established Metro Vision goals of reducing VMT per capita by 10 percent and single-occupant vehicle (SOV) use to 65 percent of work trips. Progress toward these goals has already been made, and the 2040 RTP anticipates further progress through 2040. For example, VMT per capita decreased by seven percent between 2005 and 2013, and is forecast to remain relatively stable or even slightly decrease between 2015 and 2040.



The condition of the region's roadway infrastructure will also decline. CDOT uses a new method, Drivability Life, to measure the number of years a highway will have acceptable driving conditions as perceived by the user. Drivability Life is a function of smoothness, pavement distress, and safety. CDOT forecasts that, under Drivability Life, the total number of highway miles treated statewide will increase from 224 in FY 2012 to 367 in FY 2017. Currently, 82 percent of the state's highway miles are rated High to Moderate in Drivability Life. To maintain 80 percent, CDOT estimates an average cost of $240 million annually statewide, about $6 billion through 2040. DRCOG estimates about $3.5 billion will be spent on state highways within the DRCOG region. Maintaining the non-CDOT Regional Roadway System at its current condition would cost an estimated $1.4 billion by 2040.

CDOT also maintains 3,454 bridges statewide. Of those, 392 bridges statewide, and 120 in the DRCOG region, are considered to be in fair to poor condition, based on their need for structural improvements or modifications to improve traffic flow. A bridge rated "poor" is not unsafe, but it could have vehicle type

or weight restrictions. CDOT notes that in FY 2013, maintenance and asset management activities consumed more than half of its budget. With limited funding, CDOT is focusing on maintaining the system, but a gap of several billion dollars will remain over the next 10 years.

Table 6

2040 Fiscally Constrained RTP Roadway and Transit Performance Measures

System Measures - Weekday for DRCOG Region	Existing 2015	2040 Fiscally Constrained	Change from 2015
Population	3,119,500	4,313,600	38.3%
Employment	1,818,300	2,359,700	29.8%
Total Person Trips (incl. walk and bicycle trips)	12,104,700	16,275,900	34.5%
Bicycle and Walking Trips	833,530	1,244,400	49.3%
Vehicle Trips	10,707,600	14,164,670	32.3%
Vehicle Miles Traveled (VMT)	79,300,430	105,021,800	32.4%
Per Capita VMT	25.4	24.3	
Vehicle Hours Traveled	2,114,930	3,064,700	44.9%
Avg. vehicle speed - all day (mph)	37.5	34.4	-8.3%
Avg. vehicle speed - peak hours (mph)	31.2	27.2	-12.8%
Person Miles Traveled (no transit)	106,262,570	139,679,000	31.4%
Person Hours Traveled (no transit)	2,834,010	4,076,070	43.8%
Rail transit trips (boarding)	152,140	258,320	69.8%
Total transit trips (linked trips)	332,830	553,220	66.2%
Person Miles Traveled on transit	2,055,590	3,786,840	84.2%
Transit share of all daily trips	2.70%	3.40%	
Transit share of all daily work trips	5.80%	7.10%	
Share of total population with good transit-job accessibility (2)	53%	63%	
Share of population in low-income or minority areas with good transit-job aacessibility (2)	69%	77%	
Roadways with 3+ hours of severe congestion (lane-miles)	1,320	2,520	90.9%
Vehicle Hours of Delay	223,570	479,990	114.7%
Percent of VMT in severe congestion	13.1%	18.7%	

(1) - Source - DRCOG Travel Models RTP2040 2015BaseYear, RTP2040 Year2040
(2) - Good accessibilty = 100,000+ jobs within a 45-minute transit trip.

B. Sustainability & Energy Consumption

Energy Consumption

Energy consumption is closely related to greenhouse gas (GHG) emissions associated with the burning of motor vehicle fuels. Direct energy consumption by motorists in 2040 will depend on changing behaviors relative to key factors discussed in the previous section. While somewhat hard to predict, reduction in motor vehicle fuel consumption, relative to sustainability goals and action strategies, is anticipated.

The estimated petroleum fuel burned by motor vehicles in the Denver region in 2015 is about 3.8 million gallons per day. This reflects an average overall fuel economy of 18.5 miles per gallon for the entire vehicle fleet of cars and trucks. It also equates to approximately 5 quarts per capita per day. By 2040, the amount is estimated to drop to approximately 3.1 million gallons per day, even though VMT is forecast to increase by about 32 percent. Average overall fuel economy is predicted to be 32.1 miles per gallon with 3 quarts of fuel burned per capita per day. Most of the reduction in fuel burned will be due to more efficient engines and the increase in number of alternative fuel motor vehicles (e.g., electricity and natural gas).

The 2040 RTP also contains many other strategies and facilities that will help slow the growth in energy consumption. For example, operations management strategies will help keep cars, trucks, and buses moving smoothly by reducing stop-and-go conditions. New roadway lane-miles will address key congestion points. Strategies to enhance the transit system and support TDM, bicycle, and pedestrian improvements will provide alternative means of travel to single-occupant vehicles. The strategies contained in the RTP will help to address energy consumption and the goals associated with providing a sustainable future for the region.

C. Environmental Justice (EJ)

An important consideration for the 2040 RTP is the impact of its elements on the minority and low-income populations of the Denver region. Guidance for evaluating these impacts is derived from Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low Income Populations*, which was signed by President Bill Clinton on February 11, 1994. The Executive Order and accompanying memorandum reinforced the requirements of Title VI of the Civil Rights Act of 1964 that focus federal attention on the environmental and human health condition in minority and low-income communities.

The U.S. Department of Transportation Order on Environmental Justice, issued to comply with Executive Order 12898, defines minority as a person who is:

- Black (a person having origins in any of the black racial groups of Africa);
- Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
- American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

A low-income person means a person whose median household income is at or below the Department of Health and Human Services poverty guidelines. For the 2010 Census, the poverty threshold was approximately $23,850 for a family of four.

Transportation plans and programs (1) must provide a fully inclusive public outreach program, (2) should not disproportionately impact minority and low-income communities, and (3) must assure the receipt of benefits by minority and low-income populations. The 2040 RTP addresses these three principles and they were considered throughout the decision-making process. These principles must also be considered in the project design and implementation phases for future specific projects.

Geographic Concentrations of EJ Communities

The first step in the environmental justice evaluation process was to identify geographic concentrations of minority and low-income populations. The transportation analysis zones (TAZs) identified with concentrations of either “minority” persons or “low-income” households make up the environmental justice areas of the region. Figure 14 shows the TAZs where, based on the 2010 Census data, the percent of minority population is at or above the regional minority percentage of 33 percent. It also shows the TAZs where, based on the 2010 Census data, the percentage of households, by size, with a household income at or below the poverty guidelines, is at or above the regional percentage of 11 percent.

DRCOG
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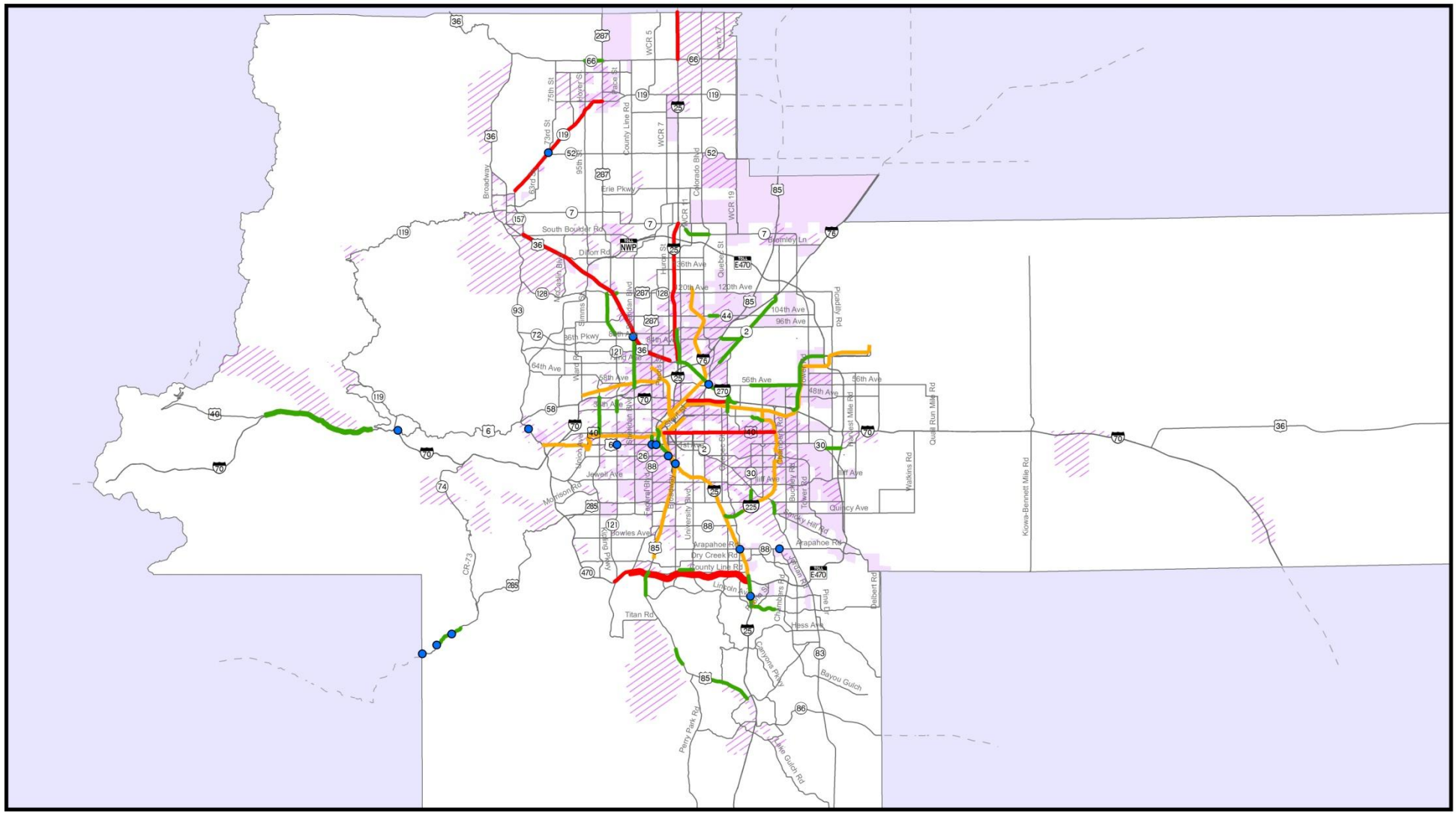
Figure 14
Fiscally Constrained Regionally Funded Projects and Environmental Justice Areas

2040 Regional Transportation Plan



LEGEND

- Low Income Areas (>11% Proverty Households) *
- Minority Areas (>33% Minority Population)

* Based on 2010 Census Statistics

- New or Reconstructed Interchange
- Add HOT/BRT Lanes
- Roadway Projects
- Rapid Transit

N

0 5 10
Miles

SOURCE DATA:
Enter all data sources here, included base map information

This data is intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no guarantee, representation or warranty, either express or implied, that the data will be error free. DRCOG further makes no guarantees, representations or warranties, either express or implied, as to the completeness, accuracy or correctness of the data, or as to merchantability or fitness of the data for a particular use or purpose. DRCOG is not responsible to any user for any costs, expenses, liabilities or damages arising from inconsistencies in its data or from any use of the information.

Projection: State Plane Colorado Central, NAD 83 (feet)

PJ 1/13/2015
\\Clinton\Develop\2040 MVRTP\Figures\Fig14_Fiscally_Constrained_EJ_S_Cycle2.mxd

Benefits of the Fiscally Constrained 2040 RTP in EJ Communities

The 2040 RTP includes many projects, services, and policies that would improve transportation for people living in these communities and especially for those unable to use an automobile to travel. It will also provide a system that connects people with a greater number of job opportunities via convenient commuting trips.

Figure 14 also displays the location of regionally-funded roadway and rapid transit capacity projects in relation to the environmental justice areas. Several beneficial projects will directly serve residents in these areas. Many other smaller-scale projects and services will be provided through future TIPs. It should also be noted that many future road projects will include multimodal elements that will benefit non-drivers.

More than half of the anticipated 2040 RTP regional system expenditures will be for public transit and other non-roadway projects and services. Several additional rapid transit rail lines and extensions will be completed by RTD as part of its FasTracks Plan. BRT/HOV/HOT lanes will be added to US-36. Bus service will increase by about 30 percent through 2040. The Fiscally Constrained Rapid Transit System, shown in Figure 11, is also displayed on Figure 14 in relationship to environmental justice areas.

Transit accessibility to jobs will improve as the FasTracks system is built out. Table 6 shows the share of population within the environmental justice areas that would meet the "good transit-job accessibility" criteria in 2015 (69 percent) and in 2040 with the 2040 RTP (77 percent). The criterion requires having at least 100,000 jobs located within a 45-minute transit trip of home.

Other beneficial components of the 2040 RTP include extensive additions to the bicycle and pedestrian system, expansion of demand-responsive transit service, and further outreach by the DRCOG carpool and vanpool matching service. This is very beneficial in helping find transportation for persons without access to an automobile, for example, if residents have common workplaces or school destinations. Road capacity projects that reduce congestion will benefit the majority of all populations that travel by car to work, including minority persons.

In addition to the extensive transit system that is being planned by RTD, the 2040 RTP provides additional funding sources to serve the needs of low-income and minority populations. For example, the Federal Transit Administration (FTA) has grant programs that provide potential benefits to environmental justice communities (although they do not specifically address minority populations). These grant programs allow, but do not require, expenditures towards, developing new transportation

options for welfare recipients and other low-income individuals to access employment and job training. They also provide funding to increase transportation options for older adults and individuals with disabilities.

Potential Impacts of the Fiscally Constrained 2040 RTP on EJ communities

The recommendations contained within the 2040 RTP should not have disproportionate adverse impacts on the low-income or minority communities. Negative impacts of the transportation system, such as air pollution, excessive noise, and crashes would be distributed throughout the region. Similarly, negative impacts of transportation projects, such as construction effects and right-of-way acquisitions, would be associated with the improvements shown in Figure 14 and are not disproportionately located in low-income or minority communities.

The 2040 RTP does not reflect final alignments, design attributes, or approvals for projects that are identified. Environmental studies must be conducted before any transportation project involving federal funds or actions can be constructed. These studies must define mitigation, minimization, or abatement strategies that address the following example environmental topics:

- Noise levels
- Right-of-way and property takings
- Water quality
- Parks
- Site-specific air quality
- Fish and wildlife
- Social, community and economic impact
- Wetlands
- Hazardous materials

D. Public Involvement & Decision-making Process

The framework for involving the public in the 2040 RTP process is defined by *Public Involvement in Regional Transportation Planning*, adopted by the DRCOG Board in 2010. Public participation has been encouraged throughout the development of DRCOG's 2040 Fiscally Constrained RTP, as well as DRCOG's other 2040 Plans (Metro Vision 2040 and 2040 MVRTP). DRCOG has held numerous workshops, stakeholder meetings, interactive online forums (such as MindMixer), and other public participation events. The public provided input towards developing the 2040 RTP through the following activities:

- Notification of events and review documents via DRCOG website;
- Scenario planning workshop and 2040 Plans kickoff (June 2012);
- DRCOG Listening Tour (Spring 2012);
- CDOT Town Hall (May 2014);
- DRCOG/DRMAC Transit Forum (May 2014);
- CDOT/DRCOG Transit Open House (May 2014);
- More than 20 DRCOG Board and committee meetings covered 2040 RTP topics, and
- Public hearings in January/February 2013, July 2013, April 2014.

Transportation issues and topics were also a focus of numerous activities of DRCOG's Sustainable Communities Initiative, such as corridor working groups and committees, neighborhood focus groups, and others.

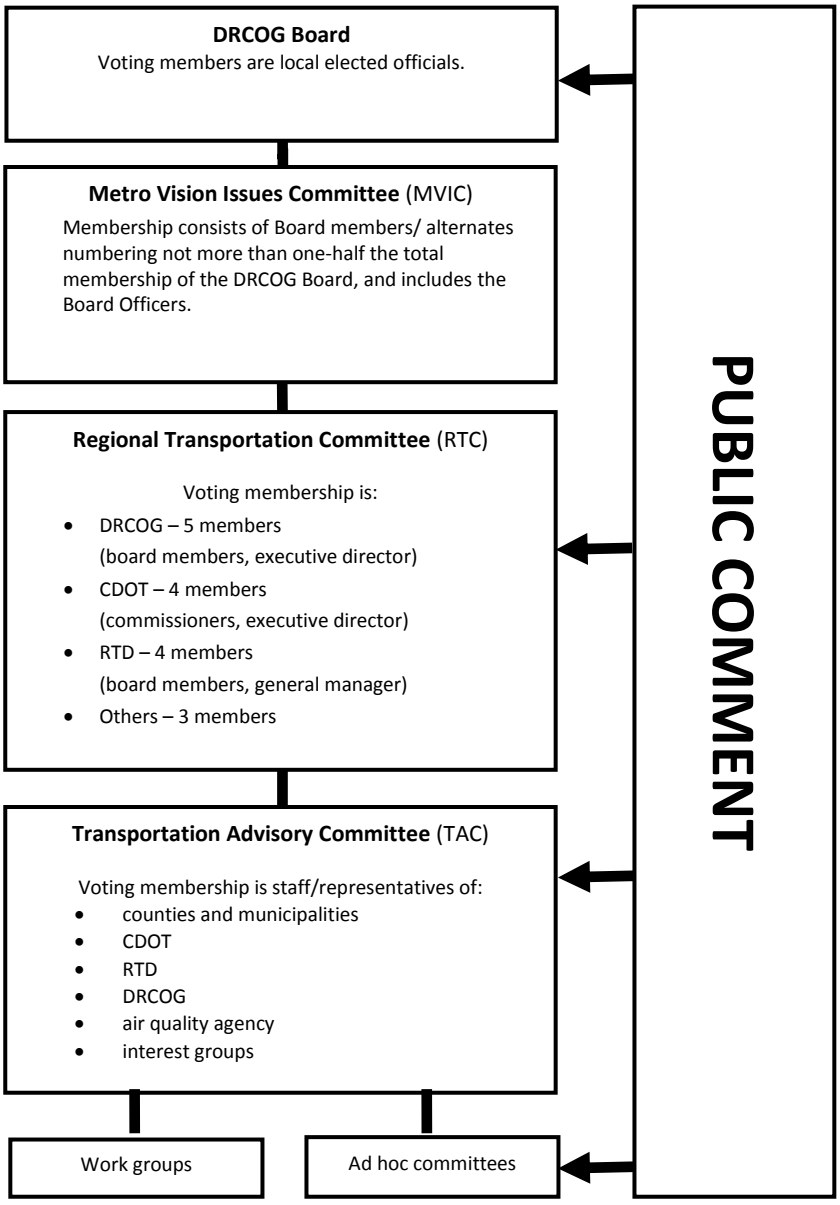
Events were advertised through the DRCOG website and other publications, news releases to the local media, including minority publications and radio stations, postcards, and public hearings. Summaries of testimony received at the public hearings are available at DRCOG.

Decision-making Process

The decision-making process recognizes transportation issues cross the boundaries and responsibilities of individual jurisdictions and organizations. The DRCOG Board of Directors considers public input and advice of numerous committees, including the Regional Transportation Committee (RTC), the Transportation Advisory Committee (TAC), and other specialized committees. The interrelationship between the various committees is illustrated in Figure 15. The RTC, which includes elected public officials**,** Colorado Transportation Commissioners, RTD Board members, and the public, reviews regional transportation issues and DRCOG transportation program issues and provides policy recommendations to the DRCOG Board.

Each of the partners in the transportation planning process brings a unique perspective. CDOT is responsible for the management, construction and maintenance of state highways, as well as statewide transportation planning efforts. RTD is responsible for the development, maintenance and operation of a public transportation system within its geographic area. RTD also provides service meeting Americans with Disabilities Act (ADA) requirements. Member jurisdictions bring particular knowledge of their local areas and represent residents of their communities. The Air Pollution Control Division (APCD) and Regional Air Quality Council (RAQC) reflect the air quality interests of the state and the region. DRCOG is responsible for regional development and transportation planning, coordination of the planning efforts of RTD and CDOT, and representation of the various perspectives of more than 50 local government members.

Figure 15. DRCOG Committee Structure for Transportation Decision-making



E. Environmental Mitigation

The DRCOG region is comprised of diverse environmental and ecological resources. These include the extensive municipal, county, state, and federal parks and public lands that are used by many residents and visitors, an extensive bicycle and pedestrian trail network, numerous areas of wildlife habitat of both Colorado Species of Special Concern and federally protected Threatened and Endangered Species, and archaeological/historic resources. Protection of the environment is a key goal in development of the transportation system.

SAFETEA-LU and MAP-21 contain requirements for identifying environmental resources potentially affected by the transportation plan, as well as developing mitigation activities for natural and historical resources. Further, these mitigation strategies must be developed in consultation with federal, state, and tribal wildlife, land management, and regulatory agencies (resource agencies). Planning and environmental processes have historically been conducted separately from one another. However, as written in SAFETEA-LU and further reinforced in the Metropolitan Planning Rule, it is Congressional intent to more closely link them together, in the hopes of streamlining the transportation planning/NEPA processes, reducing the duplication of work and expediting the delivery of transportation projects.

The following overall mitigation strategy applies generally to all resources in all corridors:

(1) **Avoidance**—Alter the project so an impact does not occur.
(2) **Minimization**—Modify the project to reduce the severity of the impact.
(3) **Mitigation**—Undertake an action to alleviate or offset an impact or to replace an appropriated resource.

DRCOG participated in CDOT's Planning Insight Network (PIN) Tool process, an interactive web-based mapping tool and process to solicit environmental consultation by resource agencies on major projects and travel corridors. DRCOG submitted a representative list of major freeway and arterial roadway capacity projects to CDOT for it to map in the PIN Tool for consultation and comment by resource agencies. DRCOG reviewed the comments received.

Specific mitigation strategies are generally developed as part of the project environmental review process conducted under NEPA. Since the corridor visions are rather general and not project-specific, it is difficult to develop specific mitigation strategies. However, many corridors in the DRCOG region are the sites of proposed improvements that have either recently completed the NEPA process with Finding of No Significant Impact or a Record of Decision, or are currently undergoing the NEPA process. These NEPA

studies are led by implementing agencies such as CDOT and RTD, and must undergo extensive coordination and consultation with resource and regulatory agencies as they are developed. These documents do or will contain detailed mitigation strategies. Any environmental documentation that is ongoing or has recently been completed for any part of these corridors is referenced in these corridor vision plans because they contain the more detailed information on potential impacts and mitigation strategies.

Also, the RTD issued a *Programmatic Cumulative Effects Analysis* (PCEA) in 2007 to evaluate the broad ecosystem-wide cumulative effects of the overall FasTracks program. In addition to the impacts, the PCEA describes three types of mitigation measures for each of the following resources: land use, water quality, air quality, energy, wetlands, and social and environmental justice. They are: **corridor mitigation** (mitigation measures that can be implemented on a corridor-wide basis), **programmatic mitigation** measures (measures that have already been agreed to by RTD or will be eventually implemented as each project advances), and **recommended mitigation** measures, which are suggested mitigation measures that RTD would support but are the responsibility of other organizations or entities.

F. Air Quality Conformity

The Clean Air Act (CAA) of 1990 requires that federally funded transportation plans, programs, and projects in non-attainment or maintenance areas conform to the State Implementation Plan (SIP) for air quality. An air quality analysis of the 2040 RTP was prepared. It is consistent with the 2004 U.S. Environmental Protection Agency guidance. All criteria pollutants are forecast to decrease significantly through 2040, meaning that the 2040 RTP meets all federal air quality conformity requirements.

Coordination of transportation planning with the SIP for air quality is accomplished through the participation of the responsible air quality agencies at policy and technical committee levels in the decision-making process detailed above. The mountain area (Clear Creek and Gilpin counties) of the region is outside the air quality non-attainment/maintenance areas of the Denver region and is not subject to the conformity requirements. Eastern Adams and Arapahoe counties (east of Kiowa Creek) are not subject to PM10 conformity requirements.

The conformity of the 2040 RTP is documented in the *Denver Southern Subarea 8-Hour Ozone Conformity Determination for the DRCOG Fiscally Constrained 2040 Regional Transportation Plan and CO and PM10 Conformity Determination for the DRCOG Fiscally Constrained 2040 Regional Transportation Plan* reports. These conformity documents demonstrate the Denver region's meeting of federally prescribed emissions

tests. The emissions tests involve comparisons with budgets which define the maximum amount of pollution which can be generated and still assure attainment of the federal ambient air quality standard. All transportation projects of regional significance (federal, state or locally funded) must be identified in the 2040 RTP by air quality staging period according to each project's estimated implementation. These projects also form the basis of future TIPs. A summary of the required emissions tests for the year 2040 follows.

- The Denver Carbon Monoxide (CO) Maintenance Plan provides for a budget of 1,600 tons per day within the Denver/Boulder non-attainment area. The 2040 estimate is 187.4 tons per day, which is lower than the budget.
- The Longmont Carbon Monoxide Maintenance Plan provides for a budget of 43 tons per day within the Longmont non-attainment area. The 2040 estimate is 4.1 tons per day, which is lower than the budget.
- The Denver PM_{10} State Implementation Plan provides for two budgets—55 tons per day of direct PM_{10} emissions and 56 tons per day of nitrogen oxides (NO_x). The 2040 estimate is 29.4 tons per day of direct PM_{10} emissions and 14.7 tons per day of NO_x. Both of these are less than the relevant budgets.
- The Denver-North Front Range Area Ozone State Implementation Plan provides for two budgets—109 tons per day of volatile organic compounds (VOCs) and 123 tons per day of Nitrogen Oxides (NOx). The 2040 estimate is 22.0 tons per day of VOC and 16.3 tons per day of NOx. Both of these are less than the relevant budgets.

As noted, the 2040 RTP meets all federal air quality conformity requirements by passing all emissions budget tests. To help assure compliance with the PM_{10} SIP, 40 operating agencies have committed to reduce street sanding, substitute deicers for sand, and/or increase street sweeping after snowfalls. These commitments are included in the conformity document.

G. Conclusion

The *2040 Fiscally Constrained Regional Transportation Plan* (2040 RTP) addresses the challenges and guides the development of a multimodal transportation system over the next 25 years. Though current funding levels do not fully address the region's transportation needs, the 2040 RTP reflects the DRCOG region's collaborative and innovative problem-solving approach to maximize available resources. DRCOG's local governments and the region's transportation planning partners are working together in strengthening the region's multimodal transportation system to improve mobility, protect the environment, and contribute to the region's desirable quality of life.

APPENDIX 1

Regionally Significant Roadway Capacity Project Selection Process

APPENDIX 1

Regionally Significant Roadway Capacity Project Selection Process

DRCOG-Funded Projects

DRCOG staff worked with the Transportation Advisory Committee to solicit and evaluate regionally significant roadway capacity candidate projects desiring regional funding.
Projects in the 2035 RTP had not been thoroughly re-evaluated for many years because the focus over the past three RTP update cycles was on removing projects from the RTP due to the lack of revenues.

With limited funds available for the 2040 RTP, DRCOG evaluated candidate projects to update the list of regionally significant roadway capacity projects.
Candidate projects were defined as:

- Projects already identified in the 2035 RTP with 100% locally derived funds
- Projects identified previously as "vision" unfunded projects
- New projects

DRCOG solicited candidate projects from local governments within the MPO planning area, CDOT, and RTD. Approximately 30 eligible projects were submitted for evaluation. These projects were scored together with approximately 20 projects "remaining" in the 2035 RTP (construction not yet undertaken) that were candidates for regional funding in the 2040 RTP.

It is important to note that, while several 2035 RTP projects evaluated were "CDOT projects" (submitted by CDOT or funded with CDOT-controlled revenues), CDOT did not submit any candidate projects for 2040 RTP evaluation. Instead, as described further below, CDOT separately submitted a list of fiscally constrained projects to be funded with CDOT-controlled revenues for the 2040 RTP. Accordingly, the project evaluation, scoring, and selection process described here applied to roadway capacity projects seeking DRCOG-controlled regional funding (STP-Metro and CMAQ).

<u>Project Scoring Evaluation Criteria</u>

The Transportation Advisory Committee and a subset work group of local technical staff reviewed and revised the criteria used to evaluate and score roadway capacity projects used in previous RTP updates. The revised criteria, shown in Table A, were approved by the DRCOG Board in April 2014. As with previous versions, the revised criteria integrate and address Metro Vision goals and policy direction.

The criteria encompass several factors to evaluate projects from a high-level, comparative, long range planning perspective using readily-available data. Transportation criteria included congestion severity, cost per peak period person mile traveled, arterial roadway spacing, safety, intermodal and high security facilities, and rapid/frequent transit service. Land use criteria included serving urban and rural town centers and urban growth boundary/area status. Table A also summarizes what data was used to evaluate projects and how the projects were scored.

The DRCOG Board and committees used the project evaluation and scoring process as the primary means to choose which projects to include in the fiscally constrained roadway network for air quality conformity modeling, given estimated project costs and anticipated available revenues through 2040. The evaluation and scoring process was viewed as the most objective and equitable way of making difficult project selection decisions, given limited available revenues. There were two additional considerations in this process:

- First, as noted previously, CDOT separately submitted its list of fiscally constrained roadway capacity projects to be funded with CDOT-controlled revenues. A few projects that DRCOG evaluated and scored CDOT later included on its project list to fully fund. Those projects, such as the US-6/Wadsworth interchange reconstruction, were therefore removed from the DRCOG candidate project list, since CDOT included them on its list.
- Second, since a few candidate projects were eligible for CMAQ funding, those projects were addressed separately. They competed for DRCOG-controlled funding by score rank to demonstrate they scored high enough to merit selection for funding. With demonstrated merit, they were then removed from the main candidate projects list, which focused on competition for the limited available STP-Metro funding.

Table A

Project Scoring Evaluation Criteria for 2040 RTP

Regionally Significant Roadway Capacity Projects

DRCOG Board Approved April 16, 2014

Criteria Category	Point Distribution Process	Maximum Points
1. Congestion Severity (Existing and Future) *(current or parallel facility)* *Existing: Congestion Management Program (CMP) Score* *Future: 2040 Existing and Commited Network Model*	Existing Congestion: Points (0-20) based on CMP score Future Congestion: Points (0-10) based on peak period (6.5 hours) volume/capacity ratio (v/c) > 0.54 Prorate by 1-point increments based on range of values	30
2. Cost per Peak Period Person Mile Traveled (PMT) *2040 model run*	Project cost divided by peak 6.5 hour PMT (from FOCUS Travel Model) Prorate by 1-point increments based on range of values	17
3. Gap Closure *completes all or part of a lane or segment gap*	15 points if gap is completely closed, 8 points for partial gap closure (min 50% closure) (gap must be < 5 miles)	15
4. Arterial Roadway Spacing *proximity to parallel Regional Roadway System facilities*	5 points if nearest parallel arterial is > 3 miles away 2 points if > 1.5 miles away	5
5. Regional Roadway System Classification *Freeways, MRAs, or NHS-Principal Arterial segments*	4 points for freeway 2 points for major regioinal arterial (MRA) 1 point for principal arteral on National Highway System (NHS)	4
6. Serves Urban Centers/Rural Town Center *Proximity to designated Urban Centers/Rural Town Centers*	5 points if project is within or touching 3 points for roadway segment project, if within 1/2 mile	5
7. Safety Measure *Most recent 3-years of crash data*	Based on weighted crash rate (crashes/vmt) (Injury and fatal crashes factored by 5) 8 points to 10% of projects with highest value 4 points to next 15% of projects	8
8. Urban Growth Boundary/Area *is project entirely within the UGB/A?*	2 points if the project is entirely within the contiguous urban growth boundary area (including preserved land)	2
9. Serve Major Intermodal or High Security Facility *DIA, Union Station, GA airports* *intermodal freight terminals, Buckley AFB*	4 points if project is within or touching 2 points if within 1 mile	4
10. Rapid/Frequent Transit Corridor *support of major transit corridors*	Rapid Transit Tier 1 Corridor: 10 points. 15 mins. or better headway corridor (avg. weekday peak period): 5 points	10
		100

APPENDIX 2

2040 Fiscally Constrained Park-n-Ride Lots and Transit Stations

2040 Regional Transportation Plan
Appendix 2-Fiscally Constrained
Park-n-Ride Lots and Transit Stations

Transit Stations

Facility Name	Tier 1 Rapid Transit Corridor	Status	Parking Spaces		
			Existing 2015	Net Change (2015-2040)	Total 2040
Rapid Transit Stations with Parking					
104th Ave	North Metro	New	0	1,460	1,460
112th Ave	North Metro	New	0	1,200	1,200
2nd/Abilene	I-225	New	0	200	200
13th Ave	I-225	New	0	690	690
30th/Downing	Central Corridor	Existing	27	0	27
38th/Blake	East Corridor	New	0	500	500
41st/Fox	Gold Line (may be shared with NW Rail in future)	New	0	770	770
60th/Sheridan-Arvada Gold Strike	Gold Line	New	0	330	330
61st/Pena	East Corridor	New	0	800	800
72nd Ave	North Metro	New	0	330	330
88th Ave	North Metro	New	0	1,500	1,500
Alameda	Central Corridor	Existing	302	0	302
Arapahoe at Village Center	Southeast Corridor	Existing	1,115	0	1,115
Arvada Ridge	Gold Line	New	0	280	280
Belleview	Southeast Corridor	Existing	59	0	59
Central Park	East Corridor	New	0	1,500	1,500
Aurora Metro Center	I-225	New	0	200	200
Clear Creek/Federal	Gold Line	New	0	370	370
Colorado	Southeast Corridor	Existing	363	0	363
40th/Colorado	East Corridor	New	0	1,800	1,800
County Line	Southeast Corridor	Existing	388	0	388
Dayton	Southeast Corridor	Existing	250	0	250
Downtown Longmont	Northwest Rail	New	0	439	439
Dry Creek	Southeast Corridor	Existing	235	0	235
Eastlake/124th Ave	North Metro	New	0	960	960
Englewood	Southwest Corridor	Expansion	910	440	1,350
Evans	Southwest Corridor	Existing	99	0	99
Federal Center	West Corridor	Existing	1,000	0	1,000
Decatur-Federal	West Corridor	Existing	1,900	0	1,900
I-25 / Broadway	Central Corridor	Existing	1,248	0	1,248
Iliff	I-225	New	0	600	600
Jeffco/Golden	West Corridor	Existing	705	0	705
Lakewood/Wadsworth	West Corridor	Existing	1,000	0	1,000
Lincoln	Southeast Corridor	Existing	1,734	0	1,734
Littleton Downtown	Southwest Corridor	Existing	361	0	361
Littleton Mineral Station	Southwest Corridor	Existing	1,227	0	1,227
National Western Stock Show	North Metro	New	0	40	40
Nine Mile	Southeast Corridor	Existing	1,225	0	1,225
Oak	West Corridor	Existing	200	0	200
Orchard	Southeast Corridor	Existing	48	0	48
Pecos Junction	Gold Line (may be shared with NW Rail in future)	New	0	300	300
Peoria	I-225 / East Corridor	New	0	1,900	1,900
RidgeGate Parkway	Southeast Corridor	New	0	2,100	2,100
Sheridan	West Corridor	Existing	800	0	800
Southmoor	Southeast Corridor	Existing	788	0	788
University of Denver Station	Southeast Corridor	Existing	540	0	540
Westminster	Northwest Rail	New	0	925	925
Yale	Southeast Corridor	Existing	129	0	129
		Subtotal	**16,653**	**19,634**	**36,287**

2040 Regional Transportation Plan
Appendix 2-Fiscally Constrained
Park-n-Ride Lots and Transit Stations

Transit Stations

Facility Name	Tier 1 Rapid Transit Corridor	Status	Parking Spaces		
			Existing 2015	Net Change (2015-2040)	Total 2040
Existing PnRs (Future Rapid Transit Stations) with Parking					
40th Ave & Airport Blvd - Gateway Park	East Corridor	Expansion	1,079	1,121	2,200
Broomfield	US-36 BRT	Existing	940	870	1,810
Flatiron	US-36 BRT	Existing	264	0	264
Olde Town Arvada	Gold Line	Expansion	200	200	400
Table Mesa	US-36 BRT	Existing	824	0	824
US-36 / Church Ranch	US-36 BRT	Existing	396	0	396
US-36 / McCaslin	US-36 BRT	Existing	466	0	466
Ward Rd	Gold Line	Existing	491	-51	440
Westminster Center	US-36 BRT	Existing	1,310	0	1,310
		Subtotal	**5,970**	**2,140**	**8,110**
Rapid Transit Stations without Parking					
10th/Osage	Central Corridor	Existing	0	0	0
16th/California	Central Corridor	Existing	0	0	0
16th/Stout	Central Corridor	Existing	0	0	0
18th/California	Central Corridor	Existing	0	0	0
18th/Stout	Central Corridor	Existing	0	0	0
20th/Welton	Central Corridor	Existing	0	0	0
25th/Welton	Central Corridor	Existing	0	0	0
27th/Welton	Central Corridor	Existing	0	0	0
29th/Welton (doesn't exist in 2035)	Central Corridor	Existing	0	0	0
Auraria	Central Corridor	Existing	0	0	0
Auraria West	Central Platte Valley	Existing	0	0	0
Colfax	I-225	New	0	0	0
Convention Center	Central Corridor	Existing	0	0	0
Fitzsimons	I-225	New	0	0	0
DIA	East Corridor	New	0	0	0
Florida	I-225	Existing	0	0	0
Garrison	West Corridor	Existing	0	0	0
Knox	West Corridor	Existing	0	0	0
Lamar	West Corridor	Existing	0	0	0
Lone Tree City Center	Southeast Corridor	New	0	0	0
Louisana / Pearl	Southeast Corridor	Existing	0	0	0
Oxford-City of Sheridan	Southwest Corridor	Existing	0	0	0
Pepsi Center	Central Platte Valley	Existing	0	0	0
Perry	West Corridor	Existing	0	0	0
Red Rocks College	West Corridor	Existing	0	0	0
Sports Authority Field at Mile High	Central Platte Valley	Existing	0	0	0
Sky Ridge	Southeast Corridor	New	0	0	0
Transit/Transfer Centers					
Boulder Transit Center		Existing	0	0	0
Civic Center Station		Existing	0	0	0
Denver Union Station		Existing	0	0	0
		Subtotal	**0**	**0**	**0**

2040 Regional Transportation Plan
Appendix 2-Fiscally Constrained
Park-n-Ride Lots and Transit Stations

Park-n-Ride Lots

Facility Name	Status	Parking Spaces		
		Existing 2015	Net Change (2015-2040)	Total 2040
RTD park-n-Ride Lots				
104th Ave & Revere	Existing	89	0	89
39th/Table Mesa Dr	Existing	40	0	40
70th/Broadway	Existing	308	0	308
Aspen Park	Existing	162	0	162
Bergen Park	Existing	160	0	160
Boulder Junction	Existing	100	0	100
Broadway / 27th Way	Existing	59	0	59
Broadway Marketplace	Existing	221	0	221
Boulder Church of the Nazarene	Existing	49	0	49
C-470 / University	Existing	440	0	440
El Rancho	Existing	36	0	36
Evergreen	Existing	45	0	45
Genesee Park	Existing	21	0	21
Alameda/Havana	Existing	128	0	128
Highlands Ranch Town Center	Existing	177	0	177
Ken Caryl / C-470	Existing	268	0	268
Lafayette	Existing	136	0	136
Lincoln/Jordan	Existing	102	0	102
Longmont (replaced by Downtown Longmont Station)	Existing	101	-101	0
Lutheran Church of the Cross	Existing	41	0	41
Lyons	Existing	27	0	27
Montbello	Existing	84	0	84
Nederland	Existing	75	0	75
Olympic	Existing	152	0	152
Paradise Hills	Existing	26	0	26
Parker	Existing	173	0	173
Pine Junction	Existing	92	0	92
Pinery	Existing	79	0	79
SH-72/SH-93	Existing	14	0	14
8th and Coffman	Existing	97	100	197
SH-119 / Niwot	Existing	28	0	28
Smoky Hill/Picadilly	Existing	55	0	55
Southwest Plaza	Existing	200	0	200
Stapleton (replaced by Central Park Station)	Existing	1,314	-1,314	0
Tantra Dr/Table Mesa	Existing	105	0	105
Thornton	Existing	817	0	817
US-285 / Mountain View	Existing	183	0	183
US-285 / Twin Forks	Existing	77	0	77
US-287/Ute Rd (Hwy 66)	New	0	150	150
US-287/Niwot Rd	Existing	40	0	40
US-85 / 72nd Ave (replaced by 72nd Avenue Station)	Existing	83	-83	0
US-85 / Bridge St	Existing	234	0	234
Wadsworth / Hampden	Existing	284	0	284
Wagon Rd	Existing	1,540	0	1,540
	Subtotal	**8,462**	**-1,248**	**7,214**
CDOT Carpool Lots				
Castle Pines Parkway	Existing	106	0	106
Hogback	Existing	512	0	512
I-25/SH-119	Existing	102	0	102
I-25/SH-52	Existing	94	0	94
I-25/SH-66	Existing	56	0	56
I-25/WCR 8	Existing	56	0	56
	Subtotal	**926**	**0**	**926**
	Grand Total Parking Spaces	**32,011**	**20,526**	**52,537**

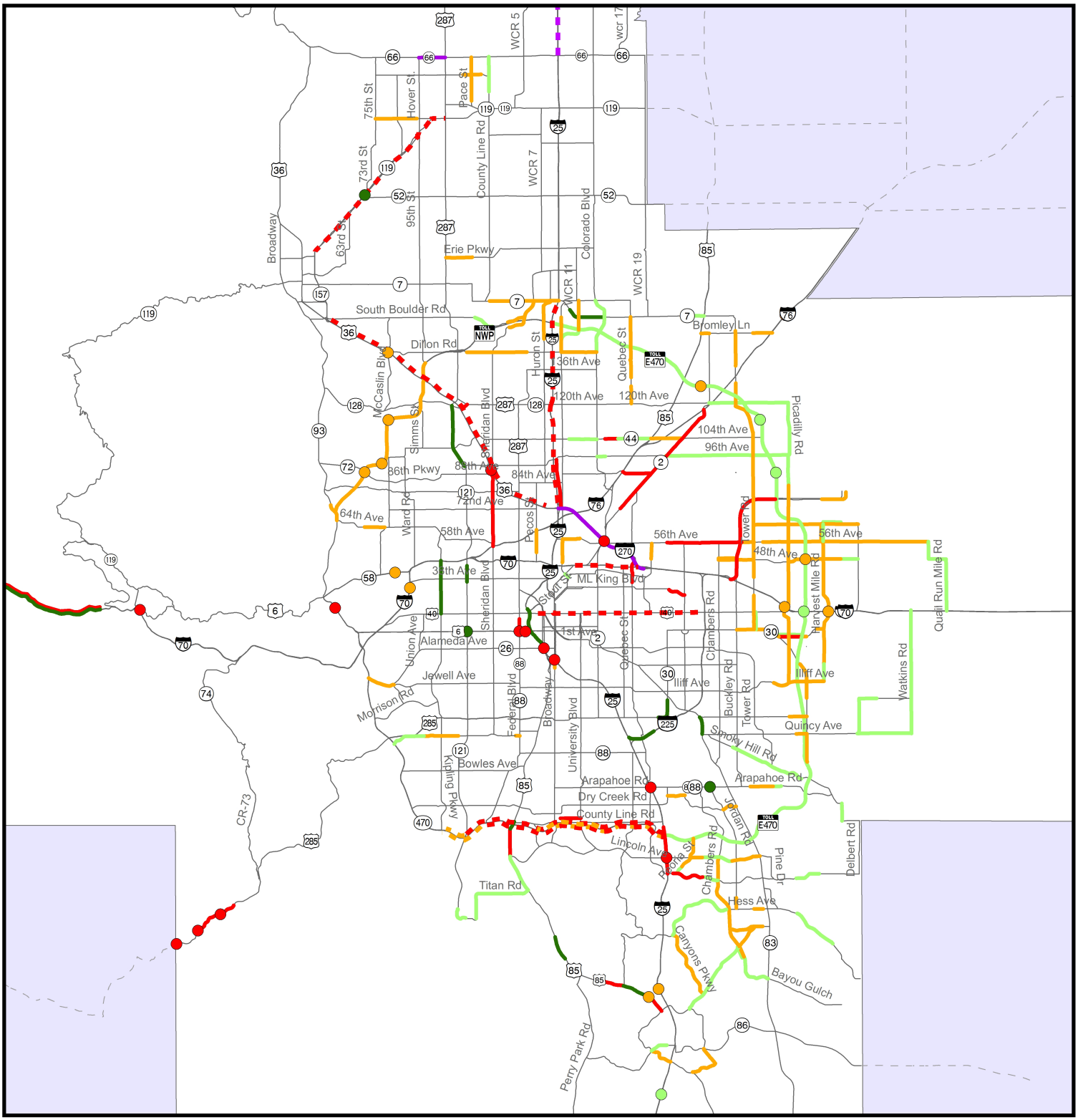
APPENDIX 3

Staging of Fiscally Constrained Roadway Projects (2015, 2025, 2035 and 2040)

DENVER REGIONAL COUNCIL OF GOVERNMENTS
We make life better!

Appendix 3 - Figure A
Staging of Fiscally Constrained Roadway Projects

2040 Regional Transportation Plan



LEGEND

2015-2024		2025-2034		2035-2040	
Local $	Regional $	Local $	Regional $	Local $	Regional $

Roadway Segment
Managed Lanes (HOT)
New or Improved Interchange
Regional Roadway System
Roads Outside Region

N

0 5 10
Miles

SOURCE DATA:
Enter all data sources here, included base map information

This data is intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no guarantee, representation or warranty, either express or implied, that the data will be error free. DRCOG further makes no guarantees, representations or warranties, either express or implied, as to the completeness, accuracy or correctness of the data, or as to merchantability or fitness of the data for a particular use or purpose. DRCOG is not responsible to any user for any costs, expenses, liabilities or damages arising from inconsistencies in its data or from any use of the information.

Projection: State Plane Colorado Central, NAD 83 (feet)

PJ 1/14/2015
\\Clinton\Develop\2040 MVRTP\Figures\05_Appendix3_FigA_Fiscally_Constrained_2040.mxd

APPENDIX 4

Fiscally Constrained Roadway & Rapid Transit Capacity Improvements and Cost Allocations (FY 2015 – 2040)

Appendix 4 - 2040 Fiscally Constrained Regional Transportation Plan
Fiscally Constrained Roadway & Rapid Transit Capacity Improvements
Remaining Project Cost Allocations (FY 2016 - 2040)

Roadway	CDOT Road	Project Location (Limits)	Improvement Type	Length (Miles)	Air Quality Network Staging	Remaining Project Cost (FY '15 $millions)	County
A. Regional Roadway System Projects							
1. Regionally Funded with DRCOG-Controlled Funds							
6th Pkwy.		SH-30/Liverpool St. to E-470	New 2 Lane Road	1.3	2015-2024	$19.9	Arapahoe
56th Ave.		Havana St. to Pena Blvd.	Widen from 2 to 6 Lanes	4.3	2015-2024	$45.0	Denver
88th Ave.		I-76 NB Ramps to SH-2	Widen from 2 to 4 Lanes	1.7	2015-2024	$21.5	Adams
104th Ave.	SH-44	Grandview Ponds to McKay Rd.	Widen from 2 to 4 Lanes	0.7	2015-2024	$8.1	Adams
120th Ave.		Allison St. to Emerald St.	New 6 Lanes	0.4	2015-2024	$0.0 (1)	Broomfield
Arapahoe Rd.	SH-88	Havana St. (or Jordan Rd.)	New Grade Separation		2025-2034	$16.0	Arapahoe
County Line Rd.		Phillips St. to University Blvd.	Widen from 2 to 4 Lanes	1.2	2015-2024	$9.5	Douglas
Hampden Ave./ S. Havana St.	SH-30	Florence St. to s/o Yale Ave.	Widen from 5 to 6 Lanes	1.4	2025-2034	$14.0	Denver
I-25	I-25	Lincoln Ave.	Interchange Capacity		2015-2024	$49.4	Douglas
I-25	I-25	Broadway	Interchange Capacity		2015-2024	$50.0	Denver
I-25	I-25	Ridgegate Pkwy. to County Line Rd. S. Ramps	Widen from 6 to 8 Lanes	2.7	2015-2024	$0.0 (1)	Douglas
I-70	I-70	Brighton Blvd. to I-270	Add 4 New Managed Lanes	3.8	2015-2024	$1,175.7 (2)	Denver
Kipling St.	SH-391	Colfax Ave. to I-70	Widen from 4 to 6 Lanes	3.0	2025-2034	$18.0	Jefferson
Martin Luther King Jr. Blvd.		Havana St./Iola St. to Peoria St.	Widen 2 to 4 Lanes; New 4 Lane Road	1.0	2015-2024	$15.0	Denver
Parker Rd.	SH-83	Quincy Ave. to Hampden Ave.	Widen from 6 to 8 Lanes	1.0	2025-2034	$18.5	Arapahoe
Pena Blvd.		I-70 to E-470	Widen from 4 to 8 Lanes	6.4	2015-2024	$55.0	Denver
Quebec St.	SH-35	35th Ave. to Sand Creek Dr. S.	Widen from 4 to 6 Lanes	1.2	2015-2024	$11.0	Denver
Ridgegate Pkwy.		Havana St. to Lone Tree E. City Limit	Widen from 2 to 4 Lanes	1.8	2015-2024	$8.0	Douglas
SH-7	SH-7	164th Ave. to Dahlia St.	Widen from 2 to 4 Lanes	2.2	2025-2034	$32.7	Adams
Sheridan Blvd.	SH-95	I-76 to US-36	Widen from 4 to 6 Lanes	4.5	2015-2024	$23.0	Adams/Jefferson
US-6	US-6	Federal Blvd. to Bryant St.	Interchange Capacity		2015-2024	$0.0 (1)	Denver
US-36	US-36	I-25 Express Lanes to Table Mesa Dr.	Add HOT Lanes	17.2	2015-2024	$0.0 (1)	Regional
US-36	US-36	Sheridan Blvd.	Interchange Capacity		2015-2024	$0.0 (1)	Jefferson
US-85	US-85	Blakeland Dr. to County Line Rd.	Widen from 4 to 6 Lanes	0.5	2025-2034	$26.0	Douglas
US-85	US-85	Highlands Ranch Pkwy. to Blakeland Dr.	Widen from 4 to 6 Lanes	1.6	2015-2024	$24.1	Douglas
Wadsworth Blvd.	SH-121	36th Ave. to 46th Ave.	Widen from 4 to 6 Lanes	0.9	2025-2034	$23.5	Jefferson
Wadsworth Pkwy.	SH-121	92nd Ave. to SH-128	Widen from 4 to 6 Lanes	3.7	2025-2034	$51.4	Jefferson
					Subtotal:	**$1,715.3**	

Notes

(1) Project funds have been fully obligated prior to FY '15; project is under construction.

(2) Includes DRCOG contribution of $50 million. CDOT-derived funds make up $1,125.7 billion.

2. Regionally Funded with CDOT-Controlled Funds

C-470	C-470	Wadsworth Blvd. to I-25	Add Toll Managed Lanes			$220.0	Douglas/Jefferson
		EB: Platte Canyon Rd. to I-25	*Add 1 New Toll Managed Lane*	*10.8*	*2015-2024*		*Douglas/Jefferson*
		WB: I-25 to Colorado Blvd.	*Add 2 New Toll Managed Lanes*	*4.1*	*2015-2024*		*Douglas*
		WB: Colorado Blvd. to Wadsworth Blvd.	*Add 1 New Toll Managed Lane*	*8.2*	*2015-2024*		*Douglas/Jefferson*
Federal Blvd.	SH-88	6th Ave. to Howard Pl.	Widen from 5 to 6 Lanes	0.8	2015-2024	$23.4	Denver
I-25	I-25	Arapahoe Rd.	Interchange Capacity		2015-2024	$50.4	Arapahoe
I-25	I-25	Santa Fe Dr. (US-85) to Alameda Ave.	Interchange Capacity		2015-2024	$27.0	Denver
I-25	I-25	Alameda Ave. to Walnut St. (Bronco Arch)	Add 1 New Lane in each direction	2.6	2025-2034	$30.0	Denver
I-25	I-25	US-36 to Thornton Pkwy.	Add 1 New SB Lane	2.8	2015-2024	$30.0	Adams
I-25	I-25	US-36 to 120th Ave.	Add 1 Toll/Managed Lane each direction	5.9	2015-2024	$68.5	Adams
I-25	I-25	120th Ave. to SH-7	Add 1 Toll/Managed Lane each direction	6.0	2015-2024	$55.0	Adams/Broomfield
I-25	I-25	SH-66 to WCR 38 (DRCOG Boundary)	Add 1 Toll/Managed Lane each direction	4.1	2035-2040	$92.0	Weld
I-225	I-225	I-25 to Yosemite St.	Interchange Capacity		2025-2034	$43.0	Denver
I-70	I-70	Empire Junction (US-40) to Twin Tunnels	Add/Convert 1 new EB Peak Period Managed Lane	9.6	2015-2024	$24.0	Clear Creek
I-70	I-70	Twin Tunnels to Empire Junction (US-40)	Add 1 WB Peak Period Managed Lane	9.6	2025-2034	$50.0	Clear Creek
I-70	I-70	Vicinity of US-6 and Floyd Hill	TBD		2015-2024	$100.0	Clear Creek

Appendix 4 - 2040 Fiscally Constrained Regional Transportation Plan
Fiscally Constrained Roadway & Rapid Transit Capacity Improvements
Remaining Project Cost Allocations (FY 2016 - 2040)

Roadway	CDOT Road	Project Location (Limits)	Improvement Type	Length (Miles)	Air Quality Network Staging	Remaining Project Cost (FY '15 $millions)	County
2. Regionally Funded with CDOT-Controlled Funds (cont'd.)							
I-270	I-270	I-25 to I-70	Widen from 4 to 6 Lanes	6.3	2035-2040	$160.0	Adams
I-270	I-270	Vasquez Blvd. (US 6/85)	Interchange Capacity		2015-2024	$60.0	Adams
SH-2	SH-2	72nd Ave. to I-76	Widen from 2 to 4 Lanes	7.5	2015-2024	$13.6	Adams
SH-66	SH-66	Hover St. to Main St. (US-287)	Widen from 2 to 4 Lanes	1.5	2035-2040	$19.0	Boulder
SH-119	SH-119	SH-52	New Interchange		2025-2034	$30.0	Boulder
US-6	US-6	19th St.	New Interchange		2015-2024	$20.0	Jefferson
US-6	US-6	Wadsworth Blvd.	Interchange Capacity		2025-2034	$60.0	Jefferson
US-85	US-85	Meadows Pkwy. to Louviers Ave.	Widen from 2 to 4 Lanes	5.7		$59.0	Douglas
		Meadows Pkwy. to Castlegate			*2015-2024*		
		Castlegate to Daniels Park Rd.			*2025-2034*		
		Daniels Park Rd. to SH-67 (Sedalia)			*2015-2024*		
		MP 191.75 to Louviers Ave.			*2025-2034*		
US-285	US-285	Pine Junction to Richmond Hill					
		Pine Valley Rd. (CR 126)/Mt Evans Blvd.	*New Interchange*		*2015-2024*	$14.0	Jefferson
		Kings Valley Dr.	*New Interchange*		*2015-2024*	$11.0	Jefferson
		Kings Valley Dr. to Richmond Hill Rd.	*Widen 3 to 4 Lanes (Add 1 SB Lane)*	0.9	*2015-2024*	$10.0	Jefferson
		Shaffers Crossing to Kings Valley Dr.	*Widen 3 to 4 Lanes (Add 1 SB Lane)*	1.4	*2015-2024*	$12.0	Jefferson
		Parker Ave.	*New Interchange*		*2015-2024*	$9.0	Jefferson
					Subtotal:	**$1,290.9**	
3. 100% Locally Derived Funding							
6th Ave.		Airport Blvd. to Tower Rd.	Widen from 2 to 6 Lanes	1.0	2015-2024	$10.2	Arapahoe
6th Ave.	SH-30	Tower Rd. to 6th Pkwy.	Widen from 2 to 6 Lanes	1.6	2015-2024	$14.1	Arapahoe
6th Pkwy.		SH-30 to E-470	Widen from 2 to 6 Lanes	1.3	2025-2034	$34.9	Arapahoe
6th Pkwy.		E-470 to Gun Club Rd.	Widen from 2 to 6 Lanes	0.3	2015-2024	$4.9	Arapahoe
6th Ave.		6th Pkwy. to Harvest Mile Rd.	Widen from 2 to 6 Lanes	0.4	2015-2024	$13.2	Arapahoe
17th Ave.		Alpine St. to Ute Creek Dr.	Widen from 2 to 4 Lanes	1.0	2015-2024	$2.3	Boulder
35th Ave.		Brighton Blvd. to Walnut St.	Widen from 2 to 4 Lanes	0.3	2025-2034	$2.5	Denver
48th Ave.		Imboden Rd. to Quail Run Rd.	Widen from 2 to 6 Lanes	1.0	2025-2034	$9.7	Adams
48th Ave.		Picadilly Rd. to Powhaton Rd.	New 6 Lanes	3.0	2015-2024	$40.7	Adams
48th Ave.		Powhaton Rd. to Monaghan Rd.	New 6 Lanes	1.0	2025-2034	$13.6	Adams
56th Ave.		E-470 to Imboden Rd.	Widen from 2 to 6 Lanes	7.0	2015-2024	$67.9	Adams
56th Ave.		Picadilly Rd. to E-470	Widen from 2 to 6 Lanes	1.0	2015-2024	$9.7	Adams
56th Ave.		Dunkirk St. to Himalaya St.	Widen from 4 to 6 Lanes	0.5	2015-2024	$11.5	Denver
56th Ave.		Himalaya St. to Picadilly Rd.	Widen from 2 to 6 Lanes	1.0	2015-2024	$5.8	Denver
56th Ave.		Pena Blvd. to Tower Rd.	Widen from 4 to 6 Lanes	0.7	2015-2024	$17.3	Denver
58th Ave.		Washington St. to York St.	Widen from 2 to 4 Lanes	1.0	2015-2024	$10.4	Adams
64th Ave.		Denver/Aurora City Limit to Himalaya St.	Widen from 2 to 6 Lanes	0.5	2015-2024	$6.5	Adams
64th Ave.		Harvest Mile Rd. to Powhaton Rd.	New 2 Lanes	1.0	2015-2024	$6.5	Adams
64th Ave.		Harvest Mile Rd. to Powhaton Rd.	Widen from 2 to 4 Lanes	1.0	2025-2034	$10.9	Adams
64th Ave.		Himalaya Rd. to Harvest Mile Rd.	Widen from 2 to 4 Lanes	3.0	2015-2024	$12.3	Adams
64th Ave.		Powhaton Rd. to Monaghan Rd.	New 4 Lanes	1.0	2015-2024	$6.7	Adams
64th Ave.		Tower Rd. to Denver/Aurora City Limits	Widen from 2 to 4 Lanes	0.5	2015-2024	$0.7	Denver
64th Ave.		Terry St. to Kendrick Dr.	Widen from 2 to 4 Lanes	1.2	2015-2024	$6.4	Jefferson
96th Ave.		SH-2 to Tower Road	Widen from 2 to 4 Lanes	5.0	2025-2034	$46.7	Adams
96th Ave.		Tower Rd. to Picadilly Rd.	Widen from 2 to 6 Lanes	2.0	2025-2034	$14.7	Adams
96th St.		96th St. at Northwest Pkwy. to SH-128	Add Toll Lanes	2.3	2015-2024	$39.4	Broomfield
104th Ave.		Marion St to Colorado Blvd	Widen from 4 to 6 Lanes	1.6	2025-2034	$6.3	Adams
104th Ave.		US-85 to SH-2	Widen from 2 to 4 Lanes	1.8	2015-2024	$41.2	Adams
104th Ave.	SH-44	McKay Road to US-85	Widen from 2 to 4 Lanes	1.9	2025-2034	$40.6	Adams
120th Ave.		Sable Blvd. to E-470	Widen from 2 to 6 Lanes	2.0	2025-2034	$29.7	Adams
120th Ave.		E-470 to Picadilly Rd.	Widen from 2 to 6 Lanes	2.6	2025-2034	$15.5	Adams
144th Ave.		Washington St. to York St.	Widen from 2 to 4 Lanes	1.0	2015-2024	$12.8	Adams
144th Ave.		York St. to Colorado Blvd.	Widen from 2 to 4 Lanes	1.0	2015-2024	$10.4	Adams
144th Ave.		US-287 to Zuni St.	Widen from 2 to 4 Lanes	3.5	2015-2024	$21.2	Broomfield
152nd Ave.		Washington St. to York St.	Widen from 2 to 4 Lanes	1.2	2025-2034	$11.1	Adams

Appendix 4 - 2040 Fiscally Constrained Regional Transportation Plan
Fiscally Constrained Roadway & Rapid Transit Capacity Improvements
Remaining Project Cost Allocations (FY 2016 - 2040)

Roadway	CDOT Road	Project Location (Limits)	Improvement Type	Length (Miles)	Air Quality Network Staging	Remaining Project Cost (FY '15 $millions)	County
3. 100% Locally Derived Funding (cont'd.)							
160th Ave.		Lowell Blvd. to Sheridan Pkwy.	New 2 Lanes	1.0	2015-2024	$3.8	Broomfield
Alameda Ave.		McIntyre St. to Rooney Rd.	Widen from 2 to 6 Lanes	0.3	2015-2024	$2.6	Jefferson
Alameda Ave.		Bear Creek Blvd. to McIntyre St.	Widen from 2 to 4 Lanes	1.3	2015-2024	$7.6	Jefferson
Arapahoe Rd.		Himalaya Way to Liverpool St.	Widen from 4 to 6 Lanes	0.5	2025-2034	$6.2	Arapahoe
Arapahoe Rd.		Waco St. to Himalaya St.	Widen from 2 to 6 Lanes	1.3	2015-2024	$20.4	Arapahoe
Bayou Gulch Rd. /Chambers Rd.		Parker Road to Parker S. Town Limit	Widen from 0/2 to 4 Lanes	2.4	2025-2034	$18.4	Douglas
Broadway		Arizona Ave. to Mississippi Ave.	Widen from 4 to 6 Lanes	0.1	2015-2024	$2.5	Denver
Broadway		Kentucky Ave. to Exposition Ave.	Widen from 4 to 6 Lanes	0.3	2015-2024	$4.8	Denver
Broadway		Mississippi Ave. to Kentucky Ave.	Widen from 6 to 8 Lanes	0.3	2015-2024	$5.0	Denver
Broncos Pkwy.		Jordan Rd. to Parker Rd.	Widen from 4 to 6 Lanes	0.8	2015-2024	$6.9	Arapahoe
Broncos Pkwy.		Havana St. to Peoria St.	Widen from 4 to 6 Lanes	1.0	2015-2024	$8.1	Arapahoe
Buckley Rd.		118th Ave. to Cameron Dr.	Widen from 2 to 6 Lanes	1.3	2015-2024	$13.9	Adams
Buckley Rd.		136th Ave. to Bromley Ln.	Widen from 2 to 4 Lanes	2.0	2015-2024	$7.8	Adams
C-470	C-470	S. Kipling Pkwy. to I-25	Add New Toll/Managed Lanes				
		WB: Wadsworth Blvd. to S. Kipling Pkwy.	*Add 1 Toll/Managed Lane*	*1.4*	*2025-2034*	*$45.0*	*Jefferson*
		EB: S. Kipling Pkwy. to Platte Canyon Rd.	*Add 1 Toll/Managed Lane*	*3.0*	*2025-2034*		*Jefferson*
		WB: Colorado Blvd. to Lucent Blvd.	*Add 1 Toll/Managed Lane*	*3.7*	*2025-2034*	*$120.0*	*Douglas*
		EB: Broadway to I-25	*Add 1 Toll/Managed Lane*	*6.6*	*2025-2034*		*Douglas*
Canyons Pkwy.		Crowfoot Valley Rd. to Hess Rd.	New 4 Lanes	4.1	2015-2024	$19.1	Douglas
Central Park Blvd.		47th Ave. (Northfield Blvd.) to 56th Ave.	New 4 Lanes	0.9	2015-2024	$4.3	Denver
Chambers Rd.		Crowfoot Valley Road to Parker S. Town Limit	New 2 Lanes	0.7	2025-2034	$3.1	Douglas
Chambers Rd.		Crowfoot Valley Road to Parker S. Town Limit	Widen from 2 to 4 Lanes	0.7	2015-2024	$3.1	Douglas
Chambers Rd.		Crowfoot Valley Rd. to Hess Rd.	New 4 Lanes	2.3	2015-2024	$15.4	Douglas
Chambers Rd.		Hess Rd. to Mainstreet	Widen from 2 to 4 Lanes	1.9	2015-2024	$12.6	Douglas
Chambers Rd.		Mainstreet to Lincoln Ave.	Widen from 2 to 4 Lanes	1.4	2015-2024	$4.4	Douglas
Colorado Blvd.		144th Ave. to 168th Ave.	Widen from 0/2 to 4 Lanes	3.7	2025-2034	$23.5	Adams
Crowfoot Valley Rd.		Stroh Rd. to Chambers Rd.	Widen from 2 to 4 Lanes	1.4	2015-2024	$6.4	Douglas
Crowfoot Valley Rd.		Macanta Rd. to Chambers Rd.	Widen from 2 to 4 Lanes	3.6	2025-2034	$22.9	Douglas
Crowfoot Valley Rd.		Founders Pkwy. to Macanta Rd.	Widen from 2 to 4 Lanes	1.1	2025-2034	$5.1	Douglas
E. Bromley Ln.		Hwy 85 to Sable Blvd.	Widen from 4 to 6 Lanes	0.5	2015-2024	$1.3	Adams
E. Bromley Ln.		Tower Rd. to I-76	Widen from 4 to 6 Lanes	1.1	2015-2024	$1.9	Adams
E-470		48th Ave.	Add New Interchange		2015-2024	$26.9	Adams
E-470		88th Ave.	Add New Interchange		2025-2034	$17.6	Adams
E-470		I-25 North to I-76	Widen from 4 to 6 Lanes	11.0	2025-2034	$76.5	Adams
E-470		Potomac	Add New Interchange		2015-2024	$8.0	Adams
E-470		Quebec	Add New Interchange		2015-2024	$24.8	Adams
E-470		112th Ave.	Add New Interchange		2025-2034	$17.6	Adams
E-470		I-70 to Pena Blvd.	Widen from 4 to 6 Lanes	7.4	2025-2034	$29.3	Adams/Denver
E-470		Pena Blvd. to I-76	Widen from 4 to 6 Lanes	7.6	2025-2034	$51.5	Adams/Denver
E-470		I-25 to Parker Rd.	Widen from 6 to 8 Lanes	5.5	2025-2034	$32.0	Arapahoe
E-470		Parker Rd. to I-70	Widen from 4 to 6 Lanes	15.2	2025-2034	$67.3	Arapahoe/Douglas
East County Line Rd.		9th Ave. to SH-66	Widen from 2 to 4 Lanes	2.0	2025-2034	$9.8	Boulder
Erie Pkwy.		US-287 to 119th St.	Widen from 2 to 4 Lanes	1.5	2015-2024	$14.6	Boulder
Green Valley Ranch Blvd.		Chambers Rd. to Telluride St.	Widen from 4 to 6 Lanes	1.5	2015-2024	$9.9	Denver
Green Valley Ranch Blvd.		Chambers Rd. to Pena Blvd.	Widen from 2 to 4 Lanes	1.0	2015-2024	$2.4	Denver
Green Valley Ranch Blvd.		Telluride St. to Tower Rd.	Widen from 4 to 6 Lanes	0.5	2015-2024	$1.7	Denver
Gun Club Rd.		1.5 Miles s/of Quincy Ave. to Quincy Ave.	Widen from 2 to 6 Lanes	1.6	2015-2024	$26.7	Arapahoe
Gun Club Rd.	SH-30	Yale Ave. to Mississippi Ave.	Widen from 2/4 to 6 Lanes	2.1	2025-2034	$10.9	Arapahoe
Hampden Ave.		Picadilly Rd. to Gun Club Rd.	Widen from 2 to 4 Lanes	1.1	2015-2024	$12.4	Arapahoe
Harvest Mile Rd.		56th Ave. to 64th Ave.	New 3 Lanes	1.0	2015-2024	$6.5	Adams
Harvest Mile Rd.		56th Ave. to 64th Ave.	Widen from 3 to 6 Lanes	1.0	2025-2034	$7.8	Adams
Harvest Mile Rd.		I-70 to 56th Ave.	New 6 Lanes	4.1	2015-2024	$54.3	Adams
Harvest Mile Rd.		Jewell Ave. to Mississippi Ave.	Widen from 2 to 6 Lanes	1.0	2025-2034	$13.3	Arapahoe
Harvest Rd.		6th Ave. to I-70	New 6 Lanes	1.1	2015-2024	$13.3	Adams
Harvest Rd.		Alameda Ave. to 6th Ave.	Widen from 3 to 6 Lanes	1.0	2015-2024	$6.7	Arapahoe

Appendix 4 - 2040 Fiscally Constrained Regional Transportation Plan
Fiscally Constrained Roadway & Rapid Transit Capacity Improvements
Remaining Project Cost Allocations (FY 2016 - 2040)

Roadway	CDOT Road	Project Location (Limits)	Improvement Type	Length (Miles)	Air Quality Network Staging	Remaining Project Cost (FY '15 $millions)	County
3. 100% Locally Derived Funding (cont'd.)							
Harvest Rd.		Mississippi Ave. to Alameda Ave.	New 6 Lanes	1.0	2015-2024	$13.3	Arapahoe
Hess Rd.		I-25 to Chambers Rd.	Widen from 2 to 4 Lanes	5.1	2025-2034	$44.5	Douglas
Hess Rd.		Motsenbocker Rd. to Nate Dr.	Widen from 2 to 4 Lanes	0.5	2015-2024	$3.5	Douglas
Hilltop Rd.		Canterberry Pkwy. to Singing Hills Rd.	Widen from 2 to 4 Lanes	2.7	2025-2034	$17.8	Douglas
Huron St.		150th Ave. to 160th Ave.	Widen from 2 to 4 Lanes	1.3	2015-2024	$8.6	Broomfield
Huron St.		160th Ave. to SH-7	Widen from 2 to 4 Lanes	1.2	2015-2024	$5.1	Broomfield
I-25	I-25	Castlegate Dr.	Add New Interchange		2015-2024	$15.3	Douglas
I-25	I-25	Crystal Valley Pkwy.	Add New Interchange		2025-2034	$44.5	Douglas
I-70	I-70	E-470	Interchange Capacity		2025-2034	$100.0	Adams/Arapahoe
I-70	I-70	Harvest Mile Rd.	Add New Interchange		2015-2024	$39.6	Adams/Arapahoe
I-70	I-70	32nd Ave.	Interchange Capacity		2015-2024	$22.4	Jefferson
I-70	I-70	Picadilly Rd.	Add New Interchange		2015-2024	$27.5	Adams
I-76	I-76	Bridge St.	Add New Interchange		2015-2024	$25.4	Adams
Imboden Rd.		48th Ave. to 56th Ave.	Widen from 2 to 6 Lanes	1.0	2025-2034	$10.3	Adams
Jefferson Pkwy.		Initial Phase: SH-93 to SH-128	New 4 Lane Toll Road; 3 Partial Interchanges	10.2	2015-2024	$259.1	Jefferson
		Candelas Pkwy.	*New Partial Interchange*		*2015-2024*		
		Indiana St. s/o SH-128	*New Partial Interchange*		*2015-2024*		
		SH-72	*New Partial Interchange*		*2015-2024*		
Jewell Ave.		E-470 to Gun Club Rd.	Widen from 2 to 6 Lanes	0.5	2015-2024	$4.9	Arapahoe
Jewell Ave.		Gun Club Rd. to Harvest Rd.	Widen from 2 to 6 Lanes	1.0	2015-2024	$10.0	Arapahoe
Jewell Ave.		Himalaya Rd. to E-470	Widen from 3 to 6 Lanes	1.4	2015-2024	$13.2	Arapahoe
Jordan Rd.		Bradbury Pkwy. to Hess Rd.	Widen from 2 to 4 Lanes	0.6	2015-2024	$3.0	Douglas
Lincoln Ave.		1st St. to Keystone Blvd.	Widen from 4 to 6 Lanes	1.8	2025-2034	$8.3	Douglas
Lincoln Ave.		Keystone Blvd. to Parker Rd.	Widen from 4 to 6 Lanes	1.6	2015-2024	$8.0	Douglas
Lincoln Ave.		Peoria St. to 1st Ave.	Widen from 4 to 6 Lanes	0.7	2015-2024	$3.2	Douglas
Mainstreet		Canterberry Pkwy. to Tomahawk Rd.	Widen from 2 to 4 Lanes	1.4	2025-2034	$7.6	Douglas
Mainstreet		Lone Tree E. City Limit to Chambers Rd.	Widen from 2 to 4 Lanes	0.9	2025-2034	$7.6	Douglas
Monaghan Rd.		Quincy Ave. to Yale Ave.	New 6 Lanes	2.0	2025-2034	$22.9	Arapahoe
Nelson Rd.		75th St. to Affolter Dr.	Widen from 2 to 4 Lanes	2.3	2015-2024	$5.2	Boulder
Pace St.		5th Ave. to Ute Rd.	Widen from 2 to 4 Lanes	2.5	2015-2024	$3.8	Boulder
Pecos St.		52nd Ave. to I-76	Widen from 2 to 4 Lanes	1.3	2015-2024	$8.7	Adams
Pena Blvd.		Jackson Gap St. West Ramps to DIA Terminal	Widen from 6 to 8 Lanes	1.7	2015-2024	$10.2	Denver
Peoria St.		E-470 to .75 miles s/o Lincoln Ave.	Widen from 2 to 4 Lanes	1.9	2015-2024	$4.4	Douglas
Peoria St.		.75 miles s/o Lincoln Ave. to Mainstreet	Widen from 2 to 4 Lanes	0.5	2025-2034	$4.4	Douglas
Picadilly Rd.		48th Ave. to 56th Ave.	Widen from 2 to 6 Lanes	1.2	2015-2024	$13.6	Adams
Picadilly Rd.		56th Ave. to 70th Ave./Aurora City Limits	New 6 Lanes	1.7	2015-2024	$20.4	Adams
Picadilly Rd.		82nd Ave. to 96th Ave.	New 6 Lanes	1.8	2025-2034	$21.6	Adams
Picadilly Rd.		Colfax Ave. to I-70	New 6 Lanes	0.3	2015-2024	$12.9	Adams
Picadilly Rd.		I-70 to Smith Rd.	Widen from 2 to 6 Lanes	0.5	2015-2024	$5.3	Adams
Picadilly Rd.		Smith Rd. to 48th Ave.	Widen from 2 to 6 Lanes	2.2	2015-2024	$22.5	Adams
Picadilly Rd.		96th Ave. to 120th Ave.	New 6 Lanes	3.0	2025-2034	$49.0	Adams
Picadilly Rd.		6th Ave. to Colfax Ave.	Widen from 2 to 6 Lanes	1.6	2015-2024	$10.0	Arapahoe
Picadilly Rd.		Jewell Ave. to 6th Pkwy.	New 4 Lanes	2.7	2015-2024	$18.1	Arapahoe
Picadilly Rd.		70th Ave. to 82nd Ave.	New 6 Lanes	1.5	2015-2024	$11.4	Denver
Plum Creek Pkwy.		Gilbert St. to Ridge Rd.	Widen from 2 to 4 Lanes	1.5	2015-2024	$5.1	Douglas
Powhaton Rd.		Smoky Hill Rd. to County Line Rd.	Widen from 2 to 6 Lanes	1.0	2025-2034	$3.5	Arapahoe
Quail Run Rd.		I-70 to 48th Ave.	New 6 Lanes	3.0	2025-2034	$36.4	Adams
Quebec St.		120th Ave. to 128th Ave.	Widen from 2 to 4 Lanes	1.0	2015-2024	$8.4	Adams
Quebec St.		132nd Ave. to 160th Ave.	Widen from 2 to 4 Lanes	3.5	2015-2024	$21.0	Adams
Quincy Ave.		Plains Pkwy. to Gun Club Rd.	Widen from 2 to 6 Lanes	0.6	2015-2024	$13.3	Arapahoe
Quincy Ave.		Hayesmount Rd. to Watkins Rd.	Widen from 2 to 6 Lanes	2.0	2025-2034	$16.0	Arapahoe
Quincy Ave.		Monaghan Rd. to Hayesmount Rd.	Widen from 2 to 6 Lanes	1.1	2025-2034	$18.9	Arapahoe
Quincy Ave.		C-470 to Simms St.	Widen from 2 to 4 Lanes	1.9	2025-2034	$16.0	Jefferson
Quincy Ave.		Kipling St. to Carr St.	Widen from 2 to 4 Lanes	1.0	2015-2024	$10.2	Jefferson
Quincy Ave.		Simms St. to Kipling Pkwy.	Widen from 2 to 4 Lanes	1.0	2015-2024	$12.0	Jefferson

Appendix 4 - 2040 Fiscally Constrained Regional Transportation Plan
Fiscally Constrained Roadway & Rapid Transit Capacity Improvements
Remaining Project Cost Allocations (FY 2016 - 2040)

Roadway	CDOT Road	Project Location (Limits)	Improvement Type	Length (Miles)	Air Quality Network Staging	Remaining Project Cost (FY '15 $millions)	County
3. 100% Locally Derived Funding (cont'd.)							
Quincy Ave.		Irving St. to Federal Blvd.	New 2 Lanes	0.3	2015-2024	$3.8	Arapahoe
Rampart Range Rd.		Waterton Rd. to Titan Rd.	Widen from 2 to 4 Lanes	1.5	2025-2034	$10.2	Douglas
Ridge Rd.		Plum Creek Pkwy. to SH-86	Widen from 2 to 4 Lanes	1.1	2015-2024	$3.8	Douglas
S. Boulder Rd./160th Ave.		120th St. to Boulder/Broomfield County Line	New 2 Lanes	1.2	2025-2034	$10.2	Boulder
SH-7	SH-7	Riverdale Rd. to US-85	Widen from 2 to 4 Lanes	1.1	2025-2034	$16.3	Adams
SH-7	SH-7	Boulder County Line to Sheridan Pkwy.	Widen from 2 to 4 Lanes	2.5	2015-2024	$6.6	Broomfield
SH-7	SH-7	Sheridan Pkwy. to I-25	Widen from 2 to 6 Lanes	1.5	2015-2024	$10.2	Broomfield
SH-58	SH-58	Cabela St.	Add New Interchange		2015-2024	$19.6	Jefferson
Sheridan Blvd.		Lowell Blvd. to NW Pkwy.	Widen from 2 to 4 Lanes	1.1	2015-2024	$7.6	Broomfield
Sheridan Pkwy.		NW Pkwy. to SH-7	Widen from 2 to 4 Lanes	1.3	2015-2024	$5.7	Broomfield
Smoky Hill Rd.		Pheasant Run Pkwy. to Versailles Pkwy.	Widen from 4 to 6 Lanes	4.4	2025-2034	$33.9	Arapahoe
Southwest Ring Rd.		Wolfensberger Rd. to I-25	Widen from 2 to 4 Lanes	1.4	2015-2024	$5.1	Douglas
Stroh Rd.		Crowfoot Valley Rd. to J. Morgan Blvd.	Widen from 2 to 4 Lanes	0.5	2015-2024	$6.4	Douglas
Stroh Rd.		Chambers Rd. to Crowfoot Valley Rd.	New 4 Lanes	1.4	2015-2024	$10.6	Douglas
Thornton Pkwy.		Colorado Blvd. to Riverdale Rd.	Widen from 2 to 4 Lanes	0.5	2025-2034	$14.0	Adams
Titan Rd.		Rampart Range Rd. to Santa Fe Dr.	Widen from 2 to 4 Lanes	3.0	2025-2034	$38.1	Douglas
Tower Rd.		Colfax Ave. to Smith Rd.	Widen from 2 to 6 Lanes	1.0	2015-2024	$8.7	Adams
Tower Rd.		Pena Blvd. to 105th Ave.	Widen from 2 to 6 Lanes	3.8	2015-2024	$23.2	Adams
Tower Rd.		6th Ave. to Colfax Ave.	New 2 Lanes	1.0	2015-2024	$9.5	Arapahoe
Tower Rd.		6th Ave. to Colfax Ave.	Widen from 2 to 6 Lanes	1.0	2025-2034	$16.3	Arapahoe
Tower Rd.		38th/40th Ave. to Green Valley Ranch Blvd.	Widen from 2/4 to 6 Lanes	1.0	2015-2024	$26.7	Denver
Tower Rd.		56th Ave. to Pena Blvd.	Widen from 4 to 6 Lanes	2.4	2015-2024	$16.0	Denver
Tower Rd.		48th Ave. to 56th Ave.	Widen from 4 to 6 Lanes	1.0	2015-2024	$5.3	Denver
Tower/Buckley Rd.		105th Ave. to 118th Ave.	New 4 Lanes	2.0	2015-2024	$8.8	Adams
US-85	US-85	Titan Rd. to Highland Ranch Pkwy.	Widen from 4 to 6 Lanes	2.2	2025-2034	$5.9	Douglas
US-85	US-85	Castlegate Dr.	Add New Interchange		2015-2024	$31.8	Douglas
Washington St.		144th Ave. to 152nd Ave.	Widen from 2 to 4 Lanes	0.7	2015-2024	$12.0	Adams
Washington St.		52nd Ave. to 58th Ave.	Widen from 2 to 4 Lanes	0.8	2015-2024	$4.4	Adams
Washington St.		152nd Ave. to 160th Ave.	Widen from 2 to 4 Lanes	1.4	2015-2024	$24.8	Adams
Washington St.		Elk Pl. to 52nd Ave.	Widen from 2 to 4 Lanes	0.6	2015-2024	$13.3	Denver
Waterton Rd.		Dante Dr. to Campfire St.	Widen from 2 to 4 Lanes	1.0	2025-2034	$3.8	Douglas
Watkins Rd.		Quincy Ave. to I-70	Widen from 2 to 6 Lanes	7.1	2025-2034	$54.7	Arapahoe
Wolfensberger Rd.		Coachline Rd. to Prairie Hawk Dr.	Widen from 2 to 4 Lanes	1.0	2025-2034	$7.5	Douglas
Yale Ave.		Monaghan Rd. to Hayesmount Rd.	Widen from 2 to 6 Lanes	1.1	2025-2034	$17.3	Arapahoe
York St.		152nd Ave. to E-470	Widen from 2 to 4 Lanes	0.2	2025-2034	$2.0	Adams
York St.		160th Ave. (SH-7) to 168th Ave.	Widen from 2 to 4 Lanes	1.0	2015-2024	$7.5	Adams
York St.		E-470 to SH-7	Widen from 2 to 4 Lanes	0.7	2015-2024	$10.7	Adams
					Subtotal:	**$3,165.2**	
			Grand Total for Regional Roadway System Projects:			**$6,171.4**	

B. Regional Transit Projects

FasTracks Components							
Eagle Project						$1,033.2	
East Rail Line		DUS to DIA	Commuter Rail	22.8	2015-2024		Adams/Denver
Gold Line		DUS to Ward Rd.	Commuter Rail	11.2	2015-2024		Multiple
Northwest Rail Phase 1		DUS to 71st/Lowell Blvd.	Commuter Rail	6.2	2015-2024		Adams/Denver
I-225 Rail Line		Parker Rd. to East Rail Line	Light Rail	10.5	2015-2024	$476.9	Adams/Arapahoe
North Metro Commuter Rail		DUS to 124th Ave.	Commuter Rail	13.0	2015-2024	$606.8	Adams/Denver
Southeast Rail Extension		Lincoln Ave. to Ridgegate Pkwy.	Light Rail	2.3	2015-2024	$205.9	Douglas
US-36 Bus Rapid Transit		DUS to Table Mesa	Bus Rapid Transit	18.0	2015-2024	$78.9	Multiple
Other FasTracks Projects						$99.4	
Other Regional Transit							
Colfax Ave.	US-40	7th St. to Potomac St.	Bus Rapid Transit	10.5	2015-2024	$115.0	Adams/Denver
SH-119	SH-119	Foothills Pkwy to US-287	Bus Rapid Transit	11.0	2015-2024	$57.0	Boulder
					Total of Regional Transit Projects	**$2,673.1**	

APPENDIX 5

Existing Intermodal Freight Facilities

APPENDIX 5

Existing Intermodal Freight Facilities

Name	Location	Type
Conoco Pipeline Transfer	56th Ave. and Brighton Rd.	Pipeline Terminal
Kanab Pipeline Transfer	80th Ave. and W. of SH-2	Pipeline Terminal
BNSF Rennicks Yard	53rd Ave. and Bannock St.	Rail Yard
BNSF 31st St. Yard	Globeville Rd. and 38th St.	Rail Yard
UP Burham (4th Ave.) Yard	800 Seminole Rd.	Rail Yard
UP Monaco	Smith Rd. and Monaco Pkwy.	Rail Yard
UP Roydale	Smith Rd. and Peoria St.	Rail Yard
UP 36th St. Yard	Wazee St.	Rail Yard
BNSF Big Lift	SH-85 and Louviers Ave.	Rail-Truck Transfer Facility
UP North Yard	901 W. 48th Ave.	Rail-Truck Transfer Facility
BNSF TOFC Yard	Pecos St. and 56th Ave.	Rail-Truck Transfer Facility
UP Rolla Auto Transfer	96th Ave. and US-85	Rail-Truck Transfer Facility
UP 40th St. Yard	40th Ave. and York St.	Rail-Truck Transfer Facility
BNSF Irondale Auto Transfer	SH-2 and 88th Ave.	Rail-Truck Transfer Facility
UP Pullman Yard	N. of 40th Ave. and SE of Brighton Blvd.	Rail-Truck Transfer Facility
BNSF Locomotive Shops	Park Ave., Delgany, and S. Platte River	Rail-Truck Transfer Facility

BNSF- Burlington Northern Santa Fe
UP-Union Pacific

APPENDIX 6

Consideration of Federal Planning Factors

APPENDIX 6

Consideration of Federal Planning Factors

M*oving Ahead for Progress in the 21st Century* (MAP-21) calls for MPOs to ensure that the planning process provides for consideration and implementation of projects, strategies, and services for eight factors described below. The following lists the "planning factors" and describes how the *2040 Fiscally Constrained Regional Transportation Plan* (2040 RTP) and the associated *2035 Metro Vision Regional Transportation Plan* (2035 MVRTP) have considered them. The 2040 RTP was prepared in close coordination with DRCOG's comprehensive Metro Vision planning process.

1. Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

The plans provide a network of transportation facilities and connections to link employment centers with major multimodal passenger facilitates and intermodal freight terminals, both nationally and internationally. The plans specifically address connections with Denver International Airport, which provides a direct linkage between the region's economy and the global economy. Connections with the region's other general aviation airports to facilitate business travel are also emphasized. The provision of an extensive transit system enables a greater share of the labor force to have access to many more jobs.

2. Increase the safety of the transportation system for motorized and nonmotorized users.

The 2040 RTP and 2035 MVRTP address several aspects of safety such as law enforcement and legislative actions, safety improvements to be made, maintenance activities related to safety, and the relationship to the state's strategic highway safety plan, *Strategic Plan for Improving Roadway Safety*. Policies and action strategies related to all modes of travel are identified. While site-specific safety designated improvements, because of their relatively small scale, are not specifically listed or mapped, safety will be given due consideration through UPWP planning activities, TIP project selection criteria, future RTP system improvement evaluations, and the incorporation of safety elements into larger scale projects. The 2040 RTP identifies funding commitments to future identified safety projects, strategies, and services.

3. Increase the security of the transportation system for motorized and nonmotorized users.

Residents and visitors will travel in the Denver region with confidence. Appropriate action strategies are identified that require substantial coordination among all the agencies charged with transportation system security. Activities that facilitate preparedness and prevention, such as vulnerability assessments, are key to increasing security, but attention will also be paid to improving response and recovery.

4. Increase accessibility and mobility of people and for freight.

A key goal of the 2040 RTP is to provide improved mobility for the region's citizens and businesses. Both roadway and transit improvements are identified and funded in the 2040 RTP that reduce delay and enhance mobility. The plan also includes a number of alternative modes of transportation to provide travel choices. Future funds are allocated for the promotion of alternative modes on three levels: regionally, in subareas, and at individual business sites. Pedestrian and senior citizen accessibility strategies are strongly referenced. Mobility of freight movements is specifically addressed. Management activities to improve freight mobility include incident detection and response, and Intelligent Transportation Systems applications. The 2040 RTP identifies pools of funding that can be used for all of the previously mentioned activities. However, the amount of funding available for the 2040 RTP is insufficient to maintain or improve congestion levels; delays will increase without additional funding.

5. Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

All of these concepts are part of the Metro Vision planning process, of which the 2040 RTP and 2035 MVRTP are a part.

- *Protecting and enhancing the environment* is a key policy for the 2040 RTP. The planning process for the 2040 RTP provided for the active involvement of the air quality regulatory agencies and citizens interested in air quality. The 2040 RTP is in conformance with the State Implementation Plan for air quality. Projects identified for inclusion in the transit and highway networks both are considered with respect to environmental impact at the system level.

  DRCOG participated in CDOT's Planning Insight Network (PIN) Tool process, an interactive web-based mapping tool and process to solicit environmental consultation by resource agencies on major projects and travel corridors. DRCOG submitted a representative list of major freeway and arterial roadway capacity projects to CDOT for it to map in the PIN Tool for consultation and comment by resource agencies. DRCOG

reviewed and considered the comments received. Further, before individual major projects go through final design engineering and construction they must go through appropriate NEPA environmental reviews and studies. This assures that project alignments, designs, and mitigation measures result in environmentally sensitive projects.

- *Energy conservation is promoted* through Metro Vision land use/development policies and by attempting to minimize travel delays and provide extensive transit services and other alternative modes of travel through the 2040 RTP. Metro Vision policies such as extent of urban growth (urban growth boundaries), urban centers, and community design seek to avoid land use patterns that lead to increased vehicles miles of travel (VMT) and instead focus on more dense, pedestrian and transit-friendly development. In the 2040 RTP, the promotion and facilitation of alternative travel modes is acknowledged through the travel demand management (TDM) programs, such as DRCOG's *Way to Go* program, funded in the 2040 RTP. In addition, as one of its policy-based activities, the synchronization of traffic signals across the region is supported. DRCOG provides for such synchronization through its Regional Traffic Signal System program. The traffic signals are timed to be more efficient and to be coordinated across corridors. Stop-and-go delays are reduced and fuel savings are achieved as a result of these activities. Petroleum fuel consumption and greenhouse gas emissions are reported in the 2040 RTP.

- Several policies, action strategies and funded improvements included in the 2040 RTP will *improve the quality of life* for persons living throughout the region. A key principle of the Metro Vision Plan is to "protect and enhance the region's quality of life", and the elements and policies of Metro Vision and the 2040 RTP are directed toward that principle. For example, environmental justice for disadvantaged persons will be enhanced by the implementation of the regional transit system, alternative mode services and facilities, and environmentally sensitive designs that are developed for specific projects.

- Metro Vision explicitly *considered State and local planned growth and economic development patterns* through extensive outreach to local governments and economic development organizations. The 2040 RTP serves the desired growth and development identified in the Metro Vision Plan. However, the limited funding reasonably expected to be available means that only a small portion of the desired transportation improvements can actually be implemented through the 2040 RTP.

6. Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

The 2040 RTP specifically address the integration of transportation system elements. The plan discusses multimodal connections with respect to a number of modes, as well as shared opportunities for multimodal transportation development. For example, park-n-Ride lots will have convenient auto, pedestrian and bicycle connections. Transit-to-transit transfer facilities are identified as well as transit and aviation connections. The key multimodal passenger facilities identified in the 2040 RTP are Denver Union Station and Denver International Airport. Roadway improvements near major intermodal freight facilities are included and reference is provided to new or improved intermodal freight facilities that are envisioned.

7. Promote efficient system management and operation.

The 2040 RTP makes extensive reference to system management and operational activities. The 2040 RTP identifies and funds operational improvements, facility management, traveler and transit information systems, and travel demand modification efforts to ensure that the regional transportation system will work as efficiently as possible. ITS efforts will provide transportation efficiency benefits, as well as safety and security enhancements.

8. Emphasize the preservation of the existing transportation system.

Preservation of the existing transportation system is an important policy of the 2040 RTP. A discussion of the need to maintain and preserve the existing transportation system is provided. The 2040 RTP contains funding for maintenance and preservation activities in addition to the physical expansion of the transportation system. Preservation is applied to all types of travel mode facilities on the system, from roadways to transit stations to sidewalks. However, reasonably expected funding over the life of the 2040 RTP may be insufficient to preserve the existing transportation system to the desired level of quality.

APPENDIX 7

Adopting Resolution

LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AFB	Air Force Base
APE	Annual Program Evaluation (RTD FasTracks)
APCD	Air Pollution Control Division
AQCC	Air Quality Control Commission
ATIS	Advanced traveler information systems
ATMS	Advanced transportation management systems
BNSF	Burlington Northern Santa Fe Railroad
BRT	Bus rapid transit
CAA	Clean Air Act
CAB	Colorado Aeronautical Board
CBD	Central Business District
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CFRT	Colorado Front Range Trail
CMAQ	Congestion Mitigation and Air Quality
CO	Carbon monoxide
DEIS	Draft Environmental Impact Statement
DIA	Denver International Airport
DMS	Dynamic Message Sign
DRIR	Denver Rock Island Railroad
DRCOG	Denver Regional Council of Governments
DRMAC	Denver Regional Mobility and Access Council
DUS	Denver Union Station
EA	Environmental Assessment
E & D	Elderly and disabled
EIS	Environmental impact statement
EJ	Environmental Justice
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FTA	Federal Transit Administration
GA	General aviation
GHG	Greenhouse gas emissions
GWR	Great Western Railway
HOT	High occupancy toll
HOV	High occupancy vehicle
HUTF	Highway Users Tax Fund
ITS	Intelligent Transportation Systems
JARC	Job Access and Reverse Commute
LRT	Light rail transit
MAP-21	Moving Ahead for Progress in the 21st Century
MP	Milepost
MPO	Metropolitan Planning Organization
MRA	Major regional arterial

MVRTP	Metro Vision Regional Transportation Plan
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHS	National Highway System
NO_x	Nitrogen oxides
NPL	National Priorities List
PCEA	Programmatic Cumulative Effects Analysis
PEIS	Programmatic Environmental Impact Statement
PEL	Planning and Environmental Linkage
PM_{10}	Particulate matter less than 10 microns in size
PMT	Person-miles of travel
Ppm	Parts per million
RAMP	Responsible Acceleration of Maintenance and Partnerships
RAQC	Regional Air Quality Council
RASP	Regional Aviation System Plan
ROD	Record of Decision
RPP	Regional Priority Program
RRS	Regional Roadway System
RTC	Regional Transportation Committee
RTD	Regional Transportation District
RTP	Regional Transportation Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users
SGPI	Shortgrass Prairie Initiative
SH	State Highway
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SOV	Single occupant vehicle
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
TAC	Transportation Advisory Committee
TANF	Temporary Assistance for Needy Families
TAP	Transportation Alternatives Program
TAZ	Transportation analysis zone
TCM	Transportation control measure
TCSP	Transportation and Community System Preservation
TDM	Travel demand management
TIP	Transportation Improvement Program
TOD	Transit-oriented development
TMA	Transportation Management Area
TMO/A	Transportation management organization/association
TSM	Transportation systems management
UGB/A	Urban growth boundary/area
UP or UPRR	Union Pacific Railroad
UPWP	Unified Planning Work Program
US FWS	United States Fish and Wildlife Service
USC	United States Code
VMT	Vehicle miles traveled
VOC	Volatile Organic Compounds
YOE	Year of Expenditure

LIST OF KEY AGENCY WEBSITES

Air Pollution Control Division (APCD): www.colorado.gov/airquality/

Colorado Department of Transportation (CDOT): www.coloradodot.info/

Denver Regional Council of Governments (DRCOG): www.drcog.org

Federal Highway Administration (FHWA): www.fhwa.dot.gov

Federal Transit Administration (FTA): www.fta.dot.gov

Regional Air Quality Council (RAQC): www.raqc.org

Regional Transportation District (RTD): www.rtd-denver.com

U.S. Census Bureau: www.census.gov/

U.S. Department of Transportation: www.dot.gov/

U.S. Environmental Protection Agency (EPA): www.epa.gov

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