2035 METRO VISION REGIONAL TRANSPORTATION PLAN

THE DENVER REGIONAL COUNCIL OF GOVERNMENTS

DRCOG
DENVER REGIONAL COUNCIL OF GOVERNMENTS

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1. INTRODUCTION

The Denver region's vitality and the quality of life of its residents depend greatly on mobility. Mobility refers to the ease of moving people and goods from place to place, the accessibility of destinations, and the provision of a variety of travel options. Rapid growth in the region poses a challenge to providing adequate mobility. By 2035 an additional 1.5 million residents and 960,000 jobs will place much greater demands on the transportation system. The *2035 Metro Vision Regional Transportation Plan (2035 MVRTP)* addresses the challenges and guides the development of a multimodal transportation system over the next 28 years. It is an element of the overall *Metro Vision 2035 Plan (Metro Vision)* adopted by the Denver Regional Council of Governments (DRCOG). The *2035 MVRTP* reflects a transportation system that closely interacts with the growth, development, and environmental elements of *Metro Vision*.

A. Purpose of the 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. The 2035 MVRTP presents the vision for a multimodal transportation system that is needed to respond to future growth, as well as to influence how the growth occurs, for the entire DRCOG region. This vision is unconstrained by financial limitations. A federally required component of the plan, the Fiscally Constrained 2035 Regional Transportation Plan (RTP), is described in Chapter 5. This component defines the specific transportation elements and services that can be provided over the next 28 years based on reasonably expected revenues. Reasonably expected revenues fall far short of allowing the Fiscally Constrained 2035 RTP to meet future transportation needs.

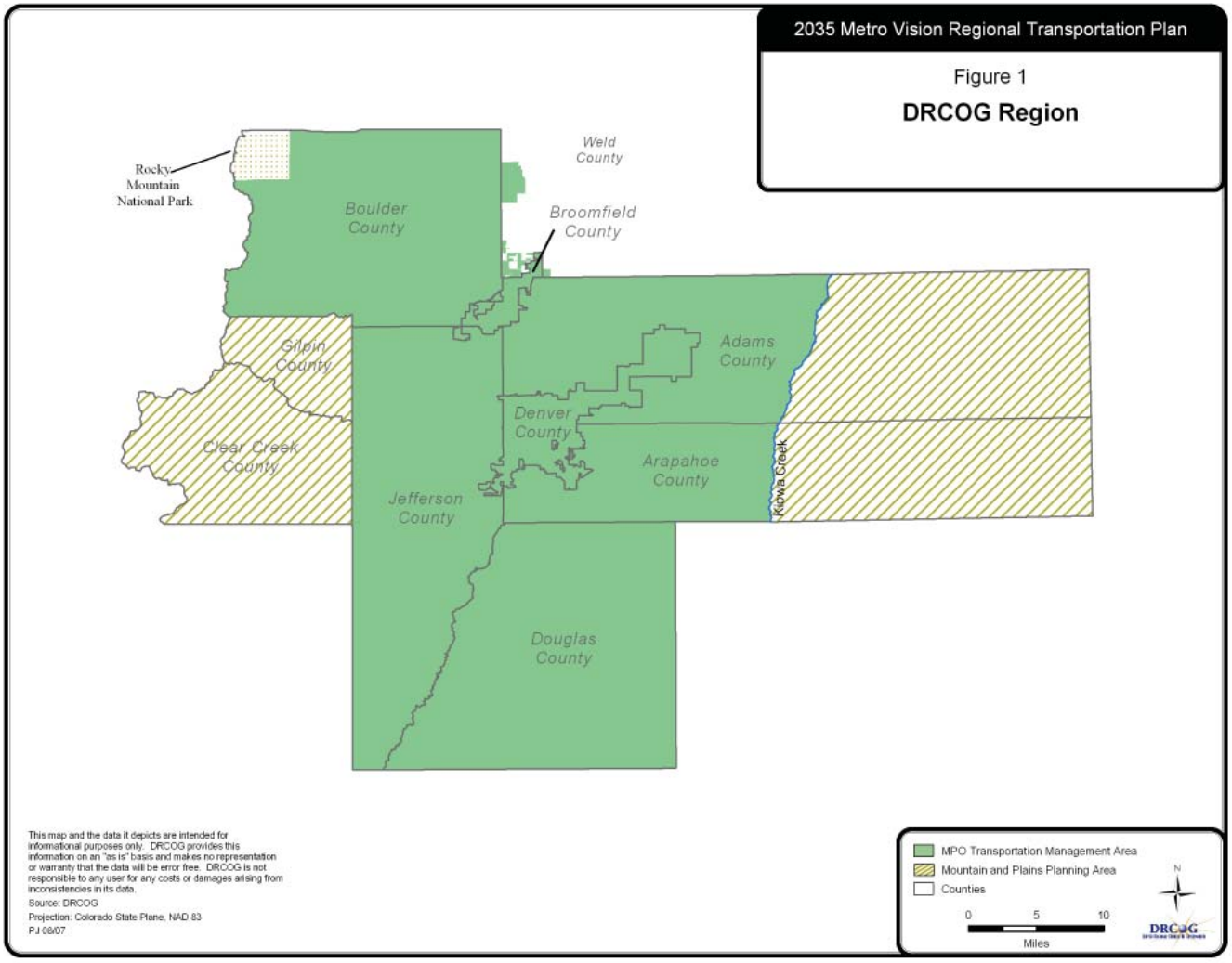
Limited federal funds are available to help maintain, manage, and expand the existing multimodal transportation system and to improve air quality. Their use must be based on a regional plan that reflects expected revenues. Federal funds are allocated to individual projects through short-range Transportation Improvement Programs (TIPs). 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 2035 MVRTP includes the fiscally constrained regional transportation plan for federal funding purposes, and has been prepared to assure conformity with Colorado's SIP.

The 2035 MVRTP 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 2035 MVRTP:

- 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 slow the growth of 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 considering limited resources;
- Integrates plan components to yield a connected and complete system;
- Encourages coordination between neighboring communities and between agencies; and
- Supports the Metro Vision urban center, extent of development, environmental quality, and freestanding community elements.

DRCOG developed the 2035 MVRTP 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. Decisions were made through the transportation committees structure and the DRCOG Board of Directors with consideration of public input.



B. Relationship to the ***Metro Vision 2035 Plan***

The *Metro Vision 2035 Plan* is the region's long-range plan for growth and development. 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. The DRCOG Board of Directors first adopted the *Metro Vision 2020 Plan* in 1997. The plan underwent a major update in 2004 to produce the *Metro Vision 2030 Plan*. The *Metro Vision 2035 Plan* <is proposed for adoption in December 2007>.

Metro Vision includes several elements that interact closely with one another (see Chapter 3):

- Extent of urban development;
- Large-lot development;
- Urban centers;
- Freestanding communities;
- Rural town centers;
- Senior-friendly development;
- Transportation system;
- Parks and open space;
- Water quality;
- Air quality; and
- Noise.

The 2035 MVRTP is consistent with the goals and policies set out for each of the elements in Metro Vision. It is based on the foundation that transportation interacts closely with the growth, development, and environmental elements. This interaction is referenced through much of the document. The 2035 MVRTP represents the "next step" for implementing Metro Vision's transportation element, as well as the other elements. Further details on specific transportation components are provided in the following documents:

- *Pedestrian and Bicycle Element of the 2030 Metro Vision Regional Transportation Plan* (2006);
- *Regional Intelligent Transportation Systems Strategic Plan* (2007);
- *Mountains and Plains Area 2030 Metro Vision Transportation Plan* (2005);
- *Regional Travel Demand Management Strategic Plan* (2005); and
- *Transit Element of the 2030 Metro Vision Regional Transportation Plan* (Amended 2007).

As appropriate, these documents will be updated subsequent to the adoption of the 2035 MVRTP.

C. Transportation Vision, Goals, and Policies

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.

Metro Vision Transportation Vision: A balanced multimodal transportation system will include rapid transit, a regional bus system, a regional roadway system, local streets, bicycle and pedestrian facilities, and associated system and travel demand management services. This system will provide reliable mobility choices to all of its users: residents and visitors of all ages, incomes and physical abilities, as well as businesses that provide services and produce or sell goods. Users will find the transportation system easy to access, safe and secure, and it will permit efficient state and nationwide connections for people and freight.

Metro Vision Transportation Goals: Provide safe, environmentally sensitive, and efficient mobility choices for people and goods; and integrate with and support the social, economic, and physical land use development of the region and state.

To achieve these goals, the transportation system must be well maintained and the region's agencies and governmental bodies must work cooperatively to develop strategies for obtaining sufficient funding. As such, the following 14 transportation policies are also supported by several action strategies that are described in association with specific transportation components in Chapter 4:

Metro Vision Transportation Policies:

Policy #1. System Preservation. Assure the preservation and maintenance of existing facilities.

Policy #2. Transit. Provide increased transit service and facilities that stimulate travel by means other than the single-occupant motor vehicle, encourage transit-oriented developments, and provide mobility options.

Policy #3. Roadways. Expand capacity of existing roadways in the most critically congested corridors and at key traffic bottlenecks and encourage access controls to maintain capacity.

Policy #4. Rights-of-way Preservation. Reserve adequate rights-of-way in newly developing and redeveloping areas for pedestrian, bicycle, transit and roadway facilities.

Policy #5. Denver Central Business District. Improve and maintain transportation access to downtown Denver.

Policy #6. Safety. Develop and maintain a safe transportation system for all of its users.

Policy #7. Security. Develop and maintain a transportation system that provides increased security for all of its users.

Policy #8. Management and Operations. Make the best use of existing transportation facilities by implementing measures that actively manage and integrate systems, improve traffic operations and safety, provide accurate real-time information, and reduce the demand for single-occupant motor vehicle travel.

Policy #9. Bicycle and Pedestrian. Provide bicycle and pedestrian access through and between developments and provide links to transit facilities.

Policy #10. Interconnections. Improve interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

Policy #11. Transportation-Efficient Housing and Business Developments. Design new developments to allow the efficient movement of pedestrians, bicyclists, buses, and motor vehicles within, to, and through the area.

Policy #12. Land Use Integration. Implement transportation system components that support Metro Vision's urban growth boundary/area, urban centers, open space, and associated concepts.

Policy #13. Transportation for the Disadvantaged. Provide a transportation system that considers the needs of and impacts on minority, low-income, elderly, and disabled persons.

Policy #14. Environmental Quality. Develop a transportation system that protects and enhances the environment.

D. Public Involvement and Decisionmaking Process

The framework for involving the public in the 2035 MVRTP process is defined by *Public Involvement in Regional Transportation Planning,* adopted by the DRCOG Board in 2005. Many 2035 MVRTP development activities were conducted in concert with the development of the *Metro Vision 2035 Plan*. The public was notified about the 2035 MVRTP and involved in its development through the following activities:

- Notification of events and review documents via DRCOG *Regional Report* newsletter (6,000 recipients);
- Two scenario planning workshops (September 27, 2006 and February 15, 2007)
- Four public meetings (October 4, 9,11 and 30, 2007)
- Over 20 DRCOG Board and committee meetings; and
- Public hearing in December 2007.

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

Decisionmaking Process

The decisionmaking process recognizes that transportation issues cross the boundaries and responsibilities of individual jurisdictions and organizations. The DRCOG Board of Directors considers public input and acts on the 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 2. 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. The APCD and 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 its 52 local government members.

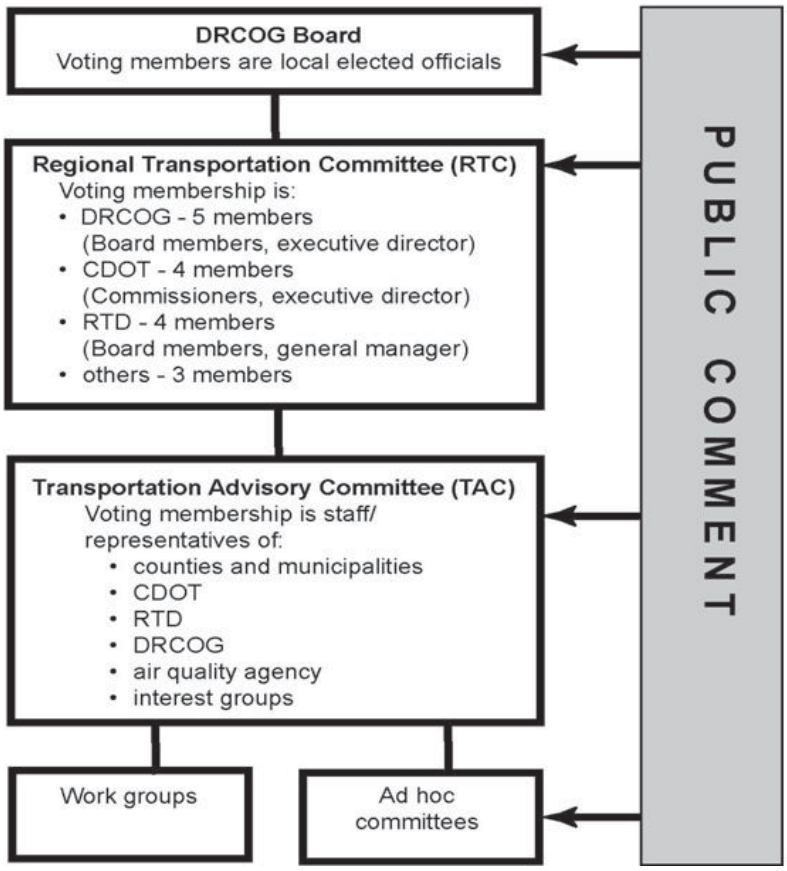
Air Quality Conformity Determination Process

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 SIP for air quality. An air quality analysis of the Fiscally Constrained 2035 RTP was prepared. It is consistent with the 2004 U.S. Environmental Protection Agency guidance.

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 decisionmaking process detailed above. The

mountains and plains areas of the region as shown in Figure 1 are outside the air quality non-attainment/maintenance areas of the Denver region. They are not subject to the conformity requirements.

Figure 2
DRCOG Committee Structure for Transportation Decisionmaking



2. TRANSPORTATION CHALLENGES

This chapter discusses the challenges addressed by the *2035 Metro Vision Regional Transportation Plan* (2035 MVRTP). Challenges to transportation planning at the regional level go beyond simple cause-and-effect factors in individual corridors. Regional transportation planning is integrated closely with the overall *Metro Vision 2035 Plan* and must consider population and employment growth, development patterns, demands for different types of travel, the environment, and the availability of funds.

How will the transportation system respond to, influence, and be impacted by the following challenges?

A. Growth Challenges

- *Economic and population growth* - The population of the Denver region is expected to increase from about 2.7 million in 2005 to 4.2 million in 2035, an increase of more than 50 percent. Over half of the growth will be due to the natural increase of births over deaths. Employment (number of jobs) is forecast to increase from about 1.6 million in 2005 to about 2.5 million in 2035, also an increase of more than 50 percent. People living in, working in, and visiting the region in 2035 will make over 19 million total trips (12 million vehicle trips) and drive more than 110 million miles each and every weekday. Table 1 displays past, current, and projected population and employment for the Denver region. Past trends and forecasts of regional population, households, and employment are depicted in Figure 3.

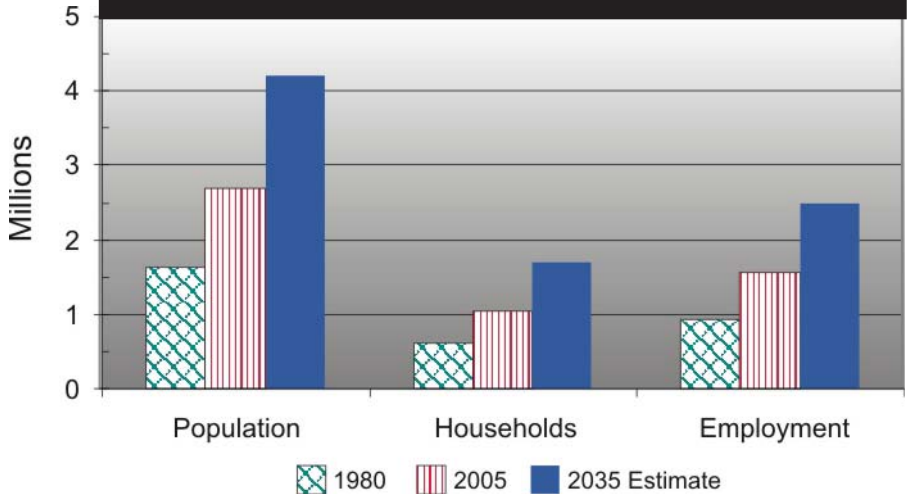
Population and employment growth outside the current DRCOG planning area in Elbert County, El Paso County, Larimer County, and Weld County will also affect the Denver region. Congestion on major interregional highways such as I-25, US-85, and US-287 will be impacted by the increase in commuter and visitor trips to and from the region. The number of daily work commuters between the neighboring counties and the Denver region in 2000 is shown in Figure 4. About 49,000 workers traveled into the region and 14,600 residents traveled out of the region to work.

Table 1
DRCOG Region Population and Employment

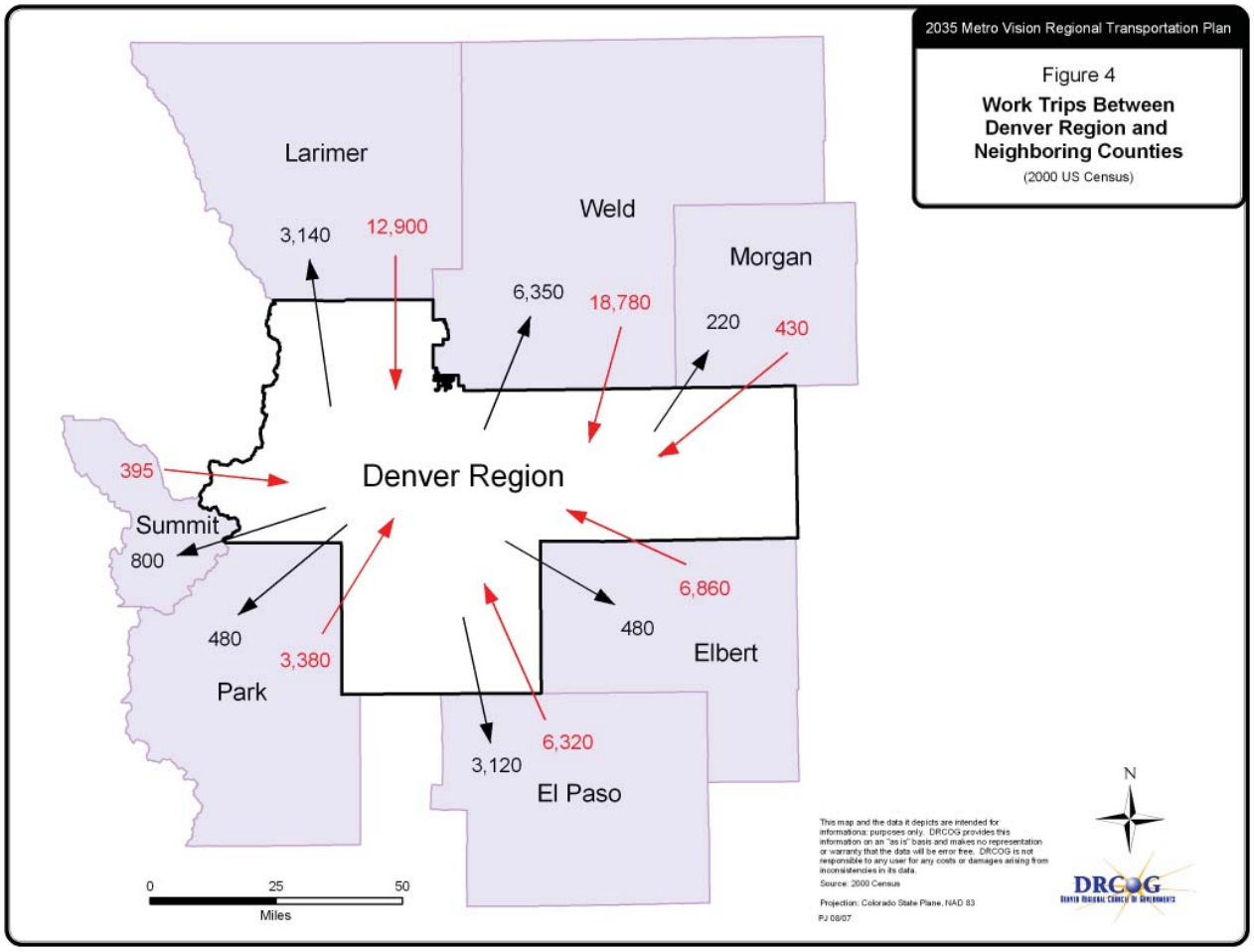
	Population			Employment		
	1990	2005	2035	1990	2005	2035
Denver TMA*	1,844,200	2,643,100	4,152,900	1,044,400	1,553,000	2,509,600
Mountain Counties	10,700	14,800	26,500	3,500	8,900	12,600
Plains Area	4,100	7,500	35,300	700	1,500	4,300
DRCOG Region Total	**1,859,000**	**2,665,400**	**4,214,700**	**1,048,600**	**1,563,400**	**2,526,500**

Sources: U. S. Census and DRCOG estimates and projections
*Current boundary

Figure 3
DRCOG Region Demographic Data
1980, 2005 and 2035



Sources: U. S. Census and DRCOG projections



B. 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. However, the majority of this growth will occur in locations far from the Denver Central Business District (CBD). As the region expands its urban development, some people and business will inevitably have to make longer trips. The average length of trips that are made in the future will likely increase, 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.

- *Less efficient development patterns* - Developments with circuitous streets, limited pedestrian circulation, and separated 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.

- *Lower development densities* - Many residential areas are developed at lower housing unit densities and cannot be served cost-effectively with conventional public transit. Lower density suburban office parks are also more difficult to serve efficiently with conventional public transit.

- *Developments near airports* – Several residential subdivisions have developed within the influence area of the region's airports. This may give rise to future noise impact issues that could hinder the regional airport system's ability to grow or respond to changes in the service market.

C. 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 2000 U.S. Census showed that 75 percent of workers traveled alone in their automobiles to work. About 5 percent worked at home, and the remaining 20 percent carpooled, walked, bicycled, or took transit. Higher incomes have also permitted a greater share of households to have an automobile available. The median household income for the region was estimated to be $51,266 in 2000, as compared to $47,861 in 1990 (in constant 2000 dollars), a change of 7.1 percent with inflation taken into account.

- *Increased travel* -Vehicle miles traveled (VMT) increased 4.7 percent annually between 1990 and 2000, a greater rate of increase than the preceding two decades, and greater than the rate of increase in population or employment. Past VMT trends and future forecasts are displayed in Figure 5. The VMT in the Denver region is expected to steadily increase through 2035.

- *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 does not assure working close to home. Most of the region's households contain two or more wage-earners, increasing the difficulty in finding work close to home for all wage-earners. People also change jobs frequently and housing costs impact where workers can live.

- *Difficult to institute change* - Changing personal travel habits is difficult, particularly when people are not aware of options, viable options do not exist, and benefits are not clearly understood. For example, though going to work by transit may take longer and have a higher out-of-pocket cost, the full monetary benefit of leaving one's car at home may not be recognized.

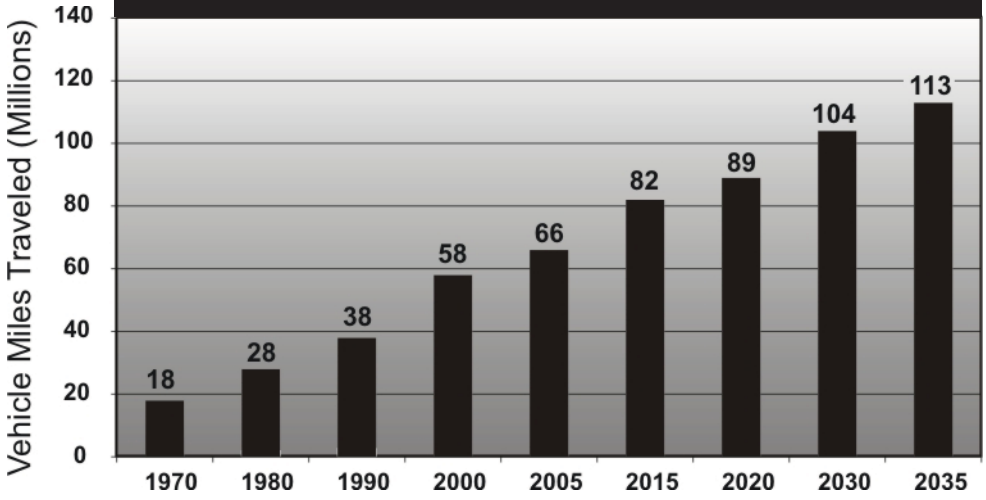
- *Growth of elderly and disabled population* - Both the elderly and disabled populations are growing at rates faster than the general population. Between 2005 and 2035, the number of area residents aged 60 and older is expected to nearly triple from approximately 336,000 to 970,000. In contrast, the overall population is expected to increase by 58 percent. It is expected that a large percentage of older adults will choose to live in suburban locations, which are difficult to serve with traditional fixed-route transit services. There may also be fewer opportunities for family members to provide transportation since grown children often live far apart from their elderly parents. This may mean increased reliance on public and specialized transit service systems.

D. Transportation Challenges

- *Limited existing transportation system capacity* - Without improvements and expansion, the region's existing transportation system cannot provide a desirable level of mobility to meet expected demand. It also will not provide reasonable travel alternatives for many of the region's residents. Most major travel corridors already have severe road congestion. Some peak-hour bus and light-rail service runs operate at standing-room only capacities; riders wanting a seat must wait for the next bus or train.

- *Increased congestion* - Recent growth in VMT combined with little increase in highway capacity has resulted in about 360 miles of freeways and arterials identified with severe congestion in 2006 (corridors with a DRCOG congestion mobility

Figure 5
Weekday Vehicle Miles Traveled in Denver Area
Trend and Forecast (millions)



Area: Denver Transportation Management Area
Source: DRCOG

grade of D or F as defined in Appendix 3). Figure 6 shows the number of congested miles is expected to more than double between 2006 and 2035. Figure 6 also identifies key congested intersections and bottleneck points on the regional roadway system in 2006.

- *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 in close proximity to the travelway. The ability to widen a roadway or provide a rapid transit corridor is more costly and politically difficult when additional right-of-way is needed. Often this requires residential and business acquisitions that may cause community and economic impacts.

- *Increase in traffic crashes* –The number of crashes on the roadway system increased 3 percent annually between 1990 and 2004. The increase was due primarily to the growth in VMT and also in part to increased congestion. The 76,500 reported crashes in the Denver region in 2004 resulted in 25,500 injuries and 228 fatalities.

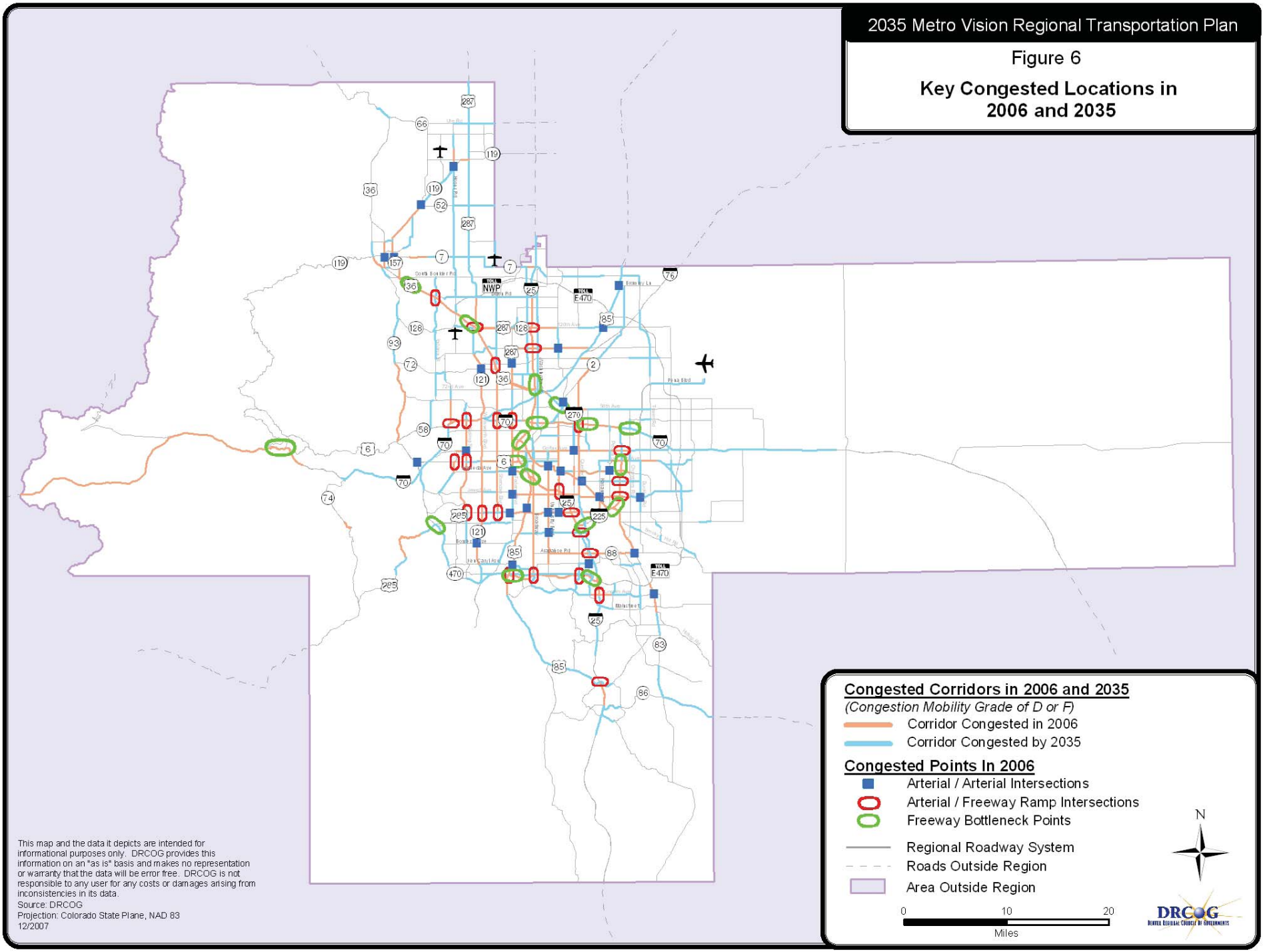
- *Mobility options for persons without a car* – According to the 2000 Census, about 67,000 households in the Denver region did not have an automobile available. People living in such households may not drive because of health or income reasons or as a matter of choice. Such persons still have a need 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, and facilities for convenient bicycle and pedestrian trips.

- *Recreational traffic* – An aspect of the Denver region's quality of life is the abundant recreational opportunities nearby. Thousands of people desire to travel to and from recreational activities in the mountainous areas of Colorado, both within the region and adjacent to it. Traditionally, they desire to 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 greatly affected by this congestion, which impacts the ease of making local trips, emergency response to traffic crashes, and noise, air, and water quality. Regional and local roads accessing recreational destinations within the region are challenged to safely accommodate competing uses (e.g., destination travel and scenic byway, recreational vehicles and bicyclists). Federal and state land management agency budgets strain to maintain and rebuild existing transportation infrastructure, let alone provide new or improved facilities to accommodate the growing demand generated by 1.5 million new residents of the region.

2035 Metro Vision Regional Transportation Plan

Figure 6

Key Congested Locations in 2006 and 2035



E. Environmental Challenges

- *Air quality* – Pollutant emissions from mobile sources, (e.g. automobiles and trucks), are a major contributor of air pollutants, as shown in Table 2. The past trends in emissions violations for the Denver region are illustrated in Figure 7. The Denver area did not violate the federal standard for carbon monoxide or particulate matter (PM_{10}) in 2007, the most recent year measured. For these pollutants, the number of 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.

  The pollutant currently of greatest concern is ground-level ozone. In 1997, the U. S. Environmental Protection Agency (EPA) introduced a new standard for ozone (referred to as the 8-hour standard) that became effective in 2003. Ground-level ozone is a summertime pollutant formed when volatile organic compounds and nitrogen oxides mix and react in the presence of sunlight. Based on the values for the three-year period of 2005-2007, an Ozone Control Area that includes seven counties in the DRCOG region plus parts of two counties to the north did not achieve the regulation's standard. EPA officially designated this area as non-attainment in November 2007. The lead air quality agencies in the ozone non-attainment area will have to put together an attainment SIP that will contain the necessary control measures, a contingency plan, and the motor vehicle emissions budgets that the region will have to use for air quality conformity in order to attain the 8-hour standard. At the time of this writing, EPA has proposed an even stricter 8-hour standard for ozone (from the current 0.08 parts per million to 0.075 or 0.070). If this new standard is adopted, it will pose even greater challenges for this region, and many others across the nation, to meet 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 alternative modes of travel and pursue technological improvements and cleaner fuels need to be made.

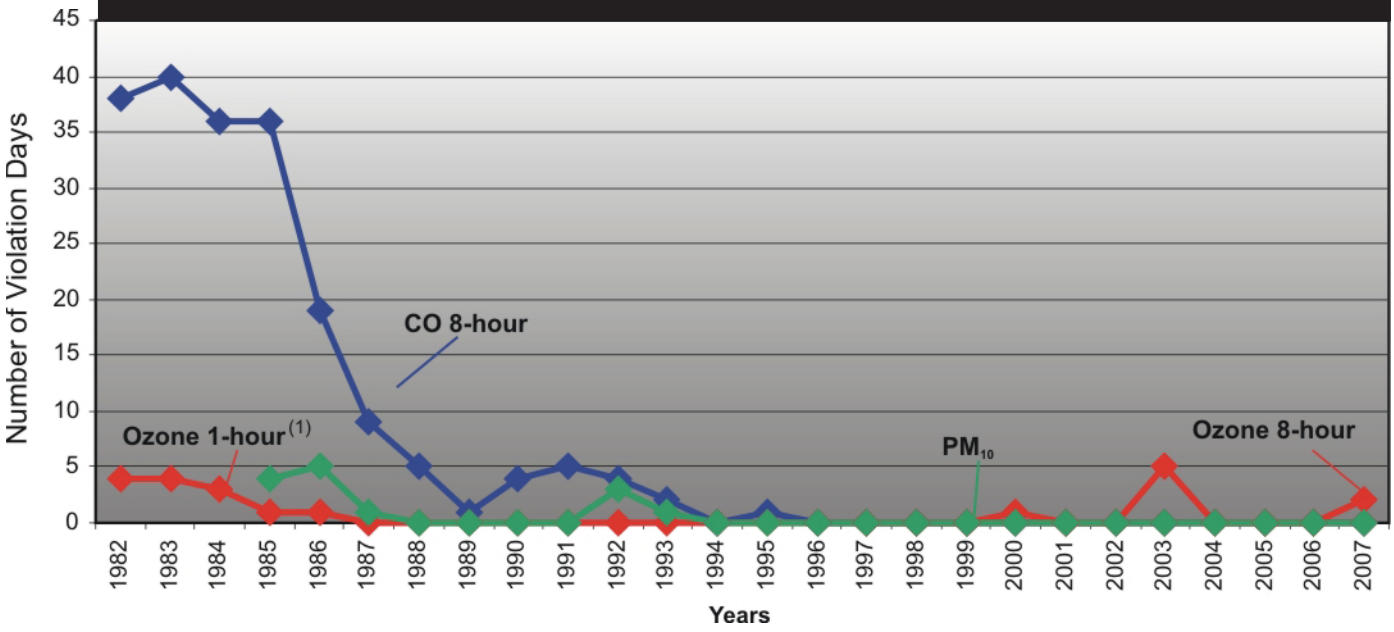
Table 2
Percent of Pollutants Attributable to Mobile Sources (2007)

Pollutant	Percent of Total Pollutants Attributable to Mobile Sources
Carbon Monoxide	82.4%
Coarse Particulates (PM_{10})	59.8%
Nitrogen Oxide (winter)	42.0%
Volatile Organic Compounds[1,2]	25.1%
Nitrogen Oxide[1,2]	34.5%

1) Assumes 8-hour control area
2) Includes only anthropogenic (man-made) emissions

Source: Regional Air Quality Council

Figure 7
DRCOG Region Air Quality Violation Days



[1] Ozone 1-hour standard replaced with Ozone 8-hour standard in 1997.

Source: Air Pollution Control Division of the Colorado Department of Public Health and Environment.

- *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.

F. Funding Challenges

- *Limited funds* - Financial resources for transportation over the next 28 years 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 simply not kept pace with the continued growth in travel demand or the recent dramatic increase in transportation construction costs. Fewer than half of the capacity improvements identified for the Metro Vision transportation system can be funded. Additional revenue sources must be found. Local government and private revenues will need to make up a greater share of transportation funding to accommodate the expected growth.

3. ELEMENTS OF THE METRO VISION 2035 PLAN

What is Metro Vision…and why does it matter? For more than 50 years, DRCOG has championed a regional perspective on key issues facing the metropolitan area and identified solutions through cooperative local government action. Metro Vision, DRCOG's long-range plan for future growth and development, is the current example of this regional approach. The goal of Metro Vision is very simple and important – to protect the quality of life that makes the Denver region such an attractive place to live, work, play, and raise a family. About 2.7 million people currently live in the DRCOG region. By 2035, the population is expected to increase by more than 50 percent, to 4.2 million.

The Board members of DRCOG adopted the first Metro Vision Plan (for 2020) in 1997. In 2005, the Board adopted the Metro Vision Plan that extended the planning period from 2020 to 2030. The current *Metro Vision 2035 Plan*, scheduled for adoption in 2007, outlines long-term goals for the region in three key areas: growth and development, transportation and environment quality.

With an active commitment from political, business and civic leaders and residents throughout our region to implement Metro Vision, we can ensure that the Denver region retains the very qualities we value – natural beauty, economic vitality, cultural heritage, optimism and a sense of opportunity.

A. Metro Vision Key Principles

Key principles have guided Metro Vision's development:

Metro Vision protects and enhances the region's quality of life.
Metro Vision's most basic purpose is to safeguard for future generations the region's many desirable qualities, including beautiful landscapes, interesting and livable communities, cultural and entertainment facilities, and employment and educational opportunities.

Metro Vision is long-range and regional in focus.
Metro Vision's planning period extends to 2035 to help the region address future concerns, but current issues are priorities too. The plan expresses a regional perspective.

Metro Vision provides direction.
Local governments can use Metro Vision as they make decisions about land use planning and development. Metro Vision also helps local governments coordinate their efforts with one another and with other organizations.

Metro Vision respects local plans.
The region's local governments developed Metro Vision, working collaboratively through DRCOG. The plan doesn't replace the vision of any individual community; it is a framework for addressing common issues. Metro Vision is sensitive to the decisions local governments make in determining when and where growth will occur. Metro Vision also recognizes that each community has its own view of growth.

Metro Vision encourages communities to work together.
The impacts of growth don't recognize jurisdictional boundaries and it is important for jurisdictions to address growth collaboratively. Metro Vision provides the framework for doing that; DRCOG provides the forum.

Metro Vision is dynamic and flexible.
Metro Vision reflects contemporary perspectives on the future of the region and is updated as conditions and priorities change. The DRCOG Board makes minor revisions to the plan annually and major updates occur every four years.

What is the Vision for the Denver Region?

In 2035, the Denver region will be a dynamic mixture of distinct pedestrian-friendly urban and suburban communities within a limited area. It will be distinguished by a transportation system that includes sidewalks, bike paths, bus service, rail transit and roads; plentiful parks and open space; and clean air and water.

B. Growth and Development Elements

The Metro Vision 2035 Plan has several distinct elements with associated visions and goals for growth and development, transportation, and environmental quality. The visions and goals follow:

1. Extent of Urban Development Vision: A defined urban growth boundary/area (UGB/A) will promote an orderly, compact, and efficient pattern of future development within the region. Focusing development within the growth boundary/area will prevent the unnecessary and inefficient extension of roads, transit services, water, and wastewater treatment plants. It will reduce regional vehicle travel, help achieve greater density, conserve open land outside the boundary/area, and separate communities.

Goal: *Ensure that urban development occurs within a defined urban growth boundary/ area to promote an orderly, compact, and efficient pattern of future development.*

The following extent of development policies pertain closely to transportation

- Growth Boundary/Area – The urban growth boundary/area defines where urban development will take place in the region over the next 25 years. The boundary/area encompasses 921 square miles of urban development.

- Infill and Redevelopment – Metro Vision encourages local governments to use overlooked vacant parcels and under-developed parcels for infill and redevelopment. Infill and redevelopment can absorb significant population growth and use existing infrastructure more efficiently.

- Infrastructure – Metro Vision seeks to direct future urban growth within the UGB/A into areas where infrastructure already exists. In newly urbanized areas, development will be planned to provide infrastructure and services efficiently and cost-effectively. Regional transportation systems should be provided in a way that will most effectively encourage the desired future development.

The 2035 MVRTP is integrated with the UGB/A shown in Figure 8. Planned regional transportation facilities and associated urban improvements and services are concentrated within the UGB/A. Facilities are included in rural areas only if they provide connections between major sections of urban developed land, freestanding communities, or the remainder of the state.

2. Large-Lot Development Vision: A limited amount of low-density large-lot development, either semi-urban or semi-rural in character, will continue to occur beyond the urban area, contributing to the region's diversity of land uses. Careful planning will minimize its financial, environmental and visual impacts. Special care will be taken to avoid developing in potential future open space areas. Semi-urban development, in particular, will be planned to avoid interfering with the urban area's logical future expansion beyond 2035.

Goal: *Manage the extent of low-density, large-lot development occurring on the periphery of the urban area consistent with Metro Vision's stated policies.*

The following large-lot development policies pertain closely to transportation:

- Infrastructure Investment – The priority for investing regional funds in transportation infrastructure and other services is the urbanized area within the urban growth boundary/area. Regional funds should, in general, not be expended to serve large-lot development.

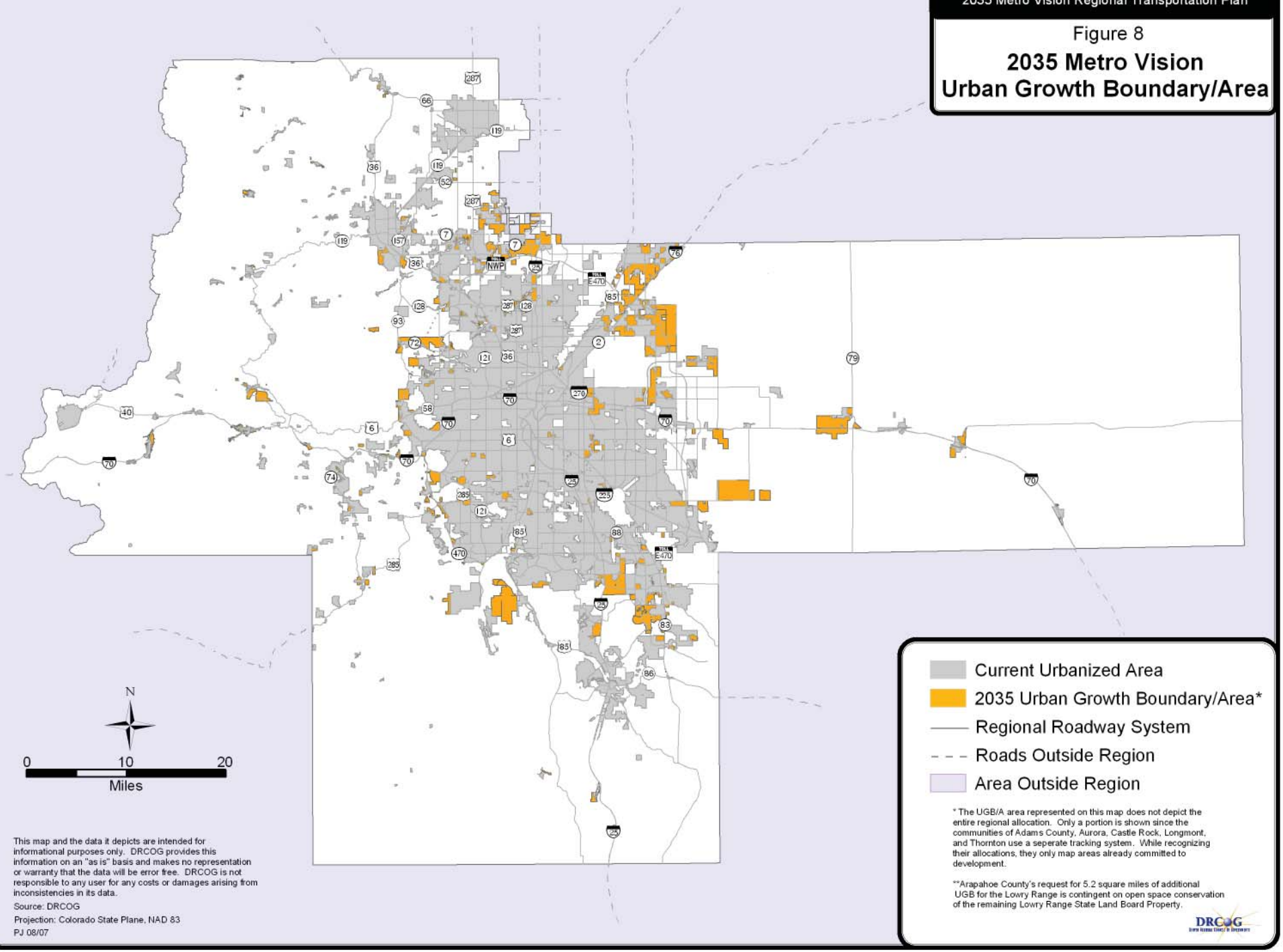
- Financial Accountability – To the extent practical, local jurisdictions should ensure that large-lot development, like all development, pays its own way.

The 2035 MVRTP provides limited transportation facilities and services in the areas of the region with large-lot development. They are provided in these areas solely to connect major sections of urban developed land and to enable connections to be made to the remainder of the state. Very limited transit service is envisioned for the large-lot development areas.

2035 Metro Vision Regional Transportation Plan

Figure 8

2035 Metro Vision Urban Growth Boundary/Area



* The UGB/A area represented on this map does not depict the entire regional allocation. Only a portion is shown since the communities of Adams County, Aurora, Castle Rock, Longmont, and Thornton use a seperate tracking system. While recognizing their allocations, they only map areas already committed to development.

**Arapahoe County's request for 5.2 square miles of additional UGB for the Lowry Range is contingent on open space conservation of the remaining Lowry Range State Land Board Property.

Source: DRCOG

Projection: Colorado State Plane, NAD 83

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3. Urban Centers Vision: Urban centers, concentrated areas of development, more dense and mixed-in-use than surrounding areas, will be developed across the region. Urban centers will be active, pedestrian- and bicycle-friendly places, with employment, housing and services nearby. Urban centers will be served by transit, either rapid transit or bus, and will also support transit by providing riders and pedestrian-oriented environments. Some people will even live and work within the same urban center, entirely avoiding the need to use a car or transit.

Goal: *Encourage the development of higher-density, mixed-use, transit and pedestrian-oriented urban centers throughout the Denver region.*

The following urban center policy pertains closely to transportation:

- Infrastructure Investment - Metro Vision supports the development of urban centers by focusing infrastructure investment in related roadway, transit, and pedestrian facilities.

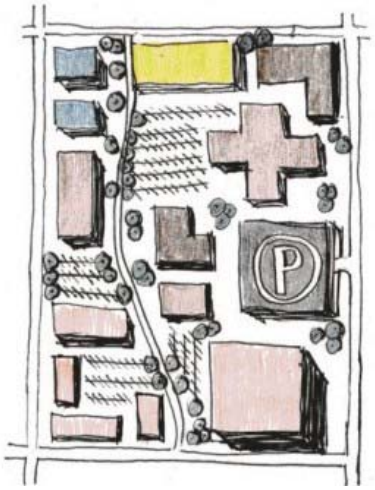
Urban centers is a general term applied to three specific types of centers: mixed-use centers, activity centers, and regional corridors. Figure 9 displays the three types of urban centers. Figure 10 shows the location of the urban centers.

The 2035 MVRTP identifies many major transportation improvements that will support the development of urban centers. It emphasizes providing accessibility to and within urban centers through multimodal travel options, notably non-driving alternatives. The majority of urban centers are located within the major corridors that are the foundation for the plan. When improvements to be included in the Fiscally Constrained 2035 RTP were defined, their relationship to urban centers was a key consideration as it will be for future Transportation Improvement Programs. The urban centers support the transportation system by lessening the demand to make automobile trips and potentially reducing the length of trips.

Figure 9
Urban Centers

• *Mixed-use centers* are envisioned as high-intensity, pedestrian-oriented, mixed-use locations providing a range of retail, business, civic and residential opportunities for the surrounding trade area.

• *Activity centers* are similar, but focused mostly on employment. They may not contain the same mix of uses, particularly residential.

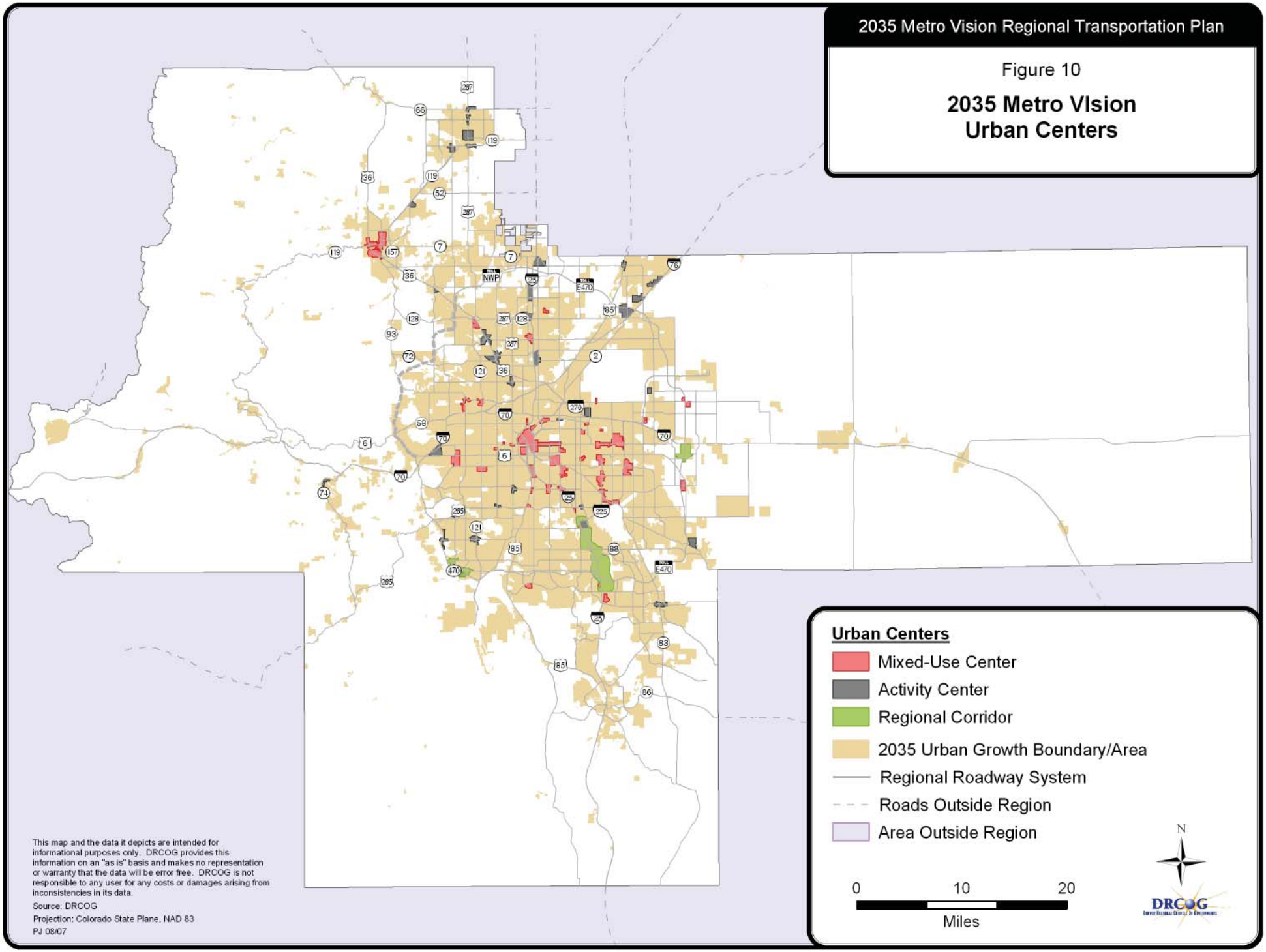


• *Regional corridors* have some residential components, but are distinguished by their larger size, linear characteristics and adjacency to major transportation corridors. Regional corridors can be thought of as a series of interconnected urban centers.

2035 Metro Vision Regional Transportation Plan

Figure 10

2035 Metro VIsion Urban Centers



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4. Freestanding Communities Vision: The outlying communities of Boulder, Brighton, Castle Rock and Longmont will continue to be distinguished by their historic town centers, their separation from the larger urban area, and their capacity to absorb future population and employment growth. These communities will continue to develop in a way that enhances their self-sufficiency. Each will remain separate from the larger urban area, surrounded by an open space or rural buffer, and have an adequate mix of jobs and housing, an internal transportation system with regional transportation connections, and a town center at its core.

Goal: *Maintain Boulder, Brighton, Castle Rock and Longmont as distinct and self-sufficient communities, separate from the larger urban area.*

The following freestanding community policies pertain closely to transportation.

- Physical Separation - Freestanding communities will establish a permanent open space or rural buffer to maintain physical separation from the larger urban area and retain a sense of community identity. Highway interchanges or transit stations will be located away from buffer areas to avoid development pressure.

- Transportation - Multimodal transportation systems will be developed in each freestanding community. These systems will include pedestrian and bicycle facilities, and internal and external transit services. Communities will be linked to the larger metropolitan area with rapid transit and highway facilities.

The 2035 MVRTP facilitates the provision of multimodal transportation improvements and services within the freestanding communities to reduce the need for making trips by automobile. Multimodal connections between the freestanding communities and the larger urban area are provided via rapid transit lines, bicycle corridors, and highways. Access to such connecting highways should be limited to discourage development.

5. Rural Town Centers Vision: Small, established towns and villages found in rural places beyond the region's urban area will provide services, employment and entertainment for residents of the surrounding trade area, as well as tourists and travelers. Although they will serve the rural area, the communities themselves will be relatively compact, with a town center, small lots, and a street grid. They also will have the necessary infrastructure to accommodate population growth.

Goal: *Recognize the small communities located in the rural and semi-urban areas of our region and more clearly define and support their regional role.*

The 2035 MVRTP recognizes the unique character of rural town centers and the importance of preserving their character through the sensitive design of transportation facilities located in the towns. The provision of pedestrian-friendly facilities is critical to such preservation. Maintenance of existing transportation infrastructure is important within these towns as new or expanded facilities are not likely to be built.

6. Senior-Friendly Development Vision: The housing, transportation, social, recreational and service needs of a growing senior population will be accommodated in the future by improved development patterns and community design sensitivities. Local governments wanting to create communities that provide for their citizens throughout their lifespans will embrace these changes.

Goal: *Create senior-friendly communities by promoting development patterns and community design features that meet the needs of residents as they age.*

The following senior-friendly development policies pertain closely to transportation.

- Development Patterns – Encourage compact mixed-use neighborhoods and multi-use developments to reduce seniors' reliance on the automobile, if they so choose. Provide alternative transportation mode options by building senior communities near rail stations and major bus routes. Consider the physical and cognitive limitations of seniors in planning new development (e.g., a grid-based street pattern is easier to navigate than winding streets and cul-de-sacs).

- Pedestrian-Friendly Environments – Enhance community walkability by providing sidewalks, narrowed street crossings, manageable curb cuts, increased crosswalk signal timing, medians as midway stopping points, traffic-calming measures, pedestrian-friendly access to transit facilities, and improved greenway and trail systems. Surfaces should be pedestrian-friendly (non-slip and non-glare) and should be properly maintained.

- Transportation Networks and Services – To better meet the mobility needs of seniors and other populations, consider transportation improvements such as increased transit access, enhanced local bus routes, expanded paratransit, ridesharing and other specialized transportation services, bus shelters, subsidized taxi service, on-street bicycle lanes, and the pedestrian connections described previously.

- Safety and Security – Ensure that walkways and public spaces are well lit to enhance safety and security while respecting local governments' "dark skies" policies.

- Wayfinding – Directional and informational signs should be provided throughout the community, especially near transit stations. Large letters with contrasting colors and enhanced illumination improve readability. Reduce visual clutter.

Transportation facilities and services are very important to the senior population and are recognized by the 2035 MVRTP. Several key factors must be considered in future improvement studies and maintenance activities. Street signs must be clearly visible to drivers with visual impairments. Pedestrian treatments such as crosswalks must be designed to accommodate those who walk slower, use wheelchairs, or are visually impaired. There will be a greater demand for door-to-door specialized transit services. Rapid transit rail lines provide an attractive service that is perceived as being safer and more dependable than bus service to many seniors.

C. Environmental Elements

1. Parks and Open Space Vision: By 2035, the region will have protected its major natural resource areas, including the mountain backdrop, riparian corridors, and other key open space and wildlife habitat. Several key working farms and ranches adjacent to the urban area will be preserved. Recreational areas in both developed parks and passive open space will be readily available and accessible to the region's residents. The region's open space will help define the urban area and separate communities.

Goal: *Establish an integrated, linked, permanent parks and open space system that will include a variety of open space and make appropriate open space accessible to all of the region's population. A minimum of 854 total square miles of parks and open space should be protected by 2035.*

The following parks and open space policies pertain closely to transportation.

- Recreation – The physical and aesthetic enjoyment of the out-of-doors will be provided for in an integrated regional parks and open space system.

- Trails Network - Metro Vision calls for an areawide trails network to link open space and provide access. This network should take full advantage of all potential connections, including road and railroad rights-of-way, floodplains, ditch service roads and utility corridors.

Figure 11 shows the key parks and open space features for the region.

Transportation facilities provide access to and, in many instances, within the region's key outdoor recreational destinations. Several types of transportation facilities, including roadways, transit routes, and multipurpose trails, will provide access to parks and open space. Parks and open space will affect the design and alignment of transportation improvements identified in the 2035 MVRTP.

2. Water Quality Vision: As a semi-arid region, the Denver area values its water resources. Metro Vision seeks to ensure that, to the extent possible, every stream, lake and reservoir will be fishable and swimmable. The Colorado Water Quality Control Commission identifies standards for the anticipated uses of water resources in the state. These standards will be achieved to protect water quality.

Goal: *Restore and maintain the chemical and physical integrity of the region's waters to ensure clean water for residents and a balanced, healthy, ecological community.*

The following water quality policy pertains closely to transportation:

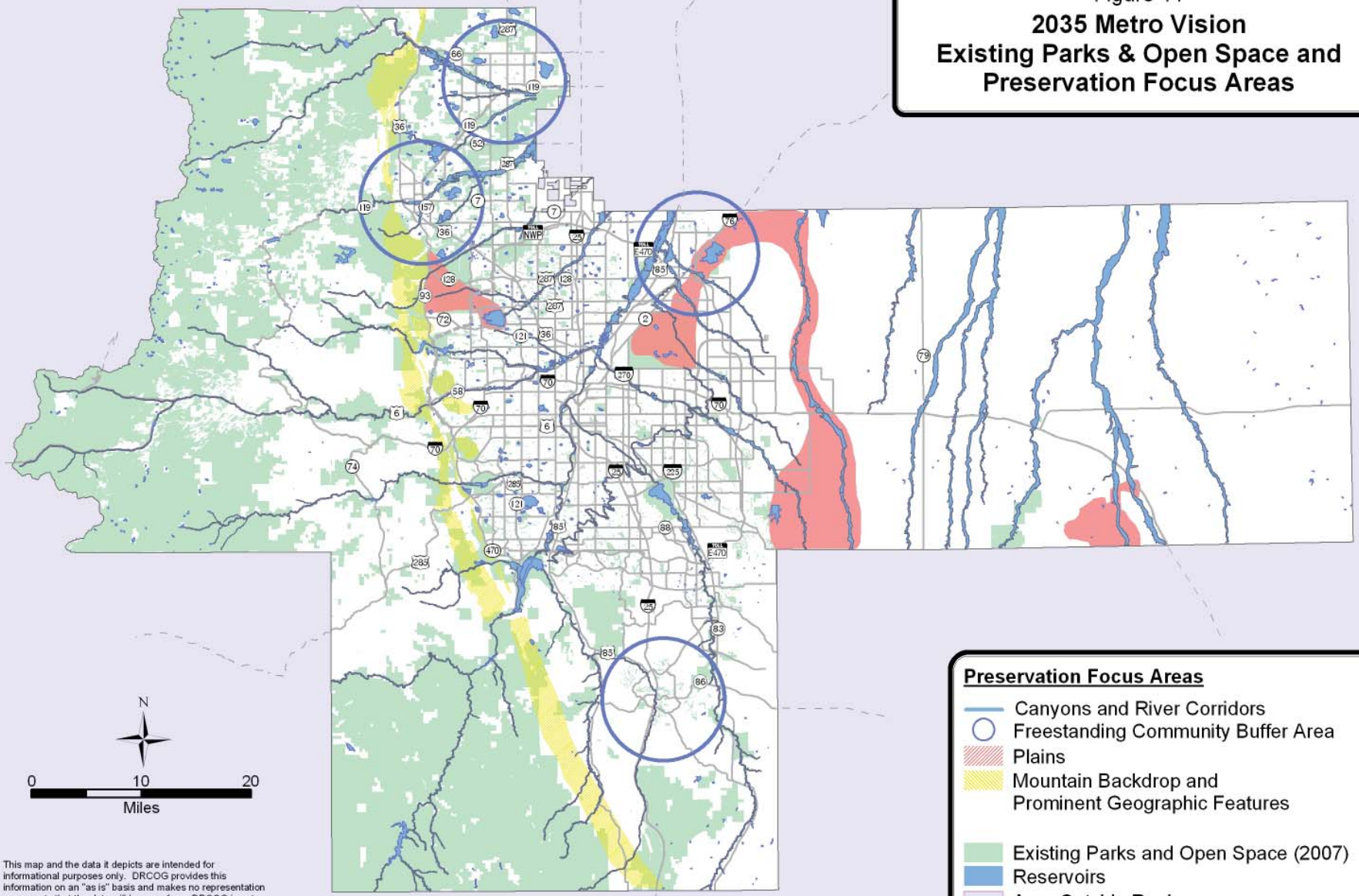
- Nonpoint Sources - Local actions will reduce pollution from stormwater and other nonpoint sources. All development in the region should follow adopted grading, erosion, and sediment control ordinances to minimize sediment and other pollutant runoff into the region's waters.

The 2035 MVRTP notes that transportation facilities such as roadways and parking lots increase the area of impervious surface. As impervious area increases, runoff is transmitted more rapidly and in greater volumes to streams and waterbodies. Roadway designs in particular must consider the associated volume of stormwater and sediment runoff. Sediments such as brake dust, rubber tire particles, and road sand harm adjacent streams if not adequately contained.

2035 Metro Vision Regional Transportation Plan

Figure 11

2035 Metro Vision Existing Parks & Open Space and Preservation Focus Areas



3. Air Quality Vision: Growth, land development and regional transportation have a significant effect on the region's air quality. The region will develop in a way that reduces growth in transportation-related air pollution. Metro Vision's development pattern will reduce growth in vehicle trips and miles of travel. Slowing the expansion of the urban area, supporting mixed, higher- intensity land uses, and increasing density around mass transit will be key urban development strategies to increase transit usage. Helping freestanding communities become more self-sufficient will also help contain the growth of vehicle trips and miles of travel. Because regional air quality is closely linked to automobile emissions, it will be critical to provide alternatives to the private passenger vehicle, as proposed in the regional transportation plan.

Goal: *Protect human health and environmental quality by achieving and maintaining national ambient air quality standards.*

The following air quality policies pertain closely to transportation.

- Mobile Sources - Metro Vision calls for reducing growth in mobile source air pollution emissions by providing travel alternatives, improving the efficiency of the regional transportation network, and changing key features of the development pattern. In combination, these will help achieve national, state and regional air quality objectives; and

- Accessibility - Metro Vision encourages local communities to modify their local comprehensive plans and zoning ordinances to improve community accessibility and provide additional pedestrian, bicycle and transit travel opportunities.

Motor vehicles are acknowledged in the 2035 MVRTP as a significant source of the region's air pollutants. The plan identifies many important efforts to reduce such pollutants by providing alternatives to single-occupant vehicle travel and by implementing traffic management strategies to increase the efficiency of roadways and transit service. The Fiscally Constrained 2035 RTP component has been found to conform to applicable air quality standards.

4. Noise Vision: Excessive noise is a nuisance and a potential public health concern. It can also impact property values and destabilize neighborhoods. Metro Vision seeks to ensure that the residents of the Denver region will have minimal exposure to excessive noise levels associated with roadways, trains, aviation, commercial and industrial land uses, special events, and temporary construction activity. Minimizing this exposure will help preserve the region's quality of life.

Goal: *Minimize exposure to excessive noise levels associated with land use and transportation activities.*

The following noise policies pertain closely to transportation.

- Location and Mitigation – Metro Vision calls on the region to ensure that new or expanded regional transportation facilities are located and designed to maintain acceptable noise levels. That includes considering adjacent land uses and using appropriate mitigation measures (e.g., landscaping, noise barriers, traffic control and other noise-attenuating techniques).

- Airport Noise – Metro Vision calls for minimizing noise exposure around airports, consistent with Federal Aviation Administration policies and local airport noise standards.

- New Development – Metro Vision recommends locating new noise-sensitive development away from planned or existing major noise sources such as airports and freeways.

Motor vehicle noise is the most common and widely dispersed continuous noise source in the Denver region. The roadways that generate the most noise are those with the highest speeds and greatest traffic volumes such as freeways and major regional arterials. Transit facilities such as light rail also generate noise that can impact communities.

Ideally, transportation facilities should be separated from noise-sensitive land uses, but that is not always possible. The 2035 MVRTP will expect new, or improved, transportation facilities to mitigate their noise impacts. DRCOG's *Airport Compatible Land Use Design Handbook* provides guidelines for addressing airport noise.

D. Transportation Vision Concepts

The Metro Vision transportation system presented in Chapter 4 is a balanced, multimodal system. It includes services and physical facilities such as sidewalks, bicycle corridors, rapid transit lines, and roadways. It is recognized that there are unique areas in the region that require different styles of transportation improvements and services. Four types of travel corridor and development concepts provide the foundation of the regional transportation system:

1. Development Pattern Areas;
2. Statewide Connectors;
3. Intraregional Corridors; and
4. Regional Accessibility Facilities.

Development Pattern Areas

The Metro Vision growth and development elements relate closely to the historic and future development patterns of the region. Different styles of urban centers will be developed, and planned transportation improvements will be designed to fit in with the adjacent surroundings and have minimal negative impacts. The Denver region generally exhibits three types of development patterns as sketched in Figure 12 and described below.

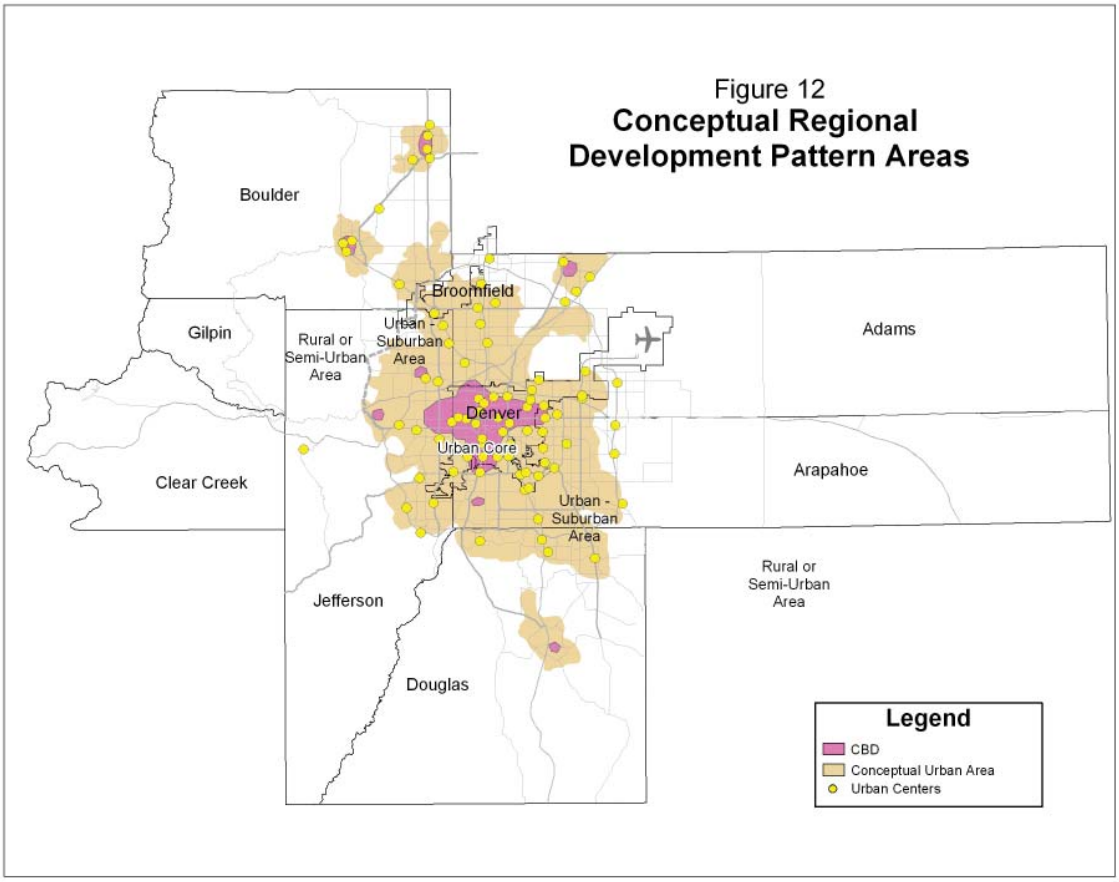
Pre-World War II Urban Cores and Central Business Districts

These areas include the CBDs that formed before World War II in Denver, the freestanding communities of Boulder, Brighton, Castle Rock and Longmont, and other communities such as Golden, Littleton and Arvada. These are more densely developed areas with concentrations of mixed-use activities. Some arterials in these areas were formerly streetcar lines in the early 1900s and still retain a strong pedestrian or transit focus. Examples include Colfax Avenue, Broadway, and Pearl Street (Denver and Boulder).

Because widening streets in these areas would result in significant adverse impacts to the community, greater levels of congestion may be tolerated within these areas, with future transportation improvement efforts focusing on pedestrian, transit, and street operational improvements. Likewise, it is challenging and very costly to widen freeways within the urban core.

Post-World War II Urban/Suburban Areas

In the 1950s, most new development started occurring in segregated land use patterns. Residential, commercial, and office activities were rarely mixed. This post-war development is often oriented within a one-mile arterial grid system with commercial activity at the corners or along strips and the majority of residences located on curving streets away from arterials. Sidewalks were often provided. Widening some of these arterials is possible, and parallel off-street and on-street bicycle facilities, increased transit service, and operational improvements can often be implemented. At the



most severely congested arterial intersections, grade-separated interchanges will be constructed, if feasible.

Many freeways within the urban and suburban areas of the Denver region are multi-laned facilities that serve local residents and businesses as well as statewide travelers. I-25, I-70, US-6 and US-36 (Boulder Turnpike) were built from the 1950s through the 1970s, when social and environmental impacts received less consideration than today. Right-of-way along some existing congested suburban freeways may be available, or obtainable, to allow the construction of additional lanes or rapid transit lines. Operational and management improvements can provide significant benefits.

Rural and Semi-Urban Areas

These areas are characterized by low-density development, ranches, public lands, and small rural communities. The roadways are still rural in nature, but they provide key connections between the built-up Denver urban area and outlying communities. Highways that provide connections between Denver and the four major freestanding communities (Boulder, Longmont, Brighton and Castle Rock) are often greatly affected by peak direction rush hour commuter traffic. Examples include SH-119 (Longmont Diagonal) and US-85 north of Castle Rock.

Highways that pass through rural areas to other parts of the state are often affected by weekend recreational traffic that causes their greatest levels of congestion and car crashes. Improved driver information and increased incident management efforts by public safety and emergency response agencies will be very important because of the lack of alternative routes.

While highways and roads on the plains may be able to be widened to accommodate increasing traffic, widening is less desirable in the mountains due to the physical environment, construction cost, construction impacts, community impacts, and overall environmental impacts. Widening will be considered only in the most critical locations that provide connections to freestanding communities or the remainder of the state, and will be done in an environmentally conscious way. Transit service improvements will be important to provide alternative modes of travel to and from the Denver area.

Statewide Connectors

Figure 13 displays the key statewide roadway and rail connectors for personal and commercial travel between the Denver region, the rest of Colorado, and the nation.

In addition to providing connections to the region, the roadways shown in Figure 13 facilitate travel through the Denver region. A significant amount of traffic on the highlighted segments begins or ends outside the Denver region, thus they are called external connectors. The non-highlighted segments, while also serving as important routes for through traffic, primarily carry traffic that begins and ends within the region. Detailed information regarding the specific connectors is provided in Chapter 4 and Appendix 1. Interstate freeways such as I-25, I-70, and I-76 carry large amounts of truck freight, vacationers, and daily commuters. The key rural arterial connectors are US-36 (northwest and east), US-287, US-85, SH-86, US-285, and US-40. Railroad lines will carry large quantities of coal and other freight, as well as passengers.

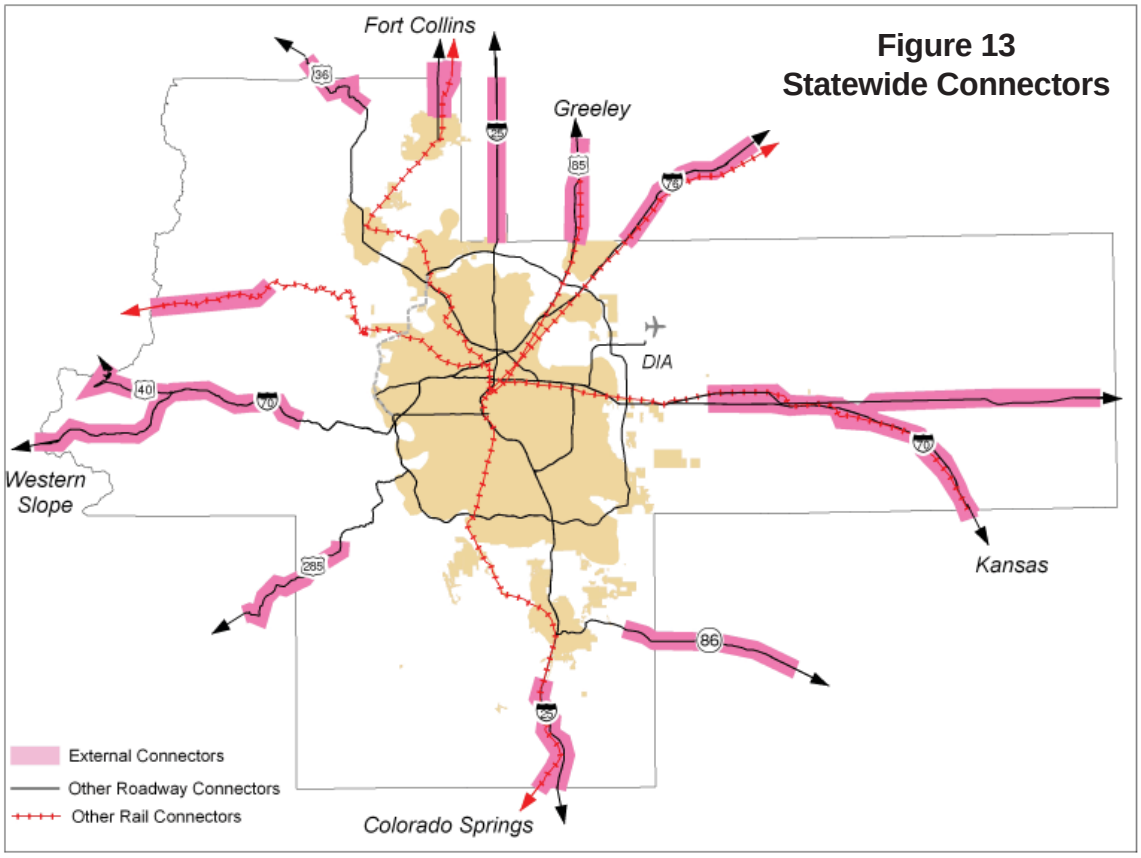
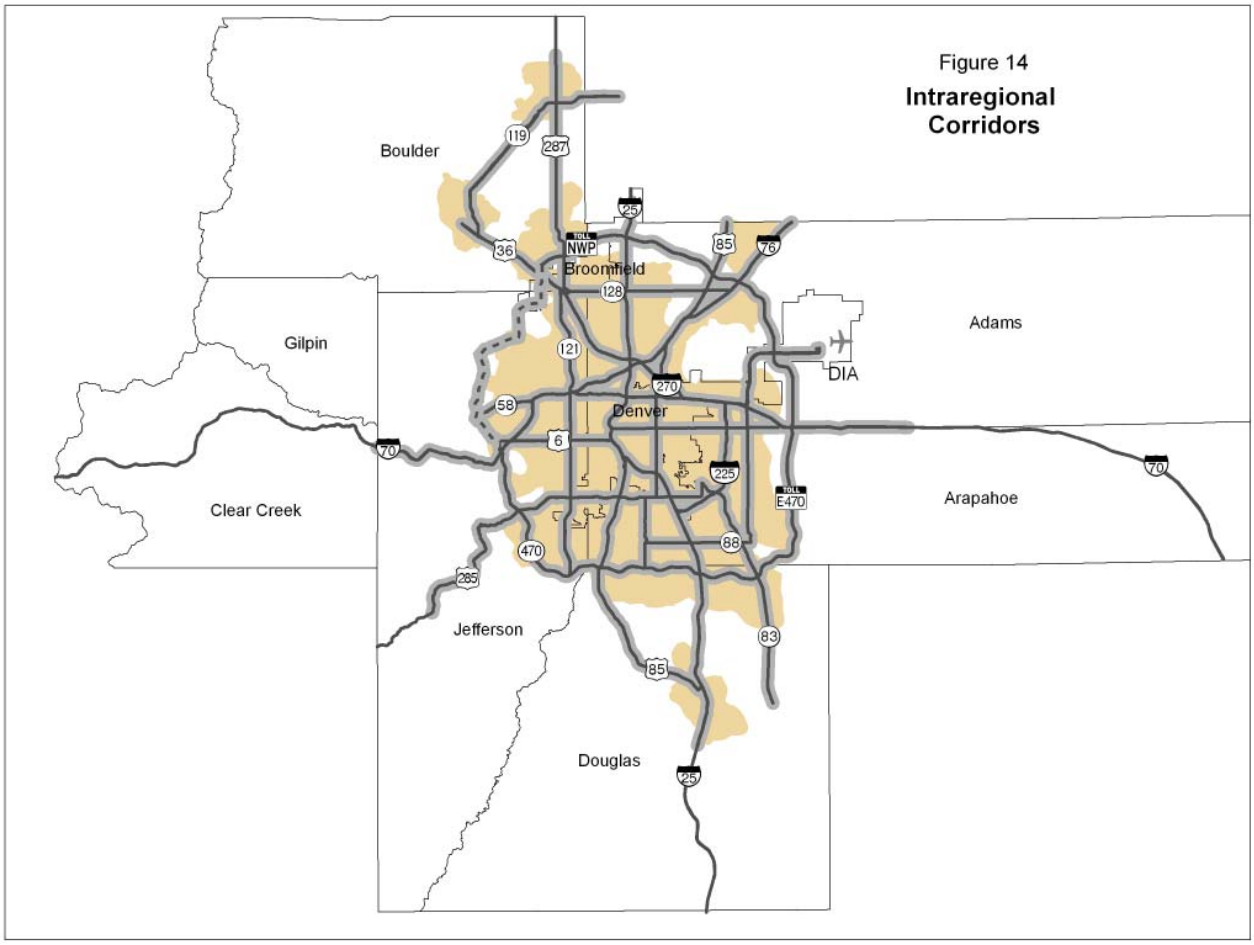


Figure 13
Statewide Connectors

Intraregional Corridors

Within the region, the majority of longer distance trips are made on the backbone system of intraregional corridors (Figure 14). This backbone system includes rapid transit lines (e.g. Southwest Corridor), freeways, and major regional arterials (e.g. Wadsworth Boulevard and Colorado Boulevard). It carries the highest volumes of people and goods across the region and to the major employment and activity centers, such as the Denver CBD and Denver International Airport (DIA). These facilities connect urban centers to each other and to freestanding communities. Chapter 4 and Appendix 1 discuss the rapid transit and roadway components and present the overall visions for these corridors.



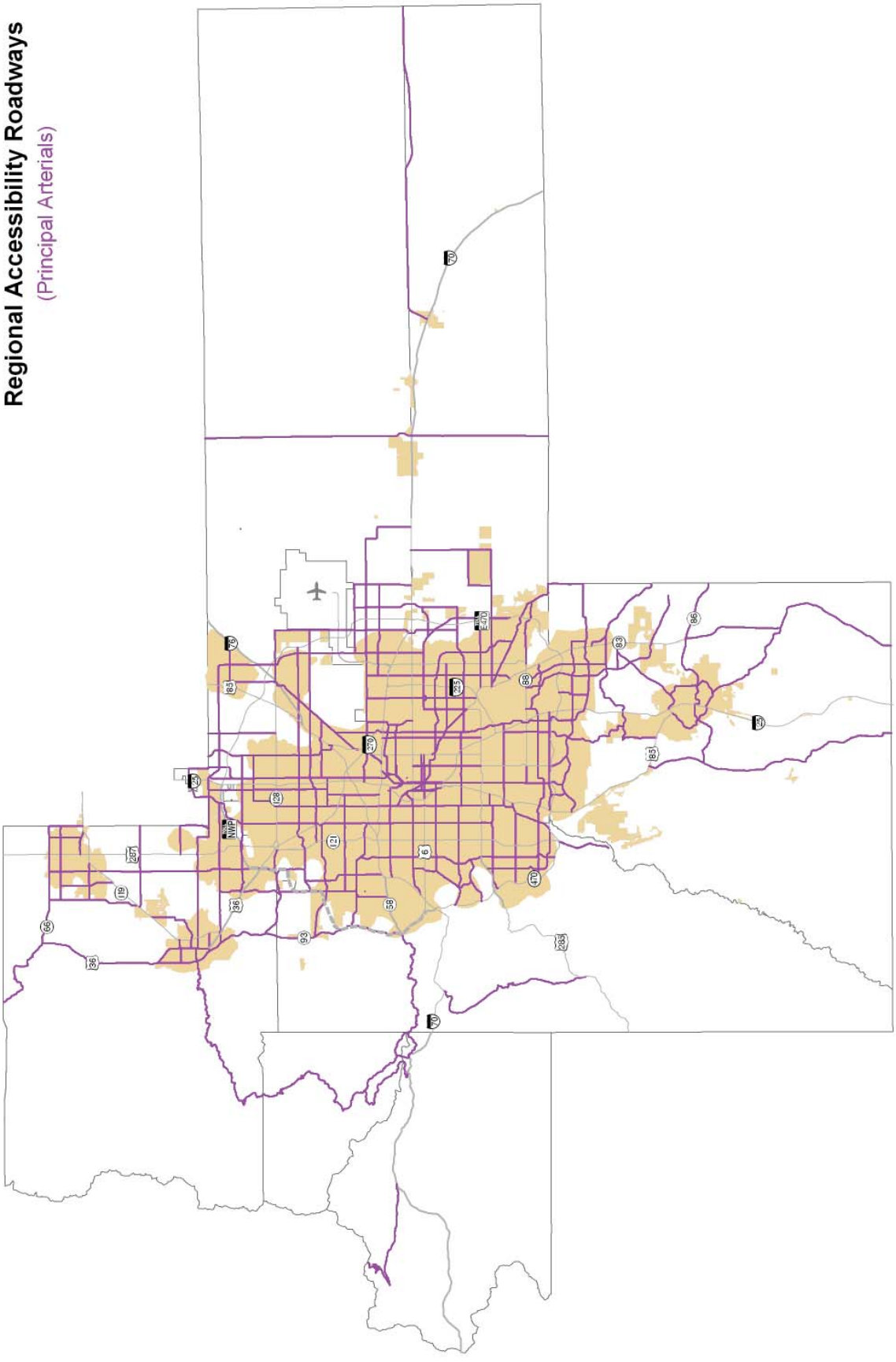
Regional Accessibility Facilities

Regional accessibility is supplied by a system of principal arterials (see Figure 15) that provides further access to other key points throughout the region and by extensive bus service. All of the major employment centers of the region are served by these arterials. Detailed information regarding the specific roadways is provided in Chapter 4. Some of the principal arterials in older sections of the region serve as multimodal streets with high levels of streetfront commercial activity, bus service, and pedestrian activity.

Figure 15

Regional Accessibility Roadways

(Principal Arterials)



4. 2035 METRO VISION REGIONAL TRANSPORTATION PLAN ELEMENTS

The 2035 MVRTP regional transportation system consists of a multimodal network of integrated and interconnected regional transportation facilities. Programs, policies and services will guide their development, maintenance and operation. Integration refers to travel modes acting in unison (e.g., a roadway with bike lanes and sidewalks). Interconnection refers to the transfers between modes. Efficient mode transfers are essential if travel by alternative modes is to be encouraged. Plan elements will not function in isolation. For example, buses travel on roadways and automobile drivers may transfer to transit at park-n-Ride lots.

Elements identified in the 2035 MVRTP regional transportation system will influence and respond to existing and future growth challenges. The relative locations of new households and employment (2005-2035) are displayed on Figures 16 and 17, respectively. The estimated distribution reflects DRCOG forecasts prepared for conformity modeling, giving consideration to local development plans, anticipated transportation facilities, and environmental factors such as aquifer discharge and recharge areas, airport influence areas, lakes and streams, private farmland, open space, and sand and gravel deposits. New households will be distributed throughout the region. They will form in new subdivisions on the edge of the currently developed area as well as at redevelopment sites and urban centers within the City and County of Denver, the freestanding communities, and several inner-ring suburbs. New employment sites will be concentrated in several urban centers and corridors oriented along freeways and rapid transit lines. This reflects a continuation of the historical trend of employers locating near key transit and highway corridors.

The complete transportation system includes local, state, and regional facilities that are provided by both public and private entities. The estimated cost to implement, operate, and maintain the complete transportation system is $128 billion. However, only $88 billion is currently expected to be available through 2035. Therefore, the Fiscally Constrained 2035 Regional Transportation Plan component has been developed and is presented in Chapter 5.

Numerous meetings with DRCOG committees, local government staff, CDOT, RTD, and the public were combined with technical analyses to develop the regional transportation system elements. In addition, in accordance with SAFETEA-LU requirements, DRCOG administers a congestion management process (CMP) as part of its congestion mitigation program of activities, which was utilized as part of the technical analyses. The CMP's three themes to mitigate congestion are:

- Help people **adapt** to congestion;
- Help people **avoid** congestion; and
- **Alleviate** congestion with construction and operational projects.

The CMP includes the following elements to enable the effective management and operation of the transportation system:

- CMP maintains a database containing traffic volumes, capacity information, and congestion measures for the regional roadway system;
- CMP is used to identify congested locations (see Figure 6);
- CMP provides a basis for defining a congestion-related purpose and need for corridor visions (to be further evaluated through the NEPA process); and
- CMP has established a toolkit of construction, demand management, real-time information, and operational strategies for addressing congestion, to be implemented by state, regional, and local agencies.

The transportation system is closely related to the growth and development elements of Metro Vision. These relationships are presented in regional sub-area maps described in Section A of this chapter. The remaining sections describe the specific 2035 Metro Vision transportation mode and management elements. Also presented are the most applicable Metro Vision policy statements and action strategies for each element, which should be followed in the design and implementation of transportation improvements by local governments, CDOT, RTD, and others.

A. Integration of Metro Vision Elements and Corridor Visions

The Metro Vision growth, development, and environmental quality elements are closely integrated with key multimodal corridors of the transportation system. Exhibits 1 to 9 of Appendix 1 display the 2035 regional transportation system elements along with urban centers, freestanding communities, the urban growth boundary/area, and open space. The nine overlapping subarea maps cover the central urbanized portion of the Denver region where the majority of interactions occur. They enable a more detailed visual examination of how spatial elements of the *Metro Vision 2035 Plan* interact. The precise locations of rapid transit lines and the number of lanes on regional roadways are estimated at this time. Ongoing and future environmental studies will determine final alignments, transit vehicle technology, and the number and types of lanes.

Multimodal corridor visions for statewide connectors and intraregional corridors are also presented in Appendix 1. The corridor visions were prepared in conjunction with the development of the Metro Vision regional transportation system, and are consistent with the discussions and descriptions of the remaining sections of this chapter. Some lengthy corridors like I-70 and I-25 have been subdivided to better reflect geographic context, so there are a total of 35 individual corridors presented. Descriptive sheets for each corridor present a transportation vision statement, identify corridor goals/objectives, present a corridor context, discuss select environmental resources, and depict the strategies/projects that comprise the unconstrained corridor vision necessary to influence and respond to future growth and development. Four “more generic” visions for other state highways in the region are also presented. The corridor visions will help guide the definition, prioritization, and design attributes of future transportation projects.

B. Regional Roadway System

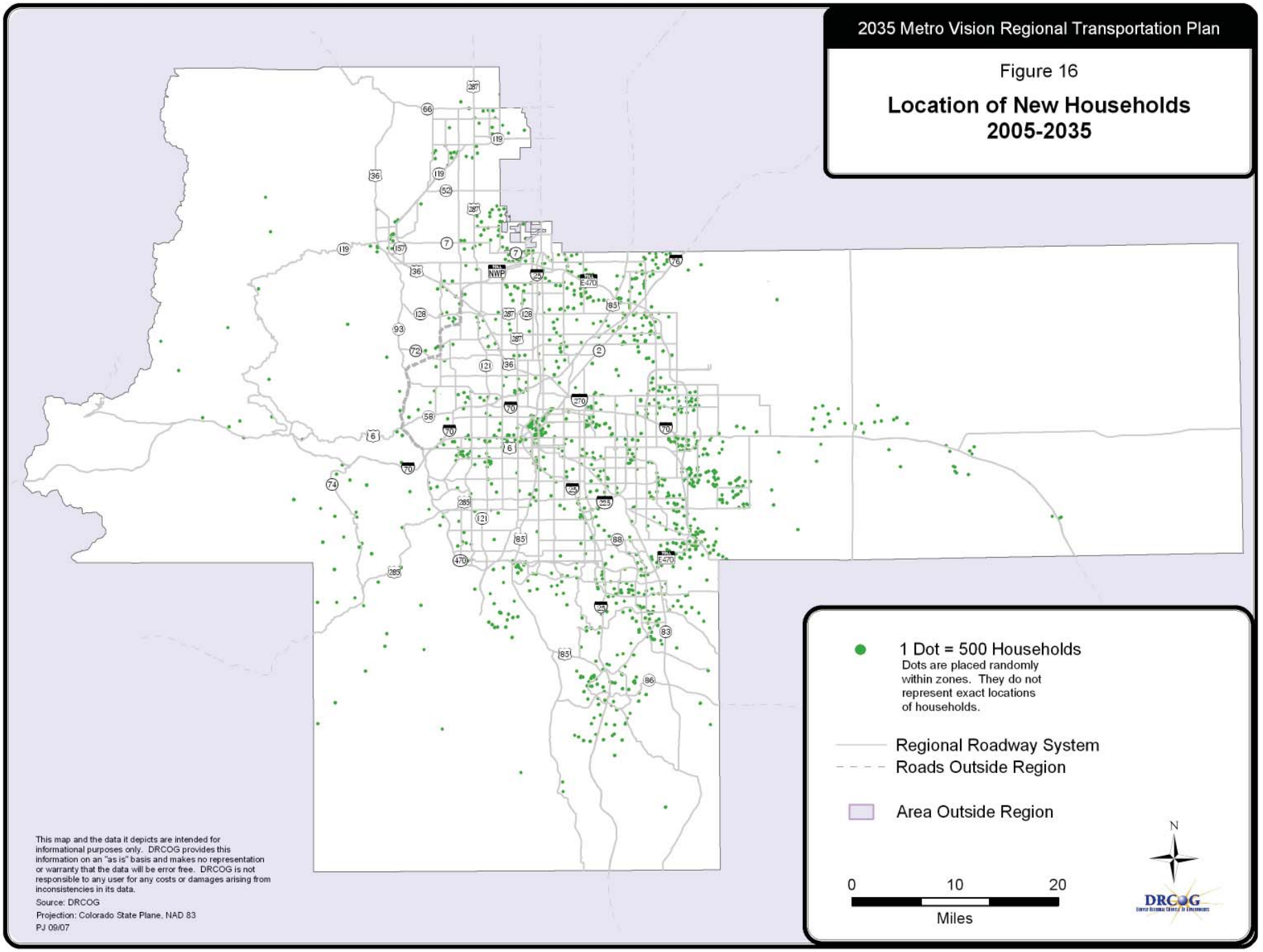
The majority of person travel and local freight movements in the Denver region occur via motor vehicles on roads and highways. Other important roadway users include bicyclists, pedestrians, and bus passengers that travel on, beside, or across the roadways. The 2035 regional roadway system will have a great impact on the shape of urban development in the Denver region. Segments of the system will serve as connectors to the rest of the state, intraregional travel corridors, and regional accessibility roadways.

Several Metro Vision transportation policies were strongly considered when defining the regional roadway system. They are listed below along with applicable action strategies.

2035 Metro Vision Regional Transportation Plan

Figure 16

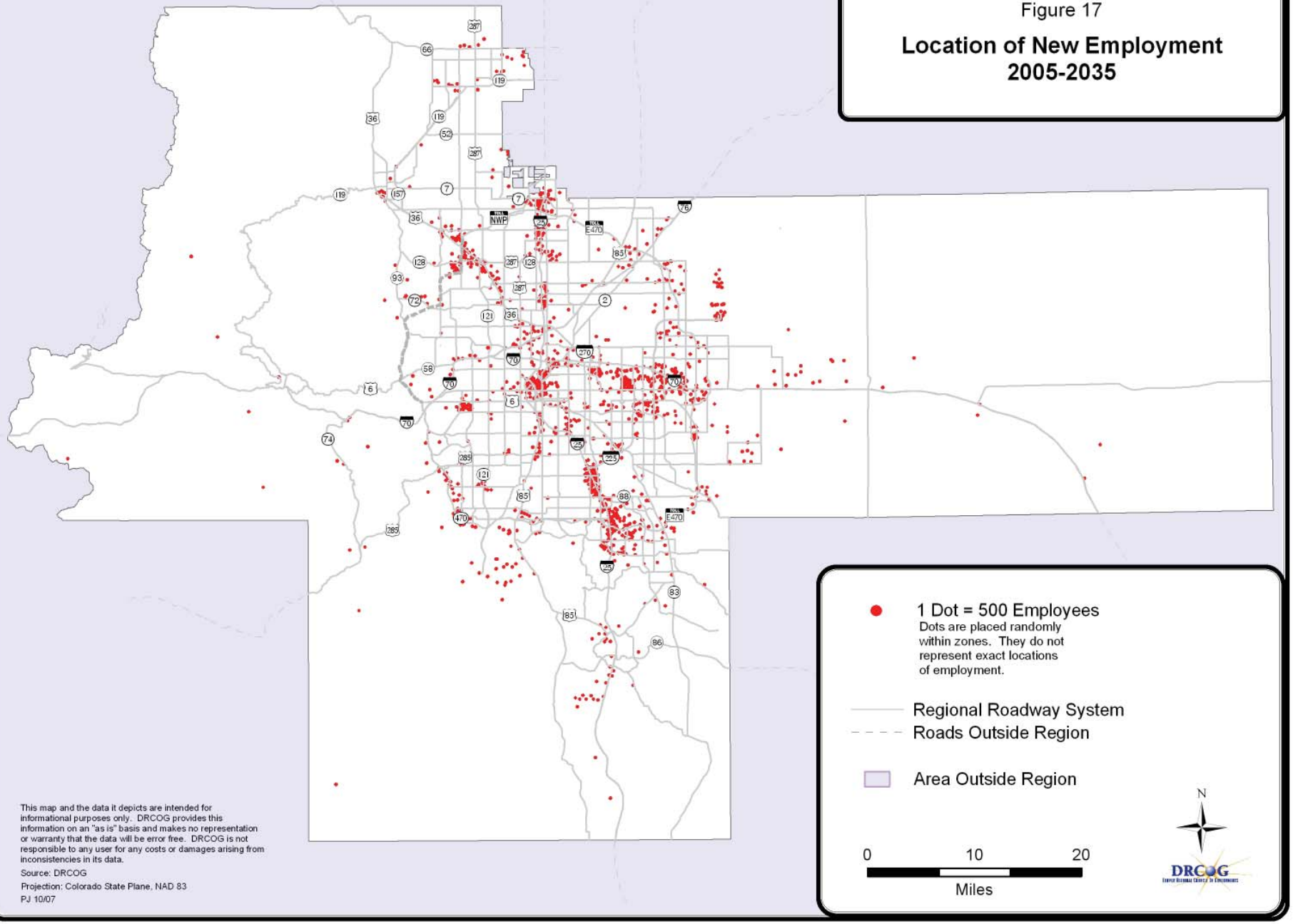
Location of New Households 2005-2035



2035 Metro Vision Regional Transportation Plan

Figure 17

Location of New Employment 2005-2035



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Roadways: Metro Vision Transportation Policies and Action Strategies

Policy #3. Roadways. Expand capacity of existing roadways in the most critically congested corridors and at key traffic bottlenecks and encourage access controls to maintain capacity.

- Implement multimodal facilities and system management improvements when constructing new or retrofitting existing major travel corridors;
- Maintain and enhance a metropolitan roadway system comprised of existing, expanded, or new freeways, major regional arterials and principal arterials that provide regional and statewide connectivity for the movement of people and goods;
- Support local streets and roadways that provide access to and from residential and non-residential areas throughout the region; and
- Prioritize roadway capacity funds for projects that address gaps in the existing roadway system and eliminate bottlenecks consistent with findings of the congestion management planning process.

Policy #4. Rights-of-way Preservation. Reserve adequate rights-of-way in newly developing and redeveloping areas for pedestrian, bicycle, transit, and roadway facilities.

Policy #5. **Denver Central Business District.** Improve and maintain transportation access to downtown Denver.

Policy #10. **Interconnections.** Improve interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

- Improve transportation linkages to major destinations and attractions outside the region;
- Facilitate the movement of goods throughout the region by reducing obstructions such as congestion, bottlenecks, and disconnections between facilities, while providing sufficient opportunities for intermodal freight connection; and
- Ensure convenient access to Denver International Airport (DIA) for all modes of travel, and maintain DIA's important role in connecting the Denver region to the rest of the nation.

Policy #12. **Land Use Integration**. Implement transportation system components that support Metro Vision's urban growth boundary/area, urban centers, open space, and associated concepts.

- Encourage transportation projects that directly serve designated urban centers;
- Provide roadway capacity increases and new freeway interchanges primarily in areas within the urban growth boundary/area, except for major statewide connections;
- Promote multimodal interaction between streets and adjacent development in the design of new developments and through the retrofitting of existing streets;
- Encourage open space preservation in conjunction with new major transportation facilities;
- Encourage transportation projects that directly serve the designated freestanding communities;
- Encourage transportation projects that enhance transit-oriented development; and
- Provide a transportation system that supports the region's economic vitality, competitiveness, and sustainability.

Policy # 14. **Environmental Quality**. Develop a transportation system that protects and enhances the environment.

- Promote improvements in roadway construction and street maintenance activities to reduce dust, particulates, and polluted water running off roadways.

Roadway System Background

The Metro Vision 2035 regional roadway system built from that defined for the 2030 MVRTP and was based on the following steps and considerations:

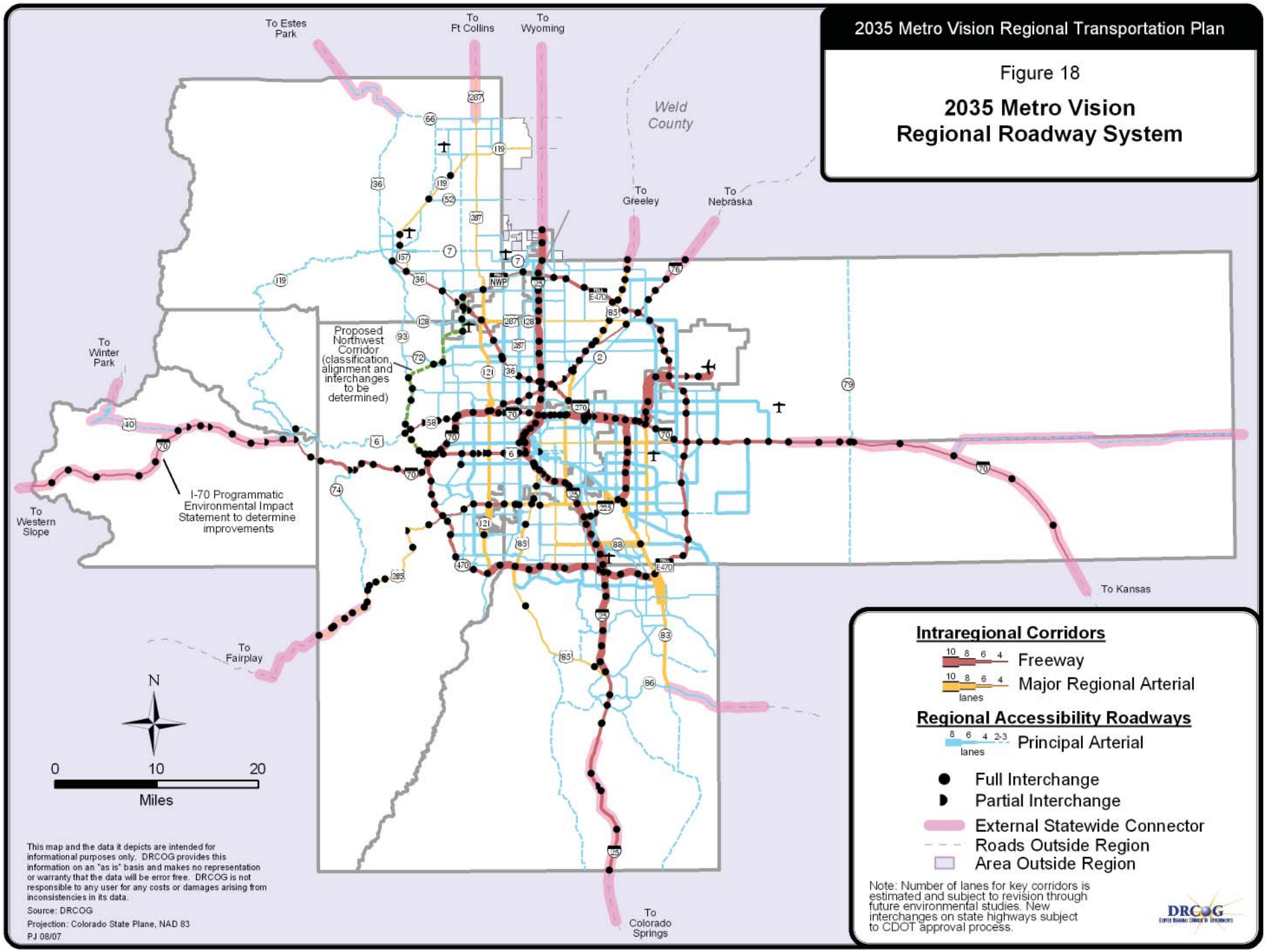
- Congestion levels and travel demand;
- Lane-balancing;
- Role as statewide connectors, intraregional corridor facilities, or regional accessibility roadways;
- Urban growth boundary/area;
- Location of urban centers, and transit-oriented and other new developments;
- Metro Vision land development concepts;
- Development pattern area traversed;
- Service to parks/recreation areas;
- Review of local transportation and comprehensive plans and corridor studies;
- Consultation with and participation of local governments;
- Consultation with CDOT; and
- Public input.

Many of the specific attributes of the 2035 regional roadway system are not known at this time. Exact alignments for roadways and the 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.

This section presents the physical makeup of the regional roadway system. Other elements that complement the system are presented in following sections. Such elements include system preservation, safety, management and operations, bus service, and pedestrian, bicycle, and freight facilities. The relationship of the regional roadway system with these other transportation elements and with the growth and development elements is displayed in the exhibits in Appendix 1.

2035 Regional Roadway System

The Metro Vision regional roadway system depicted in Figure 18 and Figure 19 reflects a base existing network, new roadways and interchanges, widened roadways, and improvements to existing interchanges throughout the region. This system is very important as it accounts for about 78 percent of all mileage driven in the region.


2035 Metro Vision Regional Transportation Plan
Figure 18
2035 Metro Vision
Regional Roadway System
To Estes Park
To Ft Collins
To Wyoming
Weld County
To Greeley
To Nebraska
To Winter Park
Proposed Northwest Corridor (classification, alignment and interchanges to be determined)
I-70 Programmatic Environmental Impact Statement to determine improvements
To Western Slope
To Fairplay
To Kansas
To Colorado Springs
N
0
10
20
Miles
Intraregional Corridors
Freeway
Major Regional Arterial
lanes
Regional Accessibility Roadways
Principal Arterial
lanes
Full Interchange
Partial Interchange
External Statewide Connector
Roads Outside Region
Area Outside Region
Note: Number of lanes for key corridors is estimated and subject to revision through future environmental studies. New interchanges on state highways subject to CDOT approval process.
This map and the data it depicts are intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no representation or warranty that the data will be error free. DRCOG is not responsible to any user for any costs or damages arising from inconsistencies in its data.
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Projection: Colorado State Plane, NAD 83
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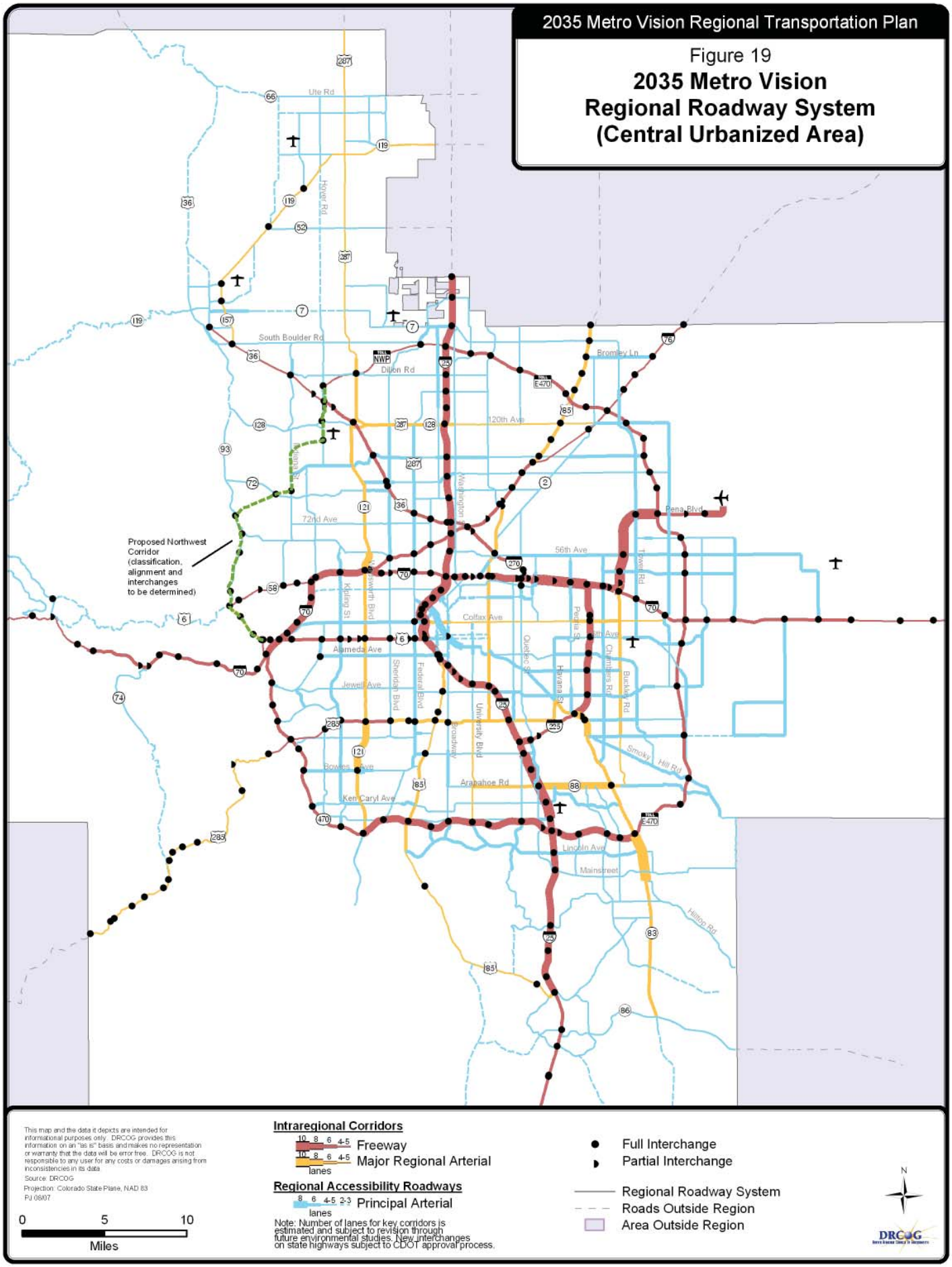
2035 Metro Vision Regional Transportation Plan
Figure 19
2035 Metro Vision
Regional Roadway System
(Central Urbanized Area)
Proposed Northwest Corridor (classification, alignment and interchanges to be determined)
Ute Rd
Hover Rd
South Boulder Rd
Dillon Rd
Bromley Ln
120th Ave
Wadsworth Blvd
72nd Ave
Pena Blvd
56th Ave
Tower Rd
Colfax Ave
Alameda Ave
Jewell Ave
Sheridan Blvd
Federal Blvd
Broadway
University Blvd
Havana St
Peoria St
Chambers Rd
Buckley Rd
Smoky Hill Rd
Arapahoe Rd
Ken Caryl Ave
Lincoln Ave
Mainstreet
Hilltop Rd
Intraregional Corridors
Freeway
Major Regional Arterial
lanes
Regional Accessibility Roadways
Principal Arterial
lanes
Note: Number of lanes for key corridors is estimated and subject to revision through future environmental studies. New interchanges on state highways subject to CDOT approval process.
Full Interchange
Partial Interchange
Regional Roadway System
Roads Outside Region
Area Outside Region
This map and the data it depicts are intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no representation or warranty that the data will be error free. DRCOG is not responsible to any user for any costs or damages arising from inconsistencies in its data.
Source: DRCOG
Projection: Colorado State Plane, NAD 83
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The number of system lane-miles increases from 6,300 in 2005 to about 8,600 in 2035. Lane-miles represent the number of 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.

The 2035 regional system roadways serve as statewide connectors, intraregional corridors, and regional accessibility facilities. Regional system roadways are classified as one of three facility types:

- Freeways - divided highways with access restricted to grade-separated interchanges. Some may be tolled fully (tollways, such as E-470). At this time, no partially tolled facilities (toll-lanes) are identified in these figures (the managed lanes on I-25 north of downtown Denver are shown on the transit system map). About 36 percent of all vehicle miles traveled in the region is on the freeway system. The freeways serve as statewide connectors and intraregional travel corridors.

- Major regional arterials - divided and undivided roadways that provide for 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. The major regional arterials serve as statewide connectors and intraregional travel corridors.

- Principal arterials - major streets primarily serving regional through-traffic, with at-grade intersections and side access permitted but regulated. Several principal arterials in older established cities within the UGB/A serve as multimodal streets with a high amount of pedestrian, transit, and commercial activity. The principal arterial system comprises the regional accessibility roadways.

Roadway capacity improvements of regional significance are an integral part of the 2035 regional roadway system. Such improvements include new roads and interchanges, widened roads, and new movements at interchanges. Roadways provide the conduit for regional and interregional automobile travel, local and regional bus travel, and freight movement. Without improvements, severe congestion will be experienced on many freeways and arterials for more than three hours per day (see Figure 6).

The 2035 regional roadway system contains the following (noting the amount to be constructed in addition to that existing in 2005):

- Freeways/tollways – 2,230 lane-miles (480 additional)
- Major regional arterials – 1,220 lane-miles (240 additional)
- Principal arterials – 5,110 lane-miles (1,540 additional)
- Bus/HOV lanes – 54 centerline miles (37 new)
- Freeway interchanges – 231 (20 new)
- Grade-separated arterial interchanges – 45 (23 new)

New lane-miles will be accrued from the construction of new roadways and as part of widening projects for existing roadways. The following types of interchanges are part of the system:

- 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).

The Metro Vision regional roadway system envisions that many of the freeway corridors in the region will either be widened or have significant interchange improvements made by 2035. Several will also have rapid transit lines added within or parallel to the freeway right-of-way to make them true multimodal corridors. Many arterials will be widened, primarily in suburban areas. New arterials will also be added to serve growing parts of the region within the UGB/A. The specific improvements for some corridors will not be known until future studies are completed. For example, the I-70 corridor in the mountains is undergoing a thorough environmental study at the present time. Project elements will not be known until a preferred alternative is identified by the study process.

Railroad grade-separations are not depicted in the regional roadway system maps. The elimination of at-grade railroad crossings is a critical issue in many communities. Many crossings cause significant delays and may pose safety hazards. An example is the railroad crossing at Wadsworth Boulevard in Arvada, where a grade-separation is currently under construction.

Currently E-470 and the Northwest Parkway are the only entirely tolled highways in the region. Existing state statutes permit the tolling of new travel lanes that are added to existing freeways. Tolls can also be used for new "managed lanes." For example, a travel lane may be added to a freeway that is free for buses and carpools, but collects tolls from single-occupant vehicle drivers. The amount of the toll can vary by time of day, depending on the level of congestion. Managed lanes are currently operated on I-25 north of downtown Denver (the bus/high-occupancy vehicle lanes were converted to allow toll-paying drivers of single-occupant vehicles and are shown on the rapid transit network in Figure 20). Specific locations for future toll facilities have not yet been determined, but are being studied by the Colorado Tolling Enterprise. Recommendations will be made after environmental studies are completed.

While local streets are not depicted as part of the regional roadway system, they are important for providing access to and through local developments and neighborhoods. The costs to build and maintain local streets, including collectors and minor arterials, are included in the 2035 MVRTP. Similarly, roads operated by federal and state land agencies are not part of the regional road systems, but they provide access to, within, and through the region's recreational playgrounds. Their costs are likewise included in the 2035 MVRTP.

C. Metro Vision Rapid Transit System

Light rail transit (LRT) is a viable and popular mode of travel for people in the Denver region, as demonstrated by the successful operations of the Southeast, Southwest, Central, and Central Platte Valley corridors. Existing lines and proposed additions to the rapid transit system will greatly encourage the types of future development patterns supported by Metro Vision. The Metro Vision rapid transit system (see Figure 20) includes light rail, commuter rail, bus/high occupancy vehicle (HOV) lanes (including high occupancy/toll), and bus rapid transit (BRT) facilities that utilize exclusive travelways. The regional rapid transit system serves intraregional corridors. State intercity corridors extend from the regional rapid transit system to provide connections to destinations throughout the state.

Many Metro Vision transportation policies are addressed by the proposed rapid transit system. The policies are listed below along with applicable action strategies.

Rapid Transit: Metro Vision Transportation Policies and Action Strategies

Policy #2. **Transit**. Provide increased transit service and facilities that stimulate travel by means other than the single-occupant motor vehicle, encourage transit-oriented developments and provide mobility options.

- Develop a metropolitan rapid transit system comprised of rail and bus/BRT/HOV facilities that provide regional connectivity for passengers traveling throughout the region and to and from other regions.

Policy #5. Denver Central Business District. Improve and maintain transportation access to downtown Denver.

Policy #10. Interconnections. Improve interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.

- Provide sufficient and secure automobile parking capacity at park-n-Rides to encourage multimodal commutes and ridesharing;
- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles;
- Develop the Denver Union Station to function as the primary multimodal hub of the regional transportation system. Consider the development of rapid transit hubs in all major communities;
- Consider opportunities for the development of an intercity commuter rail or bus system along the Front Range, and also incorporate, within the region, elements of a statewide intercity rail system; and
- Ensure convenient access to Denver International Airport (DIA) for all modes of travel, and maintain DIA's important role in connecting the Denver region to the rest of the nation.

Policy #12. Land Use Integration. Implement transportation system components that support Metro Vision's urban growth boundary/area, urban centers, open space, and associated concepts.

- Encourage transportation projects that enhance transit-oriented developments; and
- Provide a transportation system that supports the region's economic vitality, competitiveness, and sustainability.

Policy #13. Transportation for the Disadvantaged. Provide a transportation system that considers the needs of and impacts on minority, low-income, elderly, and disabled persons.

- Ensure that minority, low-income, elderly, and disabled households receive a proportionate share of accessibility benefits, travel mode choices, and services from future transportation system improvements and are not disproportionately affected by negative impacts associated with those improvements.

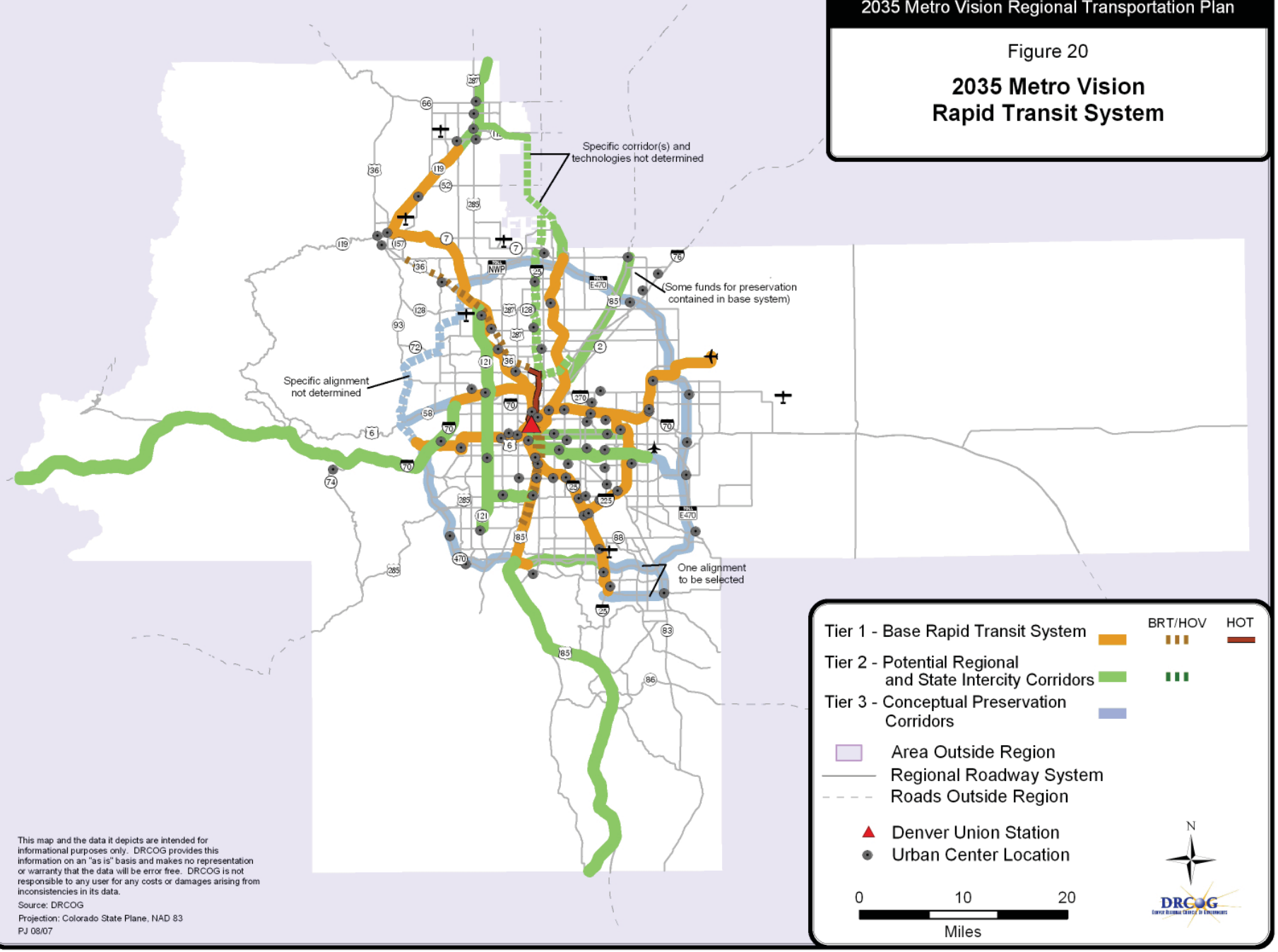
Policy #14. Environmental Quality. Develop a transportation system that protects and enhances the environment.

- Provide a wide variety of transportation facilities as alternatives to the single-occupant vehicle, including rapid transit, bus service, high-occupancy vehicle (HOV) lanes, and bicycle and pedestrian facilities.

2035 Metro Vision Regional Transportation Plan

Figure 20

2035 Metro Vision Rapid Transit System



Rapid Transit Background

The Metro Vision rapid transit system was developed with significant participation from RTD, CDOT, local governments, and the public. Some components are already in operation, some are under construction, some have been thoroughly studied and are part of a proposed funding plan, and others are more conceptual in nature.

Existing rapid transit lines have proven to be successful in the Denver region to a wide variety of users including daily work commuters, students, lower-income shoppers, medical facility clients, and elderly persons. The reliability and predictability of the train schedule is one of the primary features that distinguishes it from bus service. Bus service in mixed-traffic is often disrupted by traffic congestion, crash-related delays, and poor weather conditions. These types of events have less impact on separated bus/HOV lanes and rarely impact rail transit.

The relationship of the rapid transit system with other transportation, growth, and development elements is displayed in the exhibits in Appendix 1.

2035 Rapid Transit System

The 2035 rapid transit system includes four primary types of service/vehicle technologies, each with typical (not required) characteristics:

- Light rail transit – electric-powered lighter weight vehicles, high frequency service (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);

- Bus/HOV lanes – exclusive travelway within or parallel to a highway right-of-way, frequent bus service, may serve park-n-Ride lots or specialized bus rapid transit stations. Toll-paying single-occupant vehicles may be an acceptable incidental use of HOV lanes, given proper analysis to ensure that travel speeds for buses and HOVs will not be impacted. Figure 20 depicts one such high-occupancy/toll (HOT) "managed lane" facility, I-25 north of downtown Denver; and

- Intercity rail – diesel powered heavy vehicles, low frequency service (30 to 60 minute peak headways), longer distance trips, and very few stations (located in selected communities).

For not-yet-constructed components of the rapid transit system, the type of technology that will be used is known for corridors that have completed the NEPA process. For example, the West Corridor will use light rail. The specific technology used in the remaining corridors will be determined through ongoing or future studies.

The 2035 Metro Vision rapid transit system separates the corridors into three system tiers.

- Tier 1: Base Rapid Transit System (orange and brown lines on Figure 20) – This 187-mile system includes light rail, commuter rail, freeway BRT facilities, HOT lanes, and bus/HOV corridors that are currently operating or that were approved in the Regional Transportation District FasTracks Plan adopted by the region's voters in November 2004. This system will serve the most densely developed parts of the region, including at least 41 urban center locations. Denver Union Station will become a major multimodal passenger hub for the tier 1 system. Rapid transit stations will stimulate adjacent transit-oriented development. Tier 1 will also greatly improve transit service for persons who do not have access to a private automobile.

- Tier 2: Potential Regional and State Intercity Corridors (green lines on Figure 20) – Several other potential rapid transit corridors traverse major developed areas within the region and/or provide service to and from other parts of the state. The type of technology that will be used is not known as formal ridership examinations and detailed design have not been completed to identify the appropriate service/vehicle technology. When adjacent highway improvements are considered in these corridors, they should be designed so as not to prohibit future rapid transit construction. The potential regional corridors total 90 miles. The portions of the state intercity corridors within the Denver region total 142 miles.

- Tier 3: Conceptual Preservation Corridors (blue lines on Figure 20) – These future rapid transit corridors are located along, or leading to, major circumferential roadways. They cover about 107 miles. Rights-of-way will be preserved to the extent possible in these corridors for potential rapid transit implementation in the future.

Bus Rapid Transit (BRT) Service

BRT is a system of improvements that provides faster operating speeds, greater service reliability, and increased convenience than traditional fixed-route service. On freeways in the Denver region, BRT typically means buses traveling in exclusive or partly-exclusive lanes, with on-line stations or segregated access ramps, coupled with additional improvements that allow buses to load and travel quickly and efficiently. Figure 20 envisions BRT service along US-36 from Boulder tying into the managed lanes on I-25 north of downtown Denver. On arterials, BRT infers bus operational improvements at intersections (such as queue jump lanes or bus signal priority) and key bus stops, and enhanced station-like treatments for passengers at those key locations. Figure 20 does not specifically depict arterial BRT, but it is possible that ridership studies and detailed design considerations for some of the tier 2 corridors may conclude that interim (or even ultimate) deployment of BRT is appropriate for them. Other arterial corridors will certainly be provided with BRT treatments (for example, extension of the US-36 freeway BRT into Boulder along 28th Street and Broadway).

park-n-Ride Lots and Stations

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 2035 and several existing lots will be expanded to meet the needs of transit riders. park-n-Ride lot locations have been identified to meet the needs of the fiscally constrained transit system but many more park-n-Ride lots will accompany tier 2 and 3 transit corridors.

Other rapid transit stations will be provided without parking. Primarily "neighborhood" stations, these will be served by walk, bicycle, feeder bus, and drop-off/pick-up transportation.

D. Fixed-Route Bus and Other Transit Services

RTD and other public and private operators will provide important services to the growing population of the region. A variety of services will address the mobility needs of persons who cannot drive and those who desire an alternative to the private motor vehicle. Bus routes will provide extensive service in the intraregional corridors and along the majority of regional accessibility roadways. Urban core areas will be served by high-frequency bus service with more moderate service provided in the suburban development pattern areas.

Bus Transit Services: Metro Vision Transportation Policies and Action Strategies

Policy #2. Transit. Provide increased transit service and facilities that stimulate travel by means other than the single-occupant motor vehicle, encourage transit-oriented developments, and provide mobility options.

- Provide a fixed-route bus service system that includes high frequency bus corridors, regional bus service, feeder routes to rapid transit lines, and other local route service;
- Provide alternative demand responsive bus or van service for elderly and disabled persons and for call-n-ride travelers in less densely developed or smaller market areas; and
- Encourage the use of private transit services to major attractions not served by public transit, such as gaming communities or ski resorts.

Policy #5. Denver Central Business District. Improve and maintain transportation access to downtown Denver.

Policy #10. Interconnections. Improve interconnection of the transportation system within modes, between modes, and between the metropolitan area and the rest of the state and nation.

- Provide sufficient and secure automobile parking capacity at park-n-Rides to encourage multimodal commutes and ridesharing;
- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles; and
- Develop the Denver Union Station to function as the primary multimodal hub of the regional transportation system. Consider the development of rapid transit hubs in all major communities.

Policy #11. Transportation-Efficient Housing and Business Developments. Design new developments within communities to allow the efficient movement of pedestrians, bicyclists, buses, and motor vehicles within, to, and through the area.

Policy #12. Land Use Integration. Implement transportation system components that support Metro Vision's urban growth boundary/area, urban centers, open space, and associated concepts.

- Encourage transportation projects that enhance transit-oriented developments.

Policy #13. Transportation for the Disadvantaged. Provide a transportation system that considers the needs of and impacts on minority, low-income, elderly, and disabled persons.

- Ensure that minority, low-income, elderly, and disabled households receive a proportionate share of accessibility benefits, travel mode choices, and services from future transportation system improvements and are not disproportionately affected by negative impacts associated with those improvements; and
- Promote coordination between the disadvantaged transit service providers to improve the quality of service and increase efficiency.

Policy #14. Environmental Quality. Develop a transportation system that protects and enhances the environment.

- Provide a wide variety of transportation facilities as alternatives to the single-occupant vehicle, including rapid transit, bus service, high-occupancy vehicle (HOV) lanes, and bicycle and pedestrian facilities.

Bus Services Background

Bus or van transit services will be provided throughout the region. Increased population will create a higher demand for mobility provided by transit. In particular, there will be a greater need for alternative demand-responsive service for the growing elderly and disabled populations.

The majority of transit service will be provided by RTD within its district boundary. Expansion of the boundary could occur through the approval of voters within the added areas. Additional service will be provided by numerous public and private providers located throughout the region. More information regarding specific bus transit services is presented in the corridor vision plan sheets in Appendix 1.

2035 Fixed-Route Bus Network and Services

RTD will expand its fixed-route public bus service extensively within its boundary. Fixed-route service includes scheduled regional, express, and local routes. As the population base increases, bus service will expand to meet demand.

Bus service plays a supporting role to tier 1, 2, and 3 rapid transit improvements. In some cases, the rapid transit service will replace existing regional and express bus routes that serve similar destinations. Local bus routes will be adjusted to provide feeder service to new rapid transit routes. Overall the bus network will expand considerably from 2008 levels to match the anticipated urban growth.

park-n-Ride Lots and Bus Transfer Points

RTD's park-n-Ride lots are integral to the bus system as well as the rapid transit system. Many new lots will be constructed by 2035 and several existing lots expanded.

As the regional transit network becomes larger and more complex, the need to provide transit information and create timed transfers will also increase. 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. Transit information kiosks will be provided at major park-n-Ride lots and transfer points to provide riders with information regarding the arrival and departure of transit vehicles.

call-n-Ride Service

RTD will provide call-n-Ride door-to-door transit service with smaller buses in suburban areas and freestanding communities that do not have sufficient demand to warrant fixed-route service. Door-to-station call-n-Ride is also used to support the rail system. For example, several new call-n-Rides came into service with the opening of the Southeast Corridor light rail line. Currently, there are 19 total call-n-Rides offered by RTD throughout the metropolitan area.

Specialized Elderly and Disabled Transit Service

RTD provides Americans with Disabilities Act (ADA) service through its access-a-Ride program. All fixed-route buses are wheelchair lift-equipped and trains will be wheelchair accessible. Additional service will be provided by private non-profit agencies and local government-sponsored providers. Senior centers and places of worship will also provide many trips.

Persons in the region with disabilities now number approximately 150,000 (Table 3). About 27 percent are age 65 and over. This definition for disabled or mobility impairment is based on the U. S. Census tabulation of "persons who have difficulty going outside the home alone to shop or visit a doctor's office."

Table 3
2005 Estimated Population by Age and Mobility Impairment

	0-64 Years	65+ Years	Total
Population	2,409,000	232,000	2,641,000
Non-mobility Impaired	2,300,000	191,000	2,491,000
Mobility Impaired	109,000	41,000	150,000

Source: 2000 Census and DRCOG 2005 Population Estimates.

RTD ADA Services

RTD provides most elderly and disabled trips. Its access-a-Ride service acts both to supplement regular lift-equipped bus service and as a separate bus system for the disabled. It currently provides about 400,000 trips per year. An additional 120,000 wheelchair boardings occur on RTD's fixed-route buses and trains. Nearly 100 percent of RTD's bus fleet has operable wheelchair lifts.

As the primary designated ADA provider of public transit in the Denver region, RTD must provide transportation service complementary to the fixed-route, general public system. Rides must be provided to any person within the service area who is certified as meeting the following criteria:

- Disability prevents person from using wheelchair-accessible fixed-route system;
- Person with disability is able to use accessible general transit, but is not able to take desired route because it is not accessible; and
- Person is unable to get to or from the bus stop or train station.

ADA service that is provided must have the following characteristics:

- Serve any origin and destination within ¾ mile of a bus route or train station;
- Operate during same hours and days as comparable fixed-route;
- Have no restrictions on trip purpose or the number of trips per passenger;
- Provide trips the day following when the request is made;
- Provide service within one hour of the time requested; and
- Charge a fare that does not exceed twice that of comparable fixed-route.

RTD also offers the SeniorRide service to provide trips to seniors 55 years of age and older to attend a variety of cultural events and activities.

Other Service Providers

Several other organizations will provide specialized transit services. Volunteer groups also arrange trips. The actual service providers through 2035 are not known since they are subject to periodic change. Major providers currently operating (noting those eligible for Federal Transit Administration (FTA) funding) include the following.

Current Major Specialized Transportation Service Providers

- Adams Community Development *
- American Cancer Society
- American Red Cross
- Broomfield Easy Ride *
- Castle Rock Senior Center, Inc. *
- City of Littleton – Omnibus *
- City of Littleton - Shopping Cart *
- City of Thornton Senior Services
- Community Reach Center
- Denver Options
- Developmental Disabilities Resource Center
- Developmental Pathways, Inc.
- Disabled American Veterans
- Douglas County Neighbor Network
- Inter-Faith Task Force
- Jewish Family Service
- Lakewood Rides *
- Laidlaw Transit Services, Inc.
- Metro Taxi Paratransit
- Midtown Express Inc.
- Mobility and Transportation Services
- North Metro Community Services
- Parker Senior Center *
- RTD - access-a-Ride
- Safe Way Medical Transportation
- Seniors' Resource Center, Inc. *
- Seniors! Inc.
- Special Transit *
- Total Long-term Care
- Tri-Valley Senior Citizens Association
- VOA-Gilpin/Clear Creek Project

* Providers eligible for FTA Section 5310 funding.

Provision of Service through a County Service Broker

Each county serves as the service broker for specialized transportation services within its jurisdiction. While the county service broker has many responsibilities, its primary responsibility is to coordinate transportation services for the county's elderly, disabled, and low-income populations. The county may assign this function to a county department. The county broker either provides the services or contracts with a service provider.

Service may be provided with any number of vehicles originating from a variety of sources including public agencies, private for-profit, private non-profit, and public non-profit providers. The county service broker may buy trips from any number of providers that will most effectively meet the specialized transportation needs of those requesting trips. Specific examples may include but are not limited to: RTD's access-a-Ride, vans affiliated with a particular seniors' center or charitable organization, and privately operated taxis. Within its district boundaries, RTD is encouraged to provide trips to the designated brokers and to use brokered services provided by non-profit providers.

Transit Service Outside the Regional Transportation District

Service to areas outside the RTD boundaries will be available through current or new public transit agencies or by specialized providers. The Town of Castle Rock and the Black Hawk Transportation Authority are existing public transit agencies and Special Transit and Seniors' Resource Center are the primary specialized providers of service in the outlying areas. FTA Section 5311 funds are

currently used by these agencies to support such service, and each provider has identified numerous long-term needs. Clear Creek County has identified long-term needs that conceivably would need to be addressed by a new public transit provider or by greatly expanded contracts with a current provider. It is anticipated that some areas currently outside the Regional Transportation District will pursue inclusion into it.

Private and Intercity Bus Service

Private bus and van service will be important for workers and visitors to the gaming establishments in Central City and Black Hawk as well as for skiers and visitors traveling between DIA and the mountain resort communities. The Front Range Express (FREX) intercity bus service, operated by Colorado Springs Transit, currently provides service to Castle Rock, the Arapahoe Road park-n-Ride lot, and downtown Denver from the Pikes Peak region. These services could be partially or completely supplanted by state intercity rail service when such service is implemented.

Private intercity carriers such as Greyhound and the Texas, New Mexico, and Oklahoma (TNM&O) bus company are anticipated to provide national intercity passenger service. Bus stations are located in Boulder, Denver, and Englewood in the metropolitan area. Other companies also provide service between Denver and Mexico.

E. Pedestrian Facilities

Each weekday in 2035 there will be 19 million trips made in the region. Nearly all of these trips will involve someone walking from one point to another. Pedestrian travel includes many wide-ranging examples:

- Walking from home to the grocery store;
- Walking home from school;
- Strolling to the bus stop after a work day;
- Using a wheelchair from a bus stop to a coffee shop; or
- A parcel deliverer hurrying from a truck to an office building to deliver a package.

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. However, pedestrian trips cover much shorter distances than other travel modes. It is envisioned that in 2035 sidewalks or multipurpose trails will be provided along all applicable roadways within the UGB/A. Convenient access to urban centers and transit stops by walking will be provided.

Applicable Metro Vision transportation policies and action strategies follow.

Pedestrian: Metro Vision Transportation Policies and Action Strategies

Policy # 4. Rights-of-way Preservation. Reserve adequate rights-of-way in newly developing and redeveloping areas for pedestrian, bicycle, transit, and roadway facilities.

Policy #5. Denver Central Business District. Improve and maintain transportation access to downtown Denver.

Policy #6. Safety. Develop and maintain a safe transportation system for all of its users.

- Emphasize projects on existing and future facilities that will reduce the likelihood or severity of crashes involving motor vehicles, trains, bicycles, and pedestrians; and
- Support legislation aimed at cost-effectively improving the safety of drivers, passengers, pedestrians, and bicyclists.

Policy #9. Bicycle and Pedestrian. Provide bicycle and pedestrian access through and between developments and provide links to transit facilities.

- Require the provision of adequate sidewalks or pedestrian accommodations along all roadways and within private developments in the region's urbanized area and in densely developed rural communities.

Policy #10. Interconnections. Improve interconnection of the transportation system within modes, between modes, and between the metropolitan area and the rest of the state and nation.

- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles.

Ten additional specific pedestrian policies for facility planning and facility design are identified in the DRCOG *Pedestrian and Bicycle Element of the Regional Transportation Plan.*

Pedestrian Policies in
Pedestrian and Bicycle Element of the Regional Transportation Plan

1. In urban and suburban areas, continuous sidewalks should be provided on both sides of all streets and roadways (except freeways) and where possible, detached from the roadway. Connections through developments and to the entrances of businesses, stores and other activity centers need to be established and maintained.

2. In rural areas, where pedestrian volumes tend to be low, paved shoulders should be provided along arterials with adequate width (in accordance with state and local guidelines) to buffer the pedestrian from the traveled roadway.

3. Local governments are encouraged to conduct a comprehensive review of pedestrian facilities and initiate efforts to provide any needed missing segments. In making such an analysis, local governments should also evaluate the degree to which barriers and intrusions exist and take the necessary steps to eliminate them.

4. New or reconstructed sidewalks detached from the curb along major regional and principal arterials should be a minimum unobstructed width of six feet. The width of planting or hardscape strips between the curb and sidewalk should be no less than three feet wide.

5. New or reconstructed sidewalks attached to the curb along major regional and principal arterials should be a minimum unobstructed width of eight feet.

6. Sidewalks and paved multi-use trails should be built to accommodate the needs of all pedestrians and adhere to all Americans with Disabilities Act (ADA) design and accessibility guidelines.

7. Specific attention should be given to pedestrian needs in the design of intersections and traffic signalization.

8. Right-turn-on-red should be prohibited where high pedestrian volumes exist.

9. Roadway lighting should be provided at pedestrian crossings and locations where conflicts could arise between drivers and pedestrian.

10. Property owners adjacent to sidewalks should be required by local ordinance to maintain their sidewalks and promptly remove snow from walkways.

The *Pedestrian and Bicycle Element* also contains 19 overall, land development, and education and encouragement policies that are relevant to pedestrian transportation. While not detailed herein, those policies are also applicable.

Pedestrian Background

The *Pedestrian and Bicycle Element of the Regional Transportation Plan* was developed in cooperation with local and state governments, recreation districts and various users groups. It calls for the provision of pedestrian and bicycle facilities and services to encourage walking and bicycling for transportation. This plan element, updated in 2006, is incorporated by reference in the 2035 MVRTP. The emphasis is on destination-oriented tripmaking rather than purely recreational.

Comfort and safety are critical factors related to pedestrians. Convenient, safe and well-lighted sidewalks and trails can encourage people to walk instead of drive. In 2004, 49 pedestrians were killed along roadways in the Denver region. When compared to the 228 total traffic fatalities in the region, this is a disproportionately high percentage (21 percent) considering the length or time of travel by walking.

Many factors contribute to collisions involving pedestrians:
- High-volume and high-speed roadways;
- Turning vehicles at intersections;
- Driver distractions;
- Inadequate maintenance of roadways and sidewalks;
- Poor lighting and striping on roadways;
- Roads designed primarily for motor vehicles; and
- Pedestrian factors such as alcohol consumption, inattentiveness, and unsafe behaviors.

Pedestrian System Elements

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 Transportation Improvement Program that are in 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. Pedestrian elements that should be considered include:

- Sidewalks (width dependent on activity and adjacent buildings, must accommodate wheelchairs);
- Multipurpose trails (“bike paths”);
- Trail overpasses or underpasses of major roadways, railroads, or rivers;
- Cut-through paths at the end of cul-de-sacs;
- Intersection and mid-block crosswalks (striping, raised or lighted pavement, signing, signal buttons/actuation, audible messages, and adequate crossing-time);
- Curb ramps for wheelchairs;
- Tactile detectable warning surfaces for visually impaired persons;
- Warning signs for drivers; and
- Convenient access to bus stops and transit stations.

More information regarding specific pedestrian projects and strategies is presented in the corridor vision plan sheets in Appendix 1.

Regional Sidewalk System

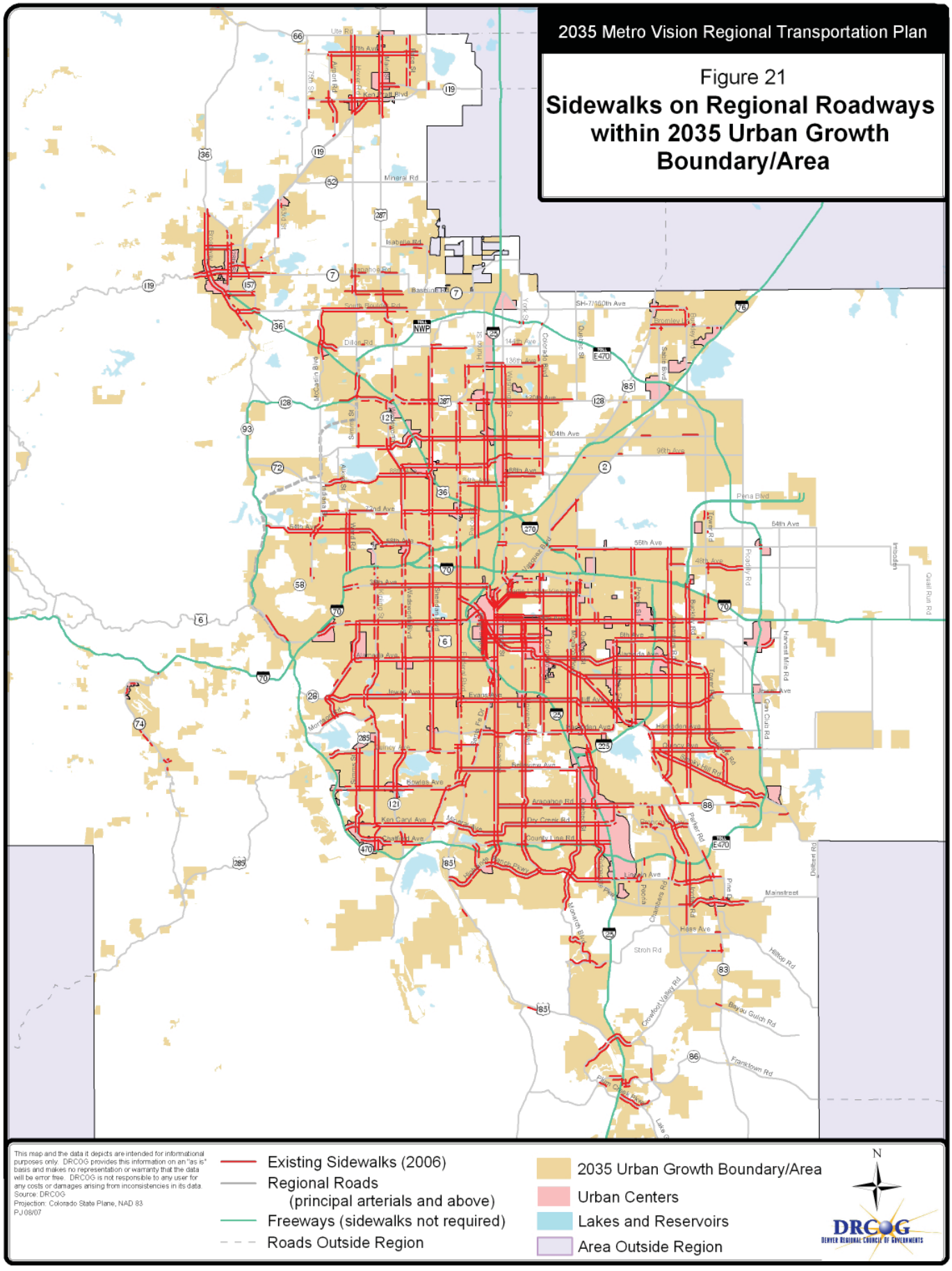
Sidewalks are currently provided on at least one side of about 70 percent of the regional roadway system arterials within the UGB/A (see Figure 21). The total linear mileage of sidewalks on these arterials is about 1,100 miles (includes adjacent off-street paved paths). About 500 additional linear miles will be needed to complete the system. As projects on existing roads are implemented and adjacent development occurs, sidewalks will be constructed. The top priority will be to complete

missing sidewalk links where there is clear evidence of pedestrian activity such as a footpath through the grass. Sidewalks should also be constructed along all new roads that are constructed.

F. Bicycling Facilities

Bicycles provide an efficient means of transportation for people to make short- to medium-length trips. The 2000 Census reported that about 9,000 people in the region use a bicycle as their primary means of travel to work throughout the year. However, based on DRCOG surveys, more than 30,000 people bicycle to work on nice weather days. Many more use a bicycle periodically to go to work, school, stores, or other places. Bicyclists use the street system as well as the 1,800 miles of miles of bike lanes and off-street trails that crisscross the region.

A 1,200-mile regional bicycle corridor system is envisioned in 2035 with many additional miles of local access facilities. Convenient access to urban centers and transit stops by bicycling will be provided.


2035 Metro Vision Regional Transportation Plan
Figure 21
Sidewalks on Regional Roadways within 2035 Urban Growth Boundary/Area
This map and the data it depicts are intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no representation or warranty that the data will be error free. DRCOG is not responsible to any user for any costs or damages arising from inconsistencies in its data.
Source: DRCOG
Projection: Colorado State Plane, NAD 83
PJ 08/07
Existing Sidewalks (2006)
Regional Roads (principal arterials and above)
Freeways (sidewalks not required)
Roads Outside Region
2035 Urban Growth Boundary/Area
Urban Centers
Lakes and Reservoirs
Area Outside Region
N
DRCOG
Denver Regional Council of Governments

Applicable Metro Vision transportation policies and action strategies are as follows:

Bicycle: Metro Vision Transportation Policies and Action Strategies

Policy # 4. Rights-of-way Preservation. Reserve adequate rights-of-way in newly developing and redeveloping areas for pedestrian, bicycle, transit, and roadway facilities.

Policy #5. Denver Central Business District. Improve and maintain transportation access to downtown Denver.

Policy #6. Safety. Develop and maintain a safe transportation system for all of its users.
- Emphasize projects on existing and future facilities that will reduce the likelihood or severity of crashes involving motor vehicles, trains, bicycles, and pedestrians; and
- Support legislation aimed at cost-effectively improving the safety of drivers, passengers, pedestrians, and bicyclists.

Policy #9. Bicycle and Pedestrian. Provide bicycle and pedestrian access through and between developments and provide links to transit facilities.
- Develop regional off-street and on-street bicycle corridor facilities and encourage the provision of local facilities throughout the region.

Policy #10. Interconnections. Improve interconnection of the transportation system within modes, between modes, and between the metropolitan area and the rest of the state and nation.
- Provide safe and convenient access for pedestrians and bicyclists to park-n-Ride lots, rapid transit stations, and bus stops. Also provide bicycle parking and promote the capability of transit vehicles to carry bicycles.

Nine additional specific bicycling policies are identified in the DRCOG *Pedestrian and Bicycle Element of the Regional Transportation Plan:*

Bicycle Policies in
Pedestrian and Bicycle Element of the Regional Transportation Plan

1. The existing and planned street system should be used to the maximum extent possible, consistent with safety considerations, for bicycle travel.

2. Local governments are encouraged to identify specific bicycle transportation markets (i.e., home-to-school, home-to-shop, home-to-work), and provide bicycle facilities to serve these markets.

3. Where street improvement and drainage projects coincide with desired bikeways, provision for bicycle and pedestrian travel should be explicitly addressed before the project proceeds and upheld throughout project development, construction, and operation.

4. In rural areas, paved shoulders of at least four feet in width should be provided along major regional and principal arterials, county highways, and state highways to accommodate bicycle and pedestrian travel.

5. In urban and suburban areas, as roadways and bridges on the regional roadway system are constructed, reconstructed, resurfaced, or re-striped, curb lanes should be widened to provide space for bicyclists.

6. Bicycle lanes are encouraged on busy roadways in areas where the construction of such a facility could improve the safety and/or connectivity of the regional bicycle system.

7. Bicycle parking facilities should be provided at major employment, retail, entertainment, commercial, and/or other activity centers in the region. Local governments should establish an off-street bicycle parking policy which considers security, placement, quality of facilities, and provision for signs directing bicyclists to the parking facilities.

8. At actuated traffic signal locations, provision should be made to allow bicycles to be detected or to easily allow a bicyclist to activate a green signal.

9. Multi-use facilities should have (a) connections to the local street system and with residential, employment, commercial, and school sites; (b) explicit signage regarding the proper use of the facilities; (c) suggested 10-foot width to accommodate the various uses; and (d) adequate lighting in underpasses and other dark areas.

The *Pedestrian and Bicycle Element* also contains 19 overall, land development, and education and encouragement policies that are relevant to bicycle transportation. While not detailed herein, those policies are also applicable.

Bicycling Background

The Denver region has one of the highest rates of bicycle use in the country. The climate, relatively concentrated urban development, extensive off-street trail system, and numerous mixed-use developments contribute to the popularity of bicycling. According to the 1995 Nationwide Personal Transportation Study, about 50 percent of all trips are three miles or less, and are potential bicycle trips. Obviously, health conditions, weather, time-of-day and other factors prevent all short trips from being made on a bicycle. However, air quality and congestion can be improved and less fuel is burned every time a motor vehicle is left at home. RTD's bike-n-Ride program helps to extend the length of trips for hundreds of bicycles a day (all buses are equipped to carry bicycles). People can ride to a transit stop and put their bicycle on a bus bike rack or carry it on a light rail train (off-peak times and direction).

Comfort and safety are critical factors related to bicycling. About 530 bicyclists are injured in reported traffic crashes each year in the Denver region. Convenient bicycling facilities such as low-speed streets, bicycle lanes, paved shoulders, and multipurpose trails can encourage people to bicycle and also improve safety. Racks and lockers for parking bicycles at trip destinations must also be provided.

The relationship of the regional bicycle system to other transportation, growth, and development elements is displayed in the exhibits in Appendix 1. More information regarding specific bicycle projects and strategies is presented in the corridor vision plan sheets in Appendix 1.

Bicycle System Elements

Several hundred miles of bicycle facilities exist or are planned in the Denver region. The majority of these will be the responsibility of local governments and parks and recreation districts. Others will be the responsibility of CDOT. Types of facilities and treatments include:

- Signing designated bicycle routes along bicycle-friendly streets (e.g., lower speeds and traffic volumes, wide curb lane, or shoulder);
- Constructing or striping wider curb lanes (e.g., 13 to 15 feet);
- Constructing paved shoulders (most important on rural highways);
- Providing marked on-street bicycle lanes;
- Constructing off-street multipurpose trails;
- Constructing trail overpasses or underpasses of major roadways, railroads, or rivers;
- Providing bicycle parking at transit stations, park-n-Ride lots, and other activity centers (see DRCOG's documents, *A Guide to Bicycle Parking and Nonmotorized Access to Transit*); and
- Providing marked bicycle-sensitive signal detection on intersection approaches.

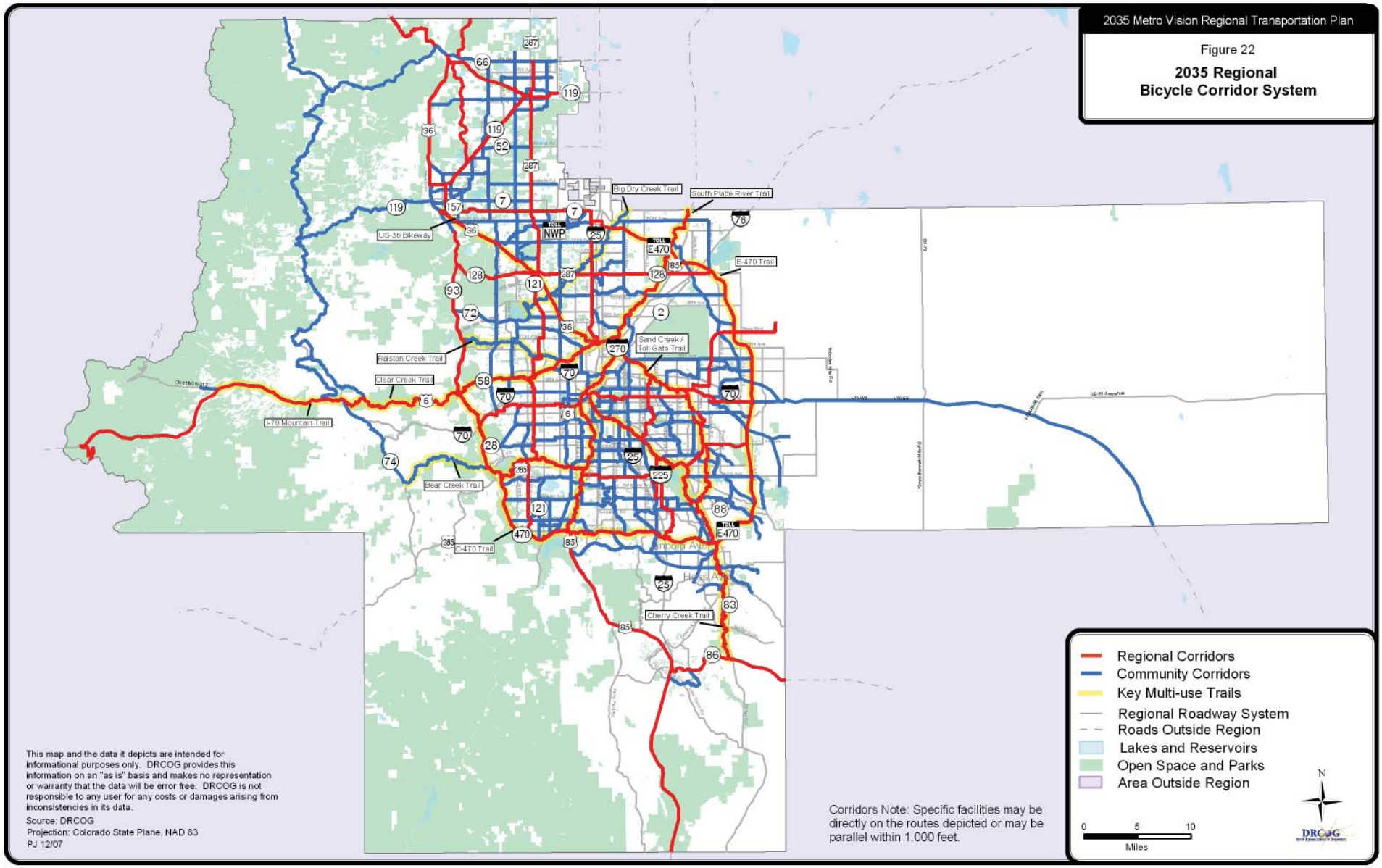
All types of facilities must be well maintained and constructed to established guidelines. Important maintenance and construction elements include:

- Routine pavement maintenance;
- Debris removal;
- Vegetation removal (e.g., encroaching weeds and overhanging branches);
- Appropriate warning and regulatory signs (e.g., stop signs) and pavement markings on off-street trails and roadway approaches; and
- Guidance signs, pavement markings, and traffic control devices that direct off-street bicyclists through intersections with roadways or other trails.

Regional Bicycle Corridor System

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.

Regional and community bicycle corridors have been identified as part of a system to ensure connections among various parts of the region. They will also receive more emphasis when projects are considered for funding in the TIP. Figure 22 shows those corridors. A comparable number of on- and off-street corridors are identified. The precise location of many corridor facilities is not known at this time. New facilities that are designated to represent corridors depicted in Figure 22 must be within 1,000 feet of the mapped route.


2035 Metro Vision Regional Transportation Plan
Figure 22
2035 Regional
Bicycle Corridor System
Big Dry Creek Trail
South Platte River Trail
US-36 Bikeway
E-470 Trail
Sand Creek / Toll Gate Trail
Ralston Creek Trail
Clear Creek Trail
I-70 Mountain Trail
Bear Creek Trail
C-470 Trail
Cherry Creek Trail
NWP
E470
Regional Corridors
Community Corridors
Key Multi-use Trails
Regional Roadway System
Roads Outside Region
Lakes and Reservoirs
Open Space and Parks
Area Outside Region
0 5 10
Miles
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DRCOG
This map and the data it depicts are intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no representation or warranty that the data will be error free. DRCOG is not responsible to any user for any costs or damages arising from inconsistencies in its data.
Source: DRCOG
Projection: Colorado State Plane, NAD 83
PJ 12/07
Corridors Note: Specific facilities may be directly on the routes depicted or may be parallel within 1,000 feet.

There are several key predominantly off-street trails that, when completed, will provide a backbone for an integrated regional bicycle system. Other shorter off-street trails will provide important connections. The key trails, as commonly referenced, include:

- Bear Creek Trail (Evergreen to Englewood);
- Big Dry Creek Trail (Standley Lake to North Thornton);
- C-470 Trail (Golden to I-25);
- Cherry Creek Trail (downtown Denver to Franktown);
- Clear Creek Trail (Idaho Springs to Commerce City);
- E-470 Trail (Lone Tree to Thornton);
- I-70 Mountain Trail (Loveland Ski Area to Idaho Springs);
- Ralston Creek Trail (SH-93 to Clear Creek Trail);
- Sand Creek/Toll Gate Creek Trail (Commerce City to south Aurora);
- South Platte River Trail (Chatfield Reservoir to Brighton); and
- US-36 Bikeway (Boulder to Clear Creek Trail).

An important multi-region facility is the Colorado Front Range Trail (CFRT). When completed, the CFRT will be an 876-mile long multi-use trail that extends from Wyoming to New Mexico. Colorado State Parks is the lead agency responsible for planning and implementing the trail's development. The success of the trail is heavily dependant on the continued cooperation of local and county governments. In the Denver metropolitan area, the Colorado Front Range Trail would utilize several existing trails including the Clear Creek Trail near Golden, the C-470 Trail near Lakewood, and the Chatfield Trail in Chatfield State Park in addition to other regional facilities depicted in Figure 22.

G. Multimodal Passenger Facilities

Several major facilities will serve as hubs for the movement of passengers between travel modes. These transfer points will provide connections to locations throughout the region, state, the nation, and even the world. They will be integrated with the area's intraregional corridors.

Applicable Metro Vision transportation policies and action strategies are as follows:

Multimodal Passenger Facilities: Metro Vision Transportation Policies and Action Strategies

Policy #10. Interconnections. Improve interconnection of the transportation system within modes, between modes, and between the metropolitan area and the rest of the state and nation.

- Develop the Denver Union Station to function as the primary multimodal hub of the regional transportation system. Consider the development of rapid transit hubs in all major communities;
- Ensure convenient access to Denver International Airport (DIA) for all modes of travel, and maintain DIA's important role in connecting the Denver region to the rest of the nation; and
- Maintain the capacity of DIA and support the provision of capacity enhancements in response to air transportation demands, consistent with original DIA development plans.

Denver International Airport (DIA)

DIA will be the most important transfer point in the state for air passenger traffic, providing connections to national and international destinations. In 2006 nearly 23.7 million passenger boardings took place at DIA. This is expected to increase to about 54 million in 2035. Slightly more than half (55 percent) of the boardings were passenger trips originating at DIA; the remainder was people making connections. On an average day, more than 72,000 passengers travel to or from DIA to begin or end an airline trip.

DIA currently employs more than 27,000 people; employment is expected to double by 2035. Passengers and workers travel to DIA by car, hotel shuttles, rental car shuttles, taxis, buses, and many other modes. Moving people efficiently to and from DIA is of critical importance. A rapid transit connection to DIA via the East Corridor is planned in tier 1. A conceptual transit preservation corridor (tier 3) is shown along E-470. Widening of Peña Boulevard and E-470 are also envisioned.

To meet the future demand for air travel, numerous improvements are envisioned for DIA and its environs. These are detailed in Chapter 4, Section N. Aviation.

Denver Union Station (DUS)

DUS is envisioned to become 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, the Winter Park Ski Train, RTD buses, intercity buses, cars, taxis, trucks, bicyclists, and pedestrians will all converge at Denver Union Station. Each day, thousands of passengers will make connections between rail lines and bus routes. Others destined for downtown will complete their trip by transferring to the downtown shuttles, walking, or bicycling.

Other Facilities

There will be many park-n-Ride lots and train stations for people to access RTD and other trains and buses via car, walking, or bicycling. Many will be oriented within prominent mixed-use urban centers. Examples of major stations serving as key transfer points are:

- Civic Center Station;
- Boulder Transit Center (downtown);
- Boulder Village Transit Center (30th Street/Pearl Parkway);
- I -25/Broadway (Southwest Corridor, Southeast Corridor, Central Corridor);
- Peoria Street/Smith Road (East Corridor at I-225); and
- 40th Street/40th Avenue (East Corridor, Central Corridor extension, possibly North Metro Corridor).

Carpool lots such as the one recently expanded at I-70 and Hogback Road will allow people to park a vehicle and carpool to and from work, activities, or recreation destinations in the mountains.

H. 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 pick-up. Major intermodal terminals transfer large amounts of cargo between the various travel modes and trucks. Most freight facilities and terminals are concentrated near the intraregional corridors and statewide connectors. The majority of local deliveries and pick-ups to and from businesses in the area depend on the reliability of the regional accessibility principal arterials and local roadway systems.

Applicable Metro Vision transportation policies and action strategies are as follows:

Freight Facilities: Metro Vision Transportation Policies and Action Strategies

Policy #3. Roadways. Expand capacity of existing roadways in the most critically congested corridors and at key traffic bottlenecks and encourage access controls to maintain capacity.

- Maintain and enhance a metropolitan roadway system comprised of existing, expanded, or new freeways, major regional arterials and principal arterials that provide regional and statewide connectivity for the movement of people and goods; and
- Prioritize roadway capacity funds for projects that address gaps in the existing roadway system and eliminate bottlenecks consistent with findings of the congestion management planning process.

Policy #8. **Management and Operations.** Make the best use of existing transportation facilities by implementing measures that actively manage and integrate systems, improve traffic operations and safety, provide accurate real-time information, and reduce the demand for single-occupant motor vehicle travel.

- Deploy Intelligent Transportation Systems (ITS) such as vehicle flow treatments, national real-time system information programs, and transit monitoring system to improve the effectiveness and efficiency of the transportation system; and
- Work with all involved parties to develop strategies for incident management that reduce the impact of incidents such as motor vehicle crashes upon the movement of vehicles on the regional roadway system.

Policy #10. Interconnections. Improve interconnection of the transportation system within modes, between modes, and between the metropolitan area and the rest of the state and nation.

- Facilitate the movement of goods throughout the region by reducing obstructions such as congestion, bottlenecks, and disconnections between facilities, while providing sufficient opportunities for intermodal freight connection; and
- Support efforts to allow major freight railroad lines to bypass population centers.

Freight Background

In the context of the 2035 MVRTP, freight represents any physical goods, parcels, raw materials, or finished products that are transported from one place to another. The focus of this plan is on surface and aviation transportation modes and associated facilities. Limited attention is given to pipelines. Examples of types of freight movement include:

- Coal shipped by rail from Wyoming **through** Denver to Texas;
- Goods transported by truck or rail **to** the Denver region for local or statewide distribution;
- Local products shipped **from** the metro area via truck or railcar to the Midwest;
- Packages delivered **within** the region from Longmont to Littleton;
- Automobiles arriving from manufacturers via railcar, then **transferred** to truck trailers;
- Letters and parcels arriving by air and then **distributed** by express delivery services; and
- Cross-country goods traveling westbound that arrive in "triple trailer" trucks and then are **converted** to "double trailer" trucks to cross the mountains.

Denver is the northern end of the Ports to Plains corridor connecting Colorado to Mexico via Laredo, Texas. This could lead to increasing the Denver region's role as a distribution center and freight consolidation point for goods shipped to and from Mexico. In the DRCOG region, the Ports to Plains corridor encompasses I-70 East.

Overall, 68 million tons of freight are shipped to and from the DRCOG region and another 35 million tons is distributed internally. About 67 percent by weight is shipped by truck. Rail accounts for 28 percent. The remaining freight is shipped by air, pipeline or a combination of modes. The freight shares by travel modes based on value, weight, and ton-mileage are shown in Table 4.

Table 4
Freight Movement Shares for Denver Region by Travel Mode in 2002

Travel Mode	Value	Weight	Ton-Miles
Heavy Truck	65%	67%	25%
Rail	3%	28%	72%
Other Modes and Combinations (air, parcels, etc.)	32%	5%	3%
Total	100%	100%	100%

Source: 2002 Commodity Flow Survey, U.S. Bureau of the Census

The data in the 1997 Commodity Flow Survey indicated that the Denver region was a net importer of freight with an import to export ratio of 1.30. The data in the 2002 Survey shows the Denver region has a balanced import to export ratio of 1.00.

Other key freight facts are:

- Between 1997 and 2002, rail freight declined from 5 percent to 3 percent of total freight value but increased from 23 percent to 28 percent by weight and from 47 percent to 72 percent by ton-miles.
- Freight imported to the Denver region has higher value than exported. Inbound freight has a value of $46.3 billion while the outbound value is $41.8 billion.
- Exported freight is shipped farther from the Denver region than it is imported with outbound freight at 24.4 billion ton-miles and only 20.2 billion ton-miles inbound.
  - Major freight points of origin are Arizona, California, Alabama and Texas.
  - Major freight points of destination are California, Texas and Illinois.
- Electronics (25 percent) and furniture and manufactured products (20 percent) are the major categories shipped by value. Coal and petroleum products is the major category by weight (38 percent) and ton-miles (68 percent)
- Freight that stays within the Denver region accounts for 32 percent of the value and 51 percent of the weight. Freight shipped to and from other areas of Colorado accounts for 16 percent of the value and 15 percent of the weight.

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. Rather than maintain large storage facilities for raw materials, it is more cost-effective to have them shipped in just prior to their use in the production of finished products. Congestion on the transportation system can severely delay production.

The relationship of major freight facilities to the other transportation, growth, and development elements is displayed in the exhibits in Appendix 1. More information regarding specific freight projects and strategies is presented in the corridor vision plan sheets in Appendix 1.

2035 Freight System Elements

Freight is transported in the Denver region through an interconnected system served by several major travel modes and several intermodal transfer facilities. Figure 23 shows the rail, air, and intermodal freight network.

Trucks/Roadways

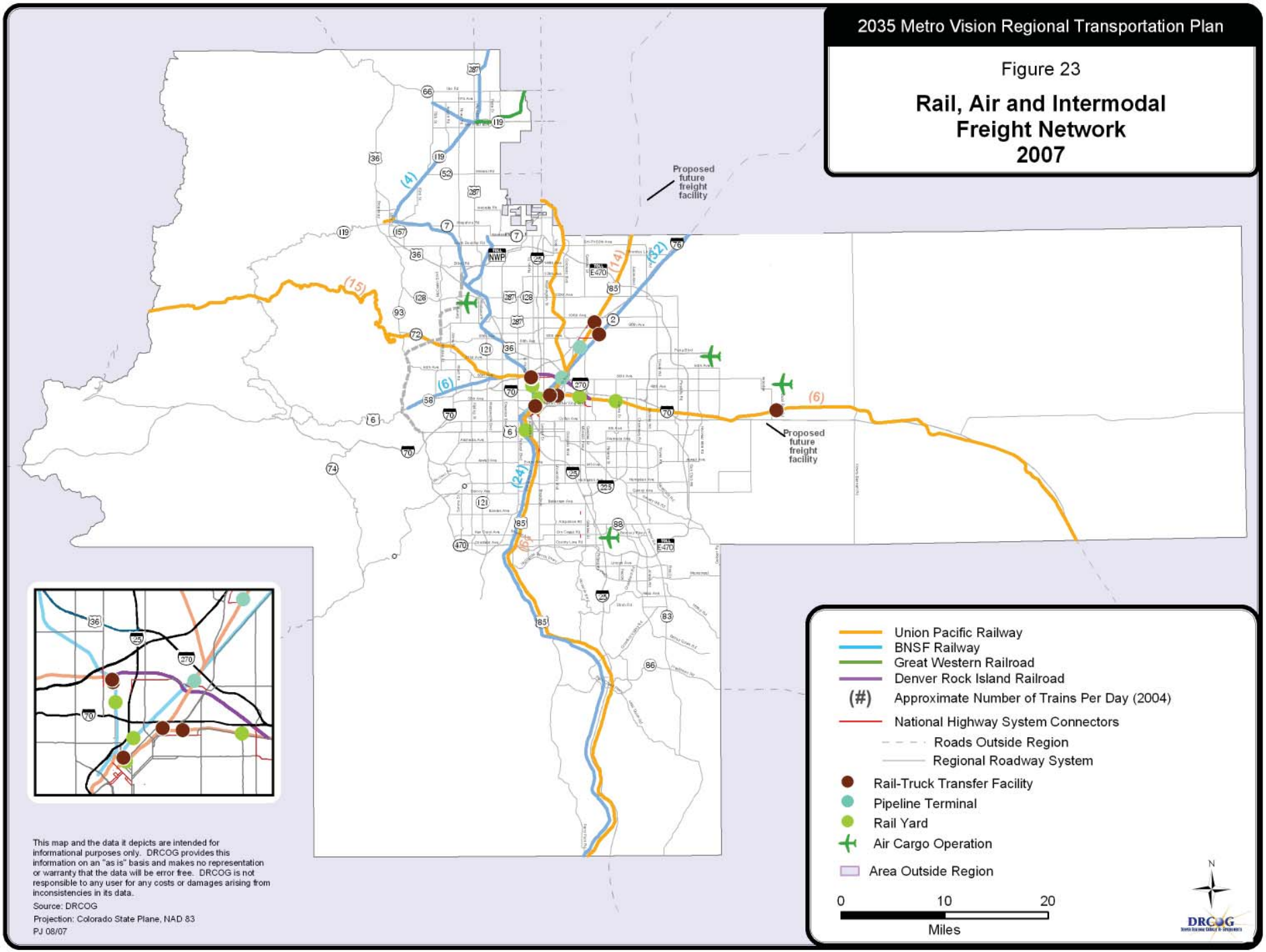
The majority of freight movement in the Denver region occurs via commercial vehicles such as trucks and vans on the roadway system. The 2035 regional roadway system includes 8,600 lane miles of freeways, tollways, major regional arterials, and principal arterials. The system serves many of the major freight origin and destination locations. Thousands of additional miles of local roadways provide direct access to the remaining locations. A few roadways are also designated as National Highway System Connectors. They are noted on Figure 23 and provide connections to major intermodal terminals such as airports, rail terminals, truck terminals, pipeline terminals, park-n-Ride lots, bus terminals and bus stations.

The following improvements planned for the roadway system will directly benefit the movement of freight by trucks by decreasing congestion and improving travel time reliability:

- Expand the regional roadway system (add nearly 2,300 lane-miles) by widening roads, removing bottlenecks and constructing new roads and interchanges;
- Construct railroad crossing grade-separations at critical locations; and
- Provide roadway management and Intelligent Transportation System applications such as traveler information systems, incident management, and variable message signs.

There are other improvements that will be implemented as components of larger-scale projects built by CDOT or by local governments:

- Improve intersection turning radii at busy locations where trucks have difficulty making turns;
- Construct or widen shoulders to provide adequate space for trucks to pull over;
- Reconstruct bridges to handle typical truck load weights; and
- Construct additional rest areas or expand parking at existing areas on the outskirts of the Denver region.


2035 Metro Vision Regional Transportation Plan
Figure 23
Rail, Air and Intermodal Freight Network 2007
Proposed future freight facility
Proposed future freight facility
Union Pacific Railway
BNSF Railway
Great Western Railroad
Denver Rock Island Railroad
(#) Approximate Number of Trains Per Day (2004)
National Highway System Connectors
Roads Outside Region
Regional Roadway System
Rail-Truck Transfer Facility
Pipeline Terminal
Rail Yard
Air Cargo Operation
Area Outside Region
0 10 20
Miles
N
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Source: DRCOG
Projection: Colorado State Plane, NAD 83
PJ 08/07

Other issues facing truck movements include:

- CDOT regulations and rules for longer combination vehicles (LCVs), trucks that pull more than one trailer;
- Local regulations regarding the time of day that trucks can make deliveries and pick-ups;
- Weight restrictions on roadways;
- Upgrading the port of entry into Denver to include "smart" technologies for electronic credential checking and weigh-in-motion facilities;
- Increased homeland security concerns – criminal background checks, facility security plans, updating of hazardous material placards on trucks; and
- Emergency response to truck crashes.

Freight Railroads

Railroad cars carry the most ton-miles of freight in the Denver region. Railroads generally carry heavy and bulky cargo of lesser value per unit of weight. Freight that is hauled by rail instead of trucks causes less damage to the roadway infrastructure. Freight rail traffic in the Denver metropolitan region is predominated by two Class I railroads: Union Pacific (UP) and BNSF Railway (formerly Burlington Northern Santa Fe). Class I railroads are the largest carriers and are designated as such by the Surface Transportation Board of the U.S. Department of Transportation. Two Class III railroads also operate within the Denver region – Denver Rock Island Railroad (DRIR) and Great Western Railway of Colorado (GWR). Active rail lines in the region are illustrated in Figure 23 along with switching yards, intermodal terminals and major transfer facilities.

The BNSF railroad's principal line through the Denver region runs north-south carrying trains from Wyoming to Texas. Its principal cargo is coal. The BNSF operates four branch lines within the region – Golden to Denver, Broomfield-Lafayette, Longmont-Barnett, and a line connecting Denver, northeastern Colorado and Nebraska to the northeast.

The UP operates major north-south lines and east-west lines within the region. The north-south line connects Denver with Cheyenne and Pueblo. East-west lines connect Denver with Utah and western Colorado to Kansas. UP also owns a 33-mile branch line connecting Commerce City to the Boulder area.

The BNSF and UP have joint operations and track-sharing agreements south of downtown Denver. The joint line is known as the Consolidated Mainline. It is operated as a paired track – one track used for northbound traffic and the other track used for southbound traffic.

Significant delays are faced by UP trains moving freight through the Denver area. The current structure of the track and switching yards requires that train cars be separated, backed up, transported to other tracks in the yard, and reconnected to complete an east-west journey.

The DRIR has a switching and terminal spur line north of I-25 and 58th Avenue running along I-270 connecting the UP and BNSF facilities. The GWR operates branch lines connecting North Front Range communities such as Fort Collins and Loveland to Longmont. GWR has an interchange point with BNSF at Longmont (switching only).

At-Grade Arterial Railroad Crossings

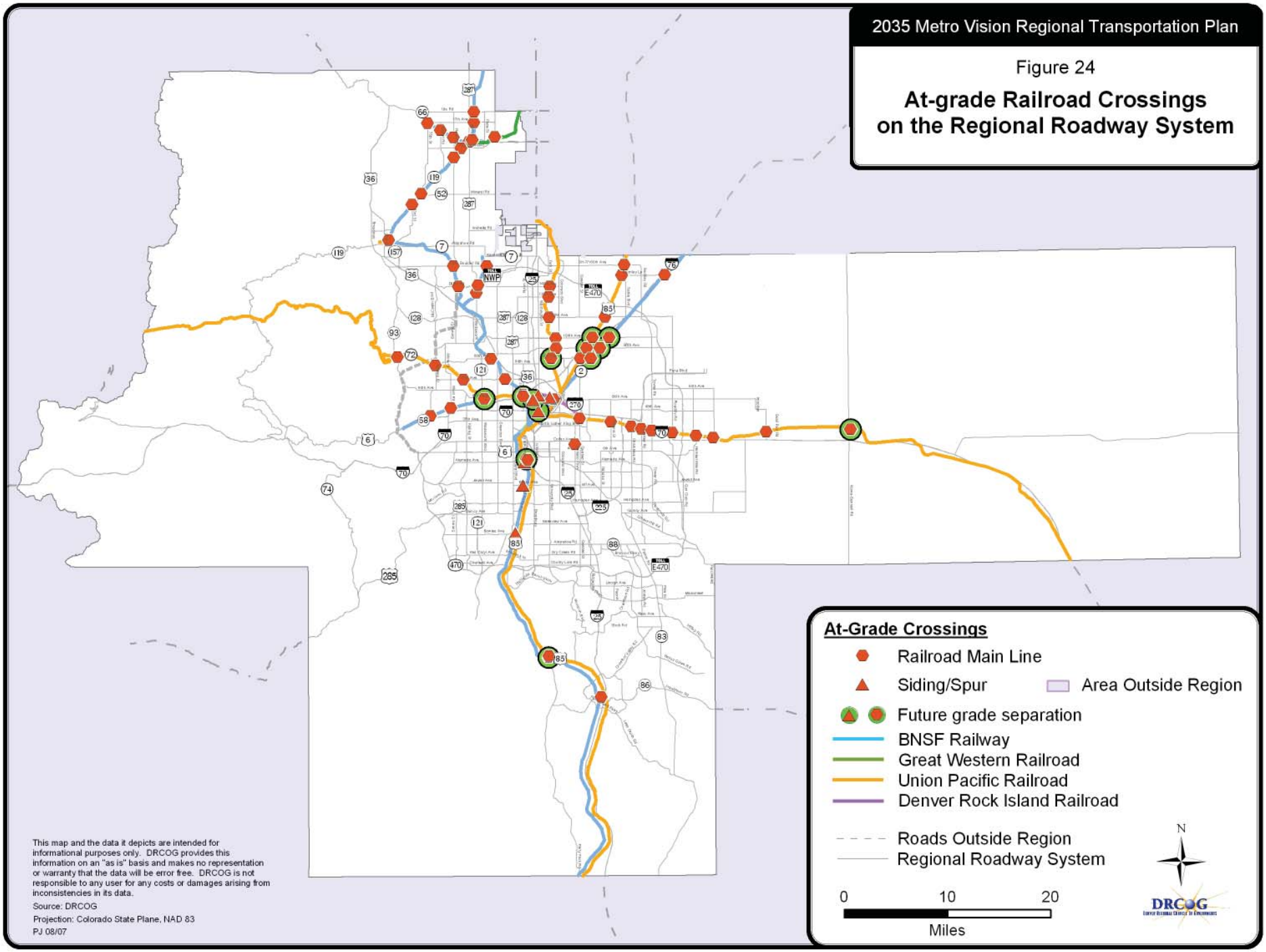
Over 500 at-grade intersections exist between the rail system and the roadway system in the Denver metropolitan region. Many of these at-grade crossings are found north of the I-70 corridor in predominantly industrial and warehouse areas. At-grade crossings can pose safety concerns as well as problems of delay to auto and truck traffic and emergency services. The 60 rail-on-roadway crossings on the regional highway network are shown in Figure 24.

The number of trains that cross a road per day will increase on those lines that may serve commuter

2035 Metro Vision Regional Transportation Plan

Figure 24

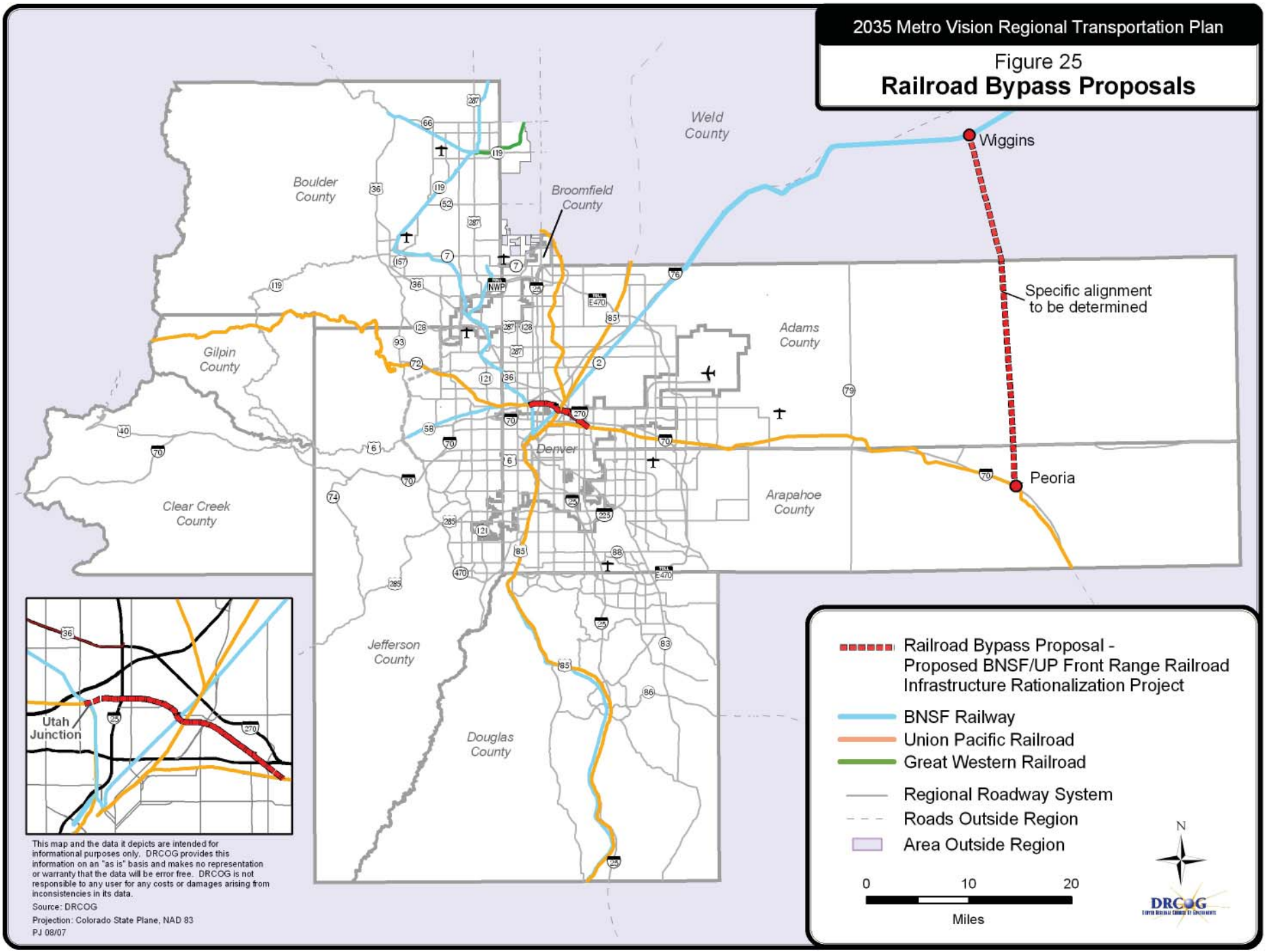
At-grade Railroad Crossings on the Regional Roadway System



rail in the future. Corridor studies will determine the need for constructing additional grade-separations at such locations.

The following improvements are envisioned for the freight railroad system:

- Eastern railroad bypass. CDOT has concluded the public benefits and costs study of the proposed BNSF/UP Front Range Railroad Infrastructure Rationalization Project. CDOT has begun the second phase study to continue working toward implementation. This project is considering a freight bypass rail line east of the Front Range metropolitan areas to shift through rail traffic outside the urban corridor. The alignment depicted in Figure 25 reflects the outcome of the initial study, but it and other alignments will be re-examined in the second phase.
- Railroad grade-separation bridges/underpasses on the regional roadway system at the following example locations:
  - BNSF at 104th Avenue
  - BNSF at SH-67 and UP at SH-67 (Sedalia)
  - BNSF/UP at Santa Fe Drive/Kalamath Street
  - BNSF at Wadsworth Boulevard (under construction)
  - BNSF at 88th Avenue
  - BNSF at 96th Avenue
  - UP at 104th Avenue
  - UP at Broadway
  - UP at 88th Avenue
  - UP at 96th Avenue
  - UP at Washington Street
  - UP at Pecos Street (under design)
  - UP at Quebec Street; and
  - UP at SH-79
- Railroad grade-separations on local streets off the regional roadway system will also be considered at critical locations.


2035 Metro Vision Regional Transportation Plan
Figure 25
Railroad Bypass Proposals
Weld County
Boulder County
Broomfield County
Wiggins
Specific alignment to be determined
Adams County
Gilpin County
Denver
Peoria
Arapahoe County
Clear Creek County
Jefferson County
Douglas County
Utah Junction
Railroad Bypass Proposal - Proposed BNSF/UP Front Range Railroad Infrastructure Rationalization Project
BNSF Railway
Union Pacific Railroad
Great Western Railroad
Regional Roadway System
Roads Outside Region
Area Outside Region
0
10
20
Miles
N
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Major Intermodal Terminals

Figure 23 shows the location of the current UP and BNSF intermodal rail-truck transfer facilities. They are also listed in Appendix 6. The BNSF operates the Rennicks and Globeville (31st Street) switching yards. BNSF has major terminals and freight transfer facilities to serve trailers on flat cars (TOFCs) and auto transport. UP has major terminals and freight transfer facilities known as the North Yard, 40th Street Yard, Rolla Auto Transfer Yard, and Pullman Yard, in addition to several switching yards. Planned or envisioned improvements that will benefit terminals include:

- Widening of several regional system roadways that are located in the vicinity of intermodal terminals; and
- Constructing new intermodal freight centers to handle truck/rail transfers and relocate some existing intermodal terminals.

Specifically, RTD is considering acquiring two UP railroad yards in northeast Denver to implement FasTracks—the Classification Yard and the Intermodal Yard, both in the vicinity of 40th Street. UP and RTD are discussing moving these yards to another location. UP has identified a replacement site in Weld County between Brighton and Fort Lupton. UP and RTD are negotiating the relocation costs and other factors as they apply to FasTracks implementation. Also, land owners in the vicinity of Front Range Airport have proposed a new air/rail/highway intermodal facility.

Air Cargo

Air cargo activity to and from Denver has grown dramatically over the past 25 years and is expected to nearly double by 2035. Air freight is by nature high value and time sensitive and is linked to the types of retail, service, and manufacturing businesses expected to lead the region's economic development through 2035. DIA handles thousands of packages and containers per day, with much smaller levels at Centennial, Rocky Mountain Metropolitan, and Front Range Airports. Additional air cargo handling capacity will likely be required before 2035. The likely location for most expansion will be at DIA and/or at Front Range Airport with limited expansion of the type of current services at Rocky Mountain Metropolitan Airport.

Pipelines

Pipelines in the Denver region ship in oil products and natural gas. Crude oil is processed into usable fuels such as gasoline and delivered by truck to filling stations. Natural gas is used for homes and businesses and to generate electricity. Pipeline transfer facilities are shown on Figure 23.

Air Quality Concerns with Freight Movement

The economic benefit of freight travel is not without environmental impacts, particularly to the region's air quality. A large percentage of heavy trucks are powered by diesel engines. The Air Pollution Control Division (APCD) estimates that heavy-duty diesel vehicles are responsible for about 50 percent of the primary PM_{10} emissions from motor vehicles. Similarly, heavy-duty diesel engines are a large contributor to NO_x emissions. Continued improvements to diesel engines and fuels will result in cleaner running trucks. Improvements that reduce roadway and rail congestion will also result in less pollution from truck and rail operations.

I. System Management and Operational Improvements

The region's Metro Vision transportation system will be efficiently managed and effectively operated, as stated in the following Metro Vision transportation policy and action strategies:

System Management and Operational Improvements: Metro Vision Transportation Policies and Action Strategies

Policy #8. Management and Operations. Make the best use of existing transportation facilities by implementing measures that actively manage and integrate systems, improve traffic operations and safety, provide accurate real-time information, and reduce the demand for single-occupant motor vehicle travel.

- Develop transportation systems management (TSM) such as intersection improvements, ramp metering, and acceleration/deceleration lanes to improve the flow of motor vehicles and transit;
- Deploy Intelligent Transportation Systems (ITS) such as vehicle flow treatments and national real-time system information programs, and transit monitoring system to improve the effectiveness and efficiency of the transportation system;
- Work with all involved parties to develop strategies for incident management that reduce the impact of incidents such as motor vehicle crashes upon the movement of vehicles on the regional roadway system;
- Implement coordinated traffic signal systems including across jurisdictional lines and integrate transit signal priority techniques for transit and emergency vehicles;
- Explore opportunities for implementing congestion pricing and other tolling techniques; and
- Manage access (curb cuts on arterials or interchanges on freeways) to improve the flow of traffic in accordance with the CDOT State Highway Access Code along state highways, and encourage local governments to develop similar standards for non-state roadways.

Management and Operations Background

The overall objective of management and operational 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 and air quality. To make the best use of the 2035 regional transportation system, two classes of system management and operations strategies will be implemented:

- Site-specific operational improvement projects; and
- Active management of the transportation system.

Pricing strategies will also be explored for implementation in severely congested corridors. More information regarding specific projects and strategies is presented in the corridor vision plan sheets in Appendix 1.

Site-Specific Operational Improvement Projects

Operational improvement projects are generally of low to moderate costs and do not add significant new capacity to the system. However, they have cost-effective delay reduction, traffic flow, and safety benefits. Unique strategies will be applied to freeways and arterials on the regional system.

Freeways

Major projects planned to rehabilitate and upgrade freeways will correct many operational bottlenecks. Stand-alone operational improvement projects will be implemented at other locations. The following features will be pursued at appropriate locations:

- Paved shoulders to allow vehicles that are stalled or involved in minor incidents to be moved quickly out of the way and provide maneuvering space around the incident site;
- Paved areas to allow trucks and other vehicles to install or remove chains pursuant to using I-70 during snowstorms;
- Continuous acceleration/deceleration lanes between closely spaced interchanges to allow for smoother integration into and out of traffic, with decreased potential for crashes;
- Hill-climbing lanes in areas where steep grades and slow-moving vehicles cause congestion; and
- HOV bypass lanes at metered on-ramps to expedite flow of buses and carpools.

Arterials

On the arterial network, operational improvement projects will address congestion problems at intersections and at-grade railroad crossings. Access to and from arterials will also be better managed. The following strategies are appropriate:

- Intersection treatments such as increased curb radii to accommodate buses and trucks, multiple left-turn lanes, right-turn lanes, and additional sidestreet lanes.
- Improvements to reduce transit travel delay in corridors with high levels of bus service, including treatments such as queue jump lanes, adjustments to lane-channelization devices, and relocation of and enhancements to bus stops;
- Access management projects to smooth traffic flow such as medians to control left turns, consolidation of access points, reconstruction of driveways for proper width and gradient, and acceleration/deceleration lanes for turning traffic;
- Shoulders on high-volume rural roadways to accommodate bicyclists, disabled vehicles, and vehicles that drift off the travel lanes; and
- Grade-separated bridges and underpasses for railroad tracks (see list in Chapter 4, Section H).

Active Management

Personnel and technology are necessary to actively manage the transportation system to assure efficient and effective day-to-day operations. This class of actions generally falls under the umbrella of Intelligent Transportation Systems (ITS). Simply put, ITS can be thought of as:

- Gathering data by monitoring the real-time functioning of the system;
- Disseminating information to operators and travelers;
- Managing flow using various traffic control devices; and
- Integrating all of this so it works together.

ITS for the Entire System

- Surveillance devices (e.g. roadway detectors or video cameras) deployed on or along freeways, arterials, and transit vehicles and facilities to collect information on travel conditions;
- A communications network that connects traffic, transit, and emergency management centers;
- A consolidated regional transportation operations display (e.g., secure Web site) that provides transportation operators and emergency vehicle dispatchers details of the transportation system conditions across the region; and
- A regional advanced traveler information system that disseminates real-time information regarding

speeds/travel times, incidents, events, construction, weather, parking availability, and transit operations. This will be done through a variety of media including dynamic message signs, highway advisory radio, commercial media, in-vehicle traveler information equipment, kiosks, imminent arrival signs, and Web sites.

ITS for Freeways

- Ramp meters to release entering vehicles at a steadier rate so they can merge into traffic with less disruption;
- Incident management programs, including incident detection, to minimize the amount of time that an incident disrupts traffic (subject to the needs of attending the injured and the safety of emergency workers and other travelers) and the management of traffic through and around the incident area. Freeway service (courtesy) patrols will operate along many of the region's freeways to expedite incident management;
- Probe surveillance via tracking devices installed on vehicles to collect information on travel conditions; and
- Electronic toll collection using a single device to allow users of all toll facilities in the region to pay without stopping.

ITS for Arterials

- Traffic signal systems that facilitate synchronization of traffic signals, operation of coordinated timing plans across jurisdictional boundaries, and monitoring of devices;
- "Traffic responsive control" of traffic signal systems in select corridors instead of pre-set time-of-day operations to better respond to real-time detected conditions;
- Transit signal priority treatments operated in corridors with high levels of bus service to help keep buses on schedule and possibly reduce scheduled transit travel time;
- Coordination of traffic signal systems with railroad grade crossings and freeway ramp meters; and
- In select corridors, the advanced traveler information system and the traffic signal system will be linked to an emergency management center so emergency vehicles can be routed around locations that could delay responsiveness.

ITS for Transit System

- Transit vehicle tracking equipment and schedule assessment software to allow transit managers to dictate schedule adjustments or allocate fleet resources in response to real-time traffic, passenger demand, and availability conditions;
- Electronic collection of transit fares and parking fees; and
- Parking facility management to inform transit riders of park-n-Ride lot parking space availability and alternatives.

More detailed descriptions of these and other ITS strategies considered appropriate for the Denver region are contained in the *Regional ITS Strategic Plan*.

Pricing Strategies

Variable pricing schemes (charging higher fees during periods of highest demand) can be implemented to help manage facility demand on any:

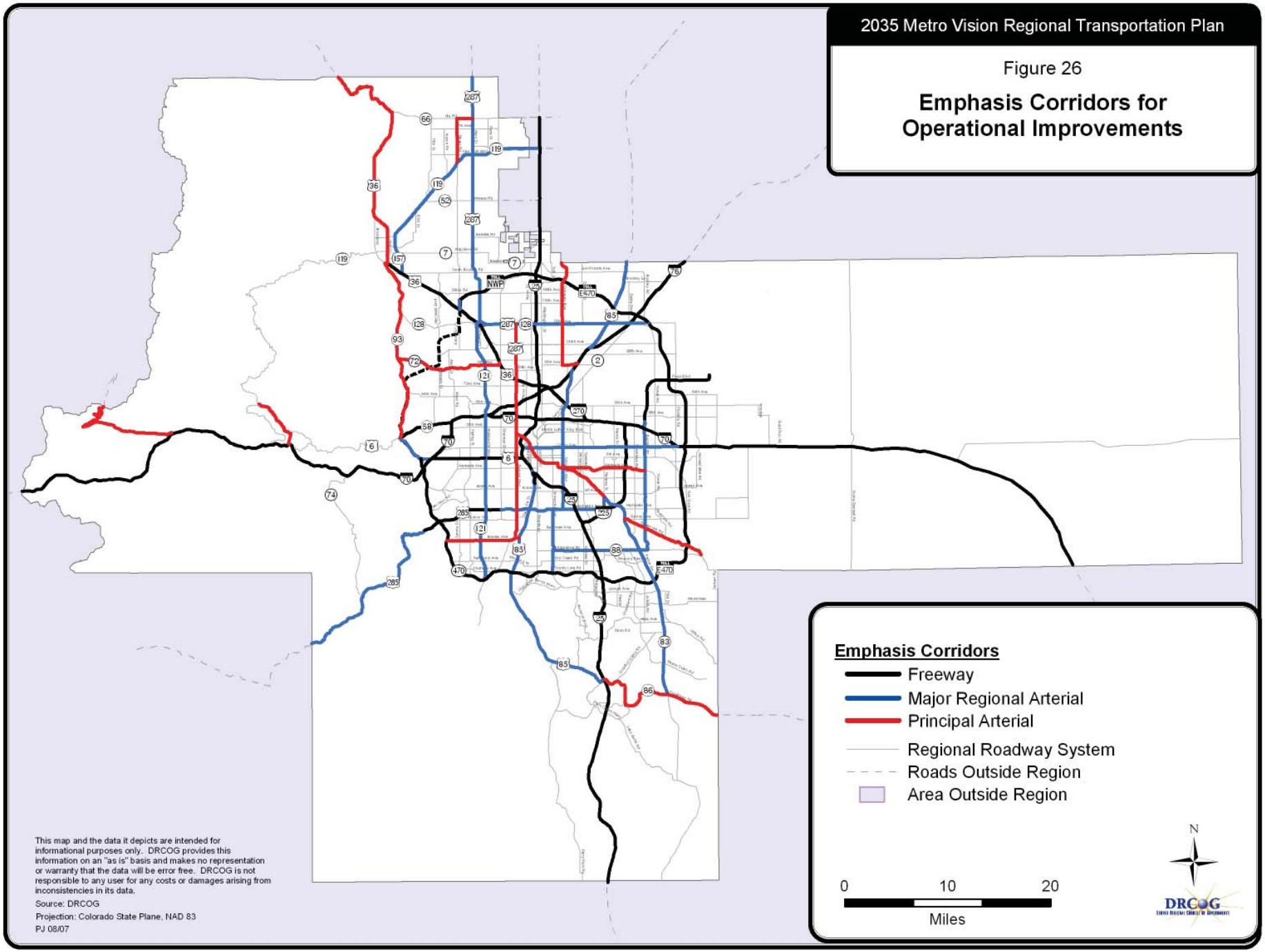
- Tolled highway or tolled lane facility;
- Transit vehicle where the rider pays a fare; or
- Paid-parking lot.

There are two methods of applying variable pricing schemes to freeway operations: time-of-day and dynamic pricing. On the I-25 Express Lanes north of downtown Denver, the pricing for single-occupant vehicles varies based on a fixed time-of-day schedule. The amount is highest during the

peak periods, and the fee and the time periods can be changed at reasonable intervals. With dynamic pricing, the price charged would be based on real-time conditions (i.e. current volume or speed of vehicles using the facility). Pricing concepts or managed lanes are being considered in some ongoing environmental studies in major corridors. No regionwide policy on variable pricing has been endorsed at this time, but the potential to use pricing to manage demand on congested facilities will continue to be explored.

Location Emphasis

Figure 26 shows the corridors of emphasis for implementing system management and operations strategies. All freeways and major regional arterials in the region are a primary emphasis. A secondary emphasis is established for a limited number of principal arterial segments based on traffic volumes, levels of congestion, linkage to freeways and major regional arterials, and identification as a rapid transit corridor or statewide connector. Transit operational improvements and signal priority are emphasized on roadways with high levels of bus service. ITS linked to the event facilities in the Denver central business district is also a priority. Appropriate physical operational attributes and ITS infrastructure are included as integral parts of all major road construction (new road, widening, reconstruction) and rapid transit projects.


2035 Metro Vision Regional Transportation Plan
Figure 26
Emphasis Corridors for Operational Improvements
Emphasis Corridors
Freeway
Major Regional Arterial
Principal Arterial
Regional Roadway System
Roads Outside Region
Area Outside Region
N
0
10
20
Miles
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J. Travel Demand Management

Travel demand management (TDM) is a set of strategies to reduce the demand for motor vehicle travel, especially in the peak travel periods. Reducing travel demand benefits the intraregional and regional accessibility roadways. TDM strategies promote and facilitate the use of alternatives to single-occupant vehicle (SOV) travel. Such alternatives include ridesharing, vanpooling, transit, bicycling and walking, as well as alternative times of travel through teleworking and alternative work schedules. They also help to ensure personal mobility options for residents of the region.

Applicable Metro Vision transportation policies and action strategies are as follows:

Travel Demand Management: Metro Vision Transportation Policies and Action Strategies

Policy #8. **Management and Operations.** Make the best use of existing transportation facilities by implementing measures that actively manage and integrate systems, improve traffic operations and safety, provide accurate real-time information, and reduce the demand for single-occupant motor vehicle travel.

- Implement stand-alone and project-related Travel Demand Management (TDM) strategies that will reduce the demand for single-occupant motor vehicle trips and encourage alternative travel choices for the region's residents.

Policy #11. **Transportation-Efficient Housing and Business Developments.** Design new developments to allow the efficient movement of pedestrians, bicyclists, buses, and motor vehicles within and through the area.

Policy #14. Environmental Quality. Develop a transportation system that protects and enhances the environment.

- Provide a wide variety of transportation facilities as alternatives to the single-occupant vehicle, including rapid transit, bus service, high-occupancy (HOV) vehicle lanes, and bicycle and pedestrian facilities.

TDM Background

The convenience and freedom of choice offered by traveling alone in a personal vehicle is undeniable. However, the attractiveness and perceived low cost of driving has resulted in congested roadways, increased pavement, greater pollution, and human injuries and fatalities. The infrastructure to support travel by car is well established in the region, and includes roadways, parking lots, parking garages, and gas stations. The assumption for the 2035 MVRTP is that these basic attributes will not change substantially, but that travel times will increase on many roadways as traffic congestion gets worse. Shortages of fuel could greatly reduce the demand for SOV travel, as occurred in the late 1970s, but it is unknown if that type of event will happen by 2035.

The establishment of common work hours many years ago created the Monday through Friday "rush hour" phenomenon. What used to be an hourly occurrence in the morning and afternoon has expanded to cover several hours. Though not the only focus of TDM efforts, work trips continue to warrant significant attention. According to the 2000 Census, about 75 percent of workers in the Denver region drive alone to work. Relatively small reductions in this share could result in noticeable congestion and pollution reductions. The Denver region had one of the highest rates of persons working at home, 4.7 percent, compared to other

metropolitan areas around the country. This "teleworking" phenomenon is a trend to build upon in the future.

The *Regional TDM Strategic Plan* (adopted November 2005) identifies the goal of TDM efforts in the region as "reduce the demand for SOV travel either by eliminating trips, changing the mode of travel, or changing the time of day the trip is made." The plan describes several TDM strategies that can support achieving this goal and also help people and businesses avoid or adapt to congestion.

TDM strategies fall into four general categories that are discussed in the following sections:

Promotion of Alternatives to SOV Travel

Programs to promote and facilitate alternatives to SOV travel will be implemented at three levels:

- Regional programs – TDM service providers such as the DRCOG RideArrangers Program or RTD;
- Subarea programs and activities coordinated by localized established TDM service providers (transportation management organizations (TMOs) or local governments) that include:
  - Boulder East Community Transportation Options;
  - Downtown Denver Partnership;
  - Fitzsimons Transportation Management Association;
  - Flatirons Improvement District;
  - GoBoulder;
  - South I-25 Urban Corridor Transportation Management Association (Southeast Business Partnership);
  - Stapleton Transportation Management Association;
  - Transportation Solutions (Cherry Creek / Colorado Boulevard area); and
  - 36 Commuting Solutions.
  - Additional TMOs may be established in areas expected to have significant employment growth.
- Site-based programs are implemented at individual workplaces with assistance from RideArrangers or other TDM service providers. Site-based programs address the specific travel needs of employees at one work site.

Services that will be provided by some or all of the above types of programs will include:

- Carpool and vanpool matching services to assist people in finding fellow commuters that have similar travel times and destinations. Other common destinations such as schools provide opportunities for carpool matching (e.g. DRCOG's Schoolpool). Vanpool programs are most successful for longer distance travelers that have limited transit service available;
- Guaranteed Ride Home programs that provide a free taxi ride home in case of an emergency for an employee who does not drive alone to work;
- Sponsorship of events to promote non-SOV travel, such as Bike to Work Day;
- Provision of information on alternative travel choices such as transit routes, HOV lanes, flexible schedules, and parking management; and
- EcoPass (transit pass) distribution and subsidies.

Of major relevance to promoting alternatives to the SOV is that the 2035 MVRTP envisions a transportation system that provides many more choices to travelers than the current system.

Promotion of Changes in Work Patterns

The following strategies will be promoted and facilitated to modify typical employee work schedules:

- Teleworking (or telecommuting) involves working at home any number of days per month to remove the need to commute to and from work. It will be promoted and facilitated by regional and subarea programs and by individual employers; and
- Alternative work schedules, including compressed work weeks (e.g. four 10-hour days per week) and flex-time arrangements (e.g. starting work early or late to avoid peak hour travel).

Incentives to Encourage Use of Alternative Travel Modes

Some strategies will encourage the use of alternative modes of transportation by offering enticing opportunities to save money or time:

- Cash or merchandise incentive programs coordinated by TDM service providers;
- Parking management strategies that reward people who use alternative travel modes and avoid SOV commuting. One example is an employer-run parking cash-out program that allows employees the choice of a free parking space or the cash equivalent of the space. Another strategy is preferential carpool parking spaces at businesses, in private parking lots or at busy park-n-Ride lots.
- Car-sharing programs that purchase a number of automobiles to be shared among a group of people that are recruited to participate. Participants will pay a routine fee or a per use/ mileage fee to use a car on selected occasions. They can save money by not having to purchase their own car and insurance. More importantly, they naturally tend to drive less than if they had their own car available at all times.
- Bicycle-sharing programs that make available a fleet of uniquely identified bicycles for any person to use for travel within a designated area. These are typically run in downtown areas of cities (e.g. Boulder's "Spokes for Folks").
- Location-efficient mortgages that recognize when people buy houses in close proximity to transit stations and high-service bus routes, they will drive less and have more to spend on housing. Homebuyers who wish to purchase homes in designated areas will qualify for a higher mortgage loan amount.

Promote Efficient Land Development Designs

There are many types of design strategies and principles (TDM-friendly design) that can encourage people to walk, bicycle, or take transit in lieu of driving alone:

- Transit-oriented developments (TOD) established throughout the region near rapid transit stations or other high transit service locations;
- Bicycle and pedestrian connections within, to, and from developments, and to transit stops and stations;
- Comfortable transit stops and waiting areas;
- Pedestrian-friendly parking lots;
- "Cut-through" paths for bicyclists and pedestrians within subdivisions;
- Bicycle storage racks and lockers; and
- Urban centers.

These concepts and others are articulated in such documents as DRCOG's *Suburban Mobility Design Manual* and *A Checklist for Designing a TDM-Friendly Development, Nonmotorized Access to Transit* and RTD's *Creating Livable Communities: A Transit-Friendly Approach.*

Locational Emphasis

TDM promotion and facilitation efforts will be offered throughout the region but concentrated in the following areas:

- Downtowns of major cities and high employment concentration areas;
- Along highway corridors with bus/HOV lanes;

- Adjacent to rapid transit lines/stations and high transit service locations; and
- In conjunction with major highway construction projects.

More information regarding specific TDM strategies is presented in the corridor vision plan sheets in Appendix 1.

K. System Preservation

In recognition of the considerable investment in the transportation system, preserving existing facilities is an important Metro Vision transportation policy. The transportation system naturally deteriorates due to use, time, and climate. Bridge and roadway deterioration is very much related to use, especially by heavy trucks. The condition of transit buses declines quickly because of the hundreds of thousands of miles that they travel in stop-and-go conditions. Even sidewalks and multipurpose trails deteriorate through seasonal cycles. There are two action strategies related to the Metro Vision system preservation policy:

System Preservation: Metro Vision Transportation Policies and Action Strategies

Policy #1. System Preservation. Assure the preservation and maintenance of existing facilities.

- Allocate transportation funds to cost-effectively maintain existing and future transportation infrastructure so as to protect the serviceability of previous investments; and
- Develop and apply asset management principles and techniques for maintaining existing transportation infrastructure.

Roadway System Preservation

In 2006, more than 15 percent of the region's bridges were rated as structurally deficient and there were 104 structures in the region with a sufficiency rating below 50 (on a 100 scale). There will be about 1,275 bridges in the region more than 50 years old by 2035. Of the more than 3,900 lane-miles of state highway in the region, approximately 30 percent have a "poor" surface condition.

Over the life of the plan, major reconstruction projects are needed in most corridors of the region and the costs are steadily rising. For example, many freeways and arterials are so heavily used during daylight hours that lane closures for repairs are acceptable only at night. Night work increases construction costs. In many locations, the complete reconstruction of major facilities is most feasible if the roadway is being widened, as "new" permanent pavement may serve as a detour while the "old" pavement is removed and replaced. The regional roadway system presented assumes that many older roadways targeted for additional through-lanes will be reconstructed coincident with adding that capacity.

The resources required to maintain and preserve the existing system will be substantial. To optimize these activities, the 2035 MVRTP embraces an asset management philosophy, comprised of two major actions--the collection of condition information (recurring over time) and the analysis of that data to optimize and prioritize actions. CDOT has generally assumed the responsibility for data collection for all roadway bridges and a management system for bridge structures on state highways. CDOT also gathers pavement condition data on state highways and National Highway System (NHS) roadways, and has developed a pavement management system. Local governments will embrace the underlying system philosophy and use these or similar tools to effectively manage their infrastructure.

Transit System Preservation

Maintenance of transit stations, on-street boarding stops and vehicles is critical to passenger comfort and transit service reliability. Stations or vehicles in poor condition (e.g., torn seats, broken wheelchair lifts, or poor temperature control) affect the comfort of the transit patrons. On-street boarding locations that fall into disrepair with uneven or missing pavements affect safety and accessibility. Vehicle breakdowns may cause severe hardships to transit patrons, affecting future ridership. Continued support of ongoing vehicle maintenance and replacement programs is emphasized in the 2035 MVRTP.

Maintenance of transit operational facilities including park-n-Ride lots, rail lines and bus-only malls and ramps, is critical to the long-term serviceability of the facilities. Poorly maintained tracks, electrical and signal systems, or pavement may damage vehicles or cause slower operations. In the case of park-n-Ride lots, where private vehicles use the site as well as transit vehicles, deteriorating conditions affect a facility's use, and therefore transit ridership.

Pedestrian and Bicycle Facility Preservation

Communities in the Denver region have invested heavily in sidewalks and an extensive multipurpose trail system. Maintenance of these facilities is needed for the comfort, safety, and retention of users. Tree roots, utility construction, and normal weathering can greatly impact the condition and long-term life of sidewalks and bike paths. Roadway curb and gutter areas adjacent to where bicyclists tend to travel often deteriorate more quickly than the primary travel lanes. This can create dangerous situations that force bicyclists to quickly maneuver around hazards.

L. Safety

In recent years, about 240 people die and about 27,000 are injured in more than 75,000 reported traffic crashes in the Denver region annually. One crash occurs for every 37,000 vehicle trips and, sadly, one fatal crash occurs for every 11,000,000 vehicle trips. 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.

Applicable Metro Vision transportation policies and action strategies are as follows:

Safety: Metro Vision Transportation Policies and Action Strategies

Policy #6. Safety. Develop and maintain a safe transportation system for all of its users.

- Emphasize projects on existing and future facilities that will reduce the likelihood or severity of crashes involving motor vehicles, trains, bicycles, and pedestrians; and
- Support legislation aimed at cost-effectively improving the safety of drivers, passengers, pedestrians, and bicyclists.

Safety Background

Motor vehicles crashes are the most common safety concern regarding the transportation system. As discussed in the DRCOG report, *Overview of Traffic Safety in the Denver Region*, crashes injure or kill drivers, passengers, pedestrians (which include road workers, emergency responders, and stranded motorists), and bicyclists. 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. Both conscious decisions and inattentive driving maneuvers lead to tragic crashes and outcomes. Law enforcement and legislative actions that address transportation safety must be

evaluated and considered by regional communities and lawmakers. Examples of such actions include:

- Drunk driving laws;
- New driver licensing procedures;
- Photo enforcement (speeding and red-light running);
- Safety inspections;
- Work zone and aggressive driver laws;
- Commercial vehicle rules and regulations;
- Enforcement of bicycling and pedestrian laws; and
- Passenger restraint (seat belts and child safety seats).

The benefits of facility improvements that directly or indirectly improve safety must not be undervalued. The 2035 MVRTP strives to reduce and minimize the risk of crashes occurring on the system, and encourages the integrated consideration of roadway, vehicle, and driver elements in a system perspective.

Safety Goals

CDOT's *Strategic Plan for Improving Roadway Safety* contains short-term statewide goals related to safety measures in several different categories. Two of the statewide goals are incorporated in the 2035 MVRTP: 1) to reduce the rate of fatal crashes to 1.0 per 100 million VMT (1.13 in 2005) and 2) to reduce the rate of injury crashes to 65 per 100 million VMT (70.0 in 2005). Because of the urban setting of the Denver region, other specific statewide goals are not as transferable to the region.

Safety Improvements

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 will be identified and implemented, but many physical safety improvements will be built as a component of a larger project. The design of such larger-scale capital, operational, and reconstruction projects will thoroughly consider safety implications and incorporate appropriate features and actions. Design engineers first consider the location, quantity, types, and causes of crashes. These factors along with measures of possible reductions in the number or severity of crashes determine the safety improvements to provide.

Safety will be given due consideration during the development of Transportation Improvement Programs. Projects on roadway segments with higher than average crash experience and a greater likelihood of improvement will be given attention.

Key types of physical safety improvements will include, but are not limited to the following examples:

- Upgrading barriers in freeway medians and between freeways and frontage roads;
- Installing and upgrading traffic control devices such as traffic signals;
- Improving facility geometrics (hills, curves, and sideslopes);
- Building auxiliary lanes for entering/departing traffic;
- Constructing hill-climbing lanes for slow-moving vehicles, especially in the mountainous area;
- Constructing pedestrian over- and underpasses;
- Installing fencing along high-activity railroad and light rail lines;
- Improving sight distances at intersections; and
- Removing fixed objects adjacent to travelways or providing proper protection.

Transportation facilities must be well maintained to preserve good safety performance. The following are key maintenance activities:

- Repainting pavement and crosswalk markings and replacing non-reflective signs;
- Removing debris along roadways, sidewalks, and multipurpose trails;
- Mitigating existing and potential future rockfalls and mudslides;

- Trimming vegetation that impacts sight distances;
- Removing snow and ice;
- Replacing nonreflective signs and maintaining other traffic control devices;
- Repairing uneven manhole covers and replacing drainage grates;
- Repairing buckled sidewalks; and
- Removing permanent (e.g. utility poles) or temporary (e.g. construction materials) obstructions on sidewalks.

M. Security

Residents and visitors will not be afraid to travel in the Denver region. Applicable Metro Vision transportation policies and action strategies are as follows:

Security: Metro Vision Transportation Policies and Action Strategies

Policy #7: Security. Develop and maintain a transportation system that provides increased security for all of its users.

- Assess threats to and vulnerabilities of the transportation system, including consideration of national and regional homeland security initiatives, and establish and implement resolution processes in response;
- Coordinate with federal, state, regional and local agencies to implement elements of the Transportation Systems Sector-Specific Plan (SSP) of the National Infrastructure Protection Plan (NIPP); and
- Develop and implement projects and strategies that enhance security of transportation facilities and users including air and transit passengers, and aid in the efficient movement of people and vehicles during

Security Background

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. Key agencies include:

- **U.S. Department of Homeland Security**
- **Federal Emergency Management Agency**
  - National Incident Management System
- **Colorado Office of Emergency Management (Department of Local Affairs)**
  - Division of Emergency Management
    - Denver Urban Area Security Initiative
    - Transit Watch
    - Colorado North Central All-Hazards Region (also coordinates Homeland Security)
      - *Critical Infrastructure Committee*
      - *Communications Committee*
      - *Evacuation Committee*
        - *Traffic Management Subcommittee*
        - *Shelter and Special Needs Subcommittees*
- **Colorado State Patrol**
  - Office of Preparedness, Security, and Fire Safety
  - Colorado Information Analysis Center
- **County Emergency Managers**

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 Improvements

The security of transportation users, facilities and property will be improved through specific projects and activities such as:

- Coordination between regional transportation planning and regional homeland security planning groups;
- A regional vulnerability assessment to identify critical transportation system infrastructure;
- Coordination with public safety agencies to define and implement critical infrastructure protection requirements, such as:
  - Security cameras on buses and at park-n-Ride lots, transit stations, and major bus stops;
  - Security cameras and other sensors on critical roadway infrastructure;
  - Patrolling of roadways, transit facilities, and airports by law enforcement and private security personnel;
  - Inspection of trucks and railroad tracks; and
  - Screening and security measures at airports.
- In support of emergency management response and recovery, operate and maintain ITS mechanisms to:
  - Monitor roadway and traffic conditions and implement traffic flow adjustments;
  - Distribute information through strategically-located dynamic message signs, highway advisory radio and other means to help direct traffic in an emergency.

N. 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. Each of the airports in the region is directly served by intraregional corridors or regional accessibility roadways.

Applicable Metro Vision transportation policies and action strategies are as follows:

Aviation: Metro Vision Transportation Policies and Action Strategies

Policy #7. Security. Develop and maintain a transportation system that provides increased security for all of its users.
- Coordinate with federal, state, regional and local agencies to implement elements of the Transportation Systems Sector-Specific Plan (SSP) of the National Infrastructure Protection Plan (NIPP); and
- Develop and implement projects and strategies that enhance the security of transportation facilities and users including air and transit passengers, and aid in the efficient movement of people and vehicles during homeland security events.

Policy #10. Interconnections. Improve interconnection of the transportation system within modes, between different modes, and between the metropolitan area and the rest of the state and nation.
- Ensure convenient access to Denver International Airport (DIA) for all modes of travel, and maintain DIA's important role in connecting the Denver region to the rest of the nation;
- Maintain the capacity of DIA and support the provision of capacity enhancements in response to air transportation demands, consistent with original DIA development plans; and
- Support actions to maintain and incrementally improve regional general aviation airport capacity.

Policy #11. Land Use Integration. Implement transportation system components that support Metro Vision's urban growth boundary/area, urban centers, open space, and associated concepts.
- Encourage decisionmakers to consider the mutual effects of airport operations, off-airport activities, and neighboring land uses on each other; and
- Provide a transportation system that supports the region's economic vitality, competitiveness, and sustainability.

Aviation Background

The *2005 Colorado Aviation System Plan* (CASP), prepared by the Colorado Division of Aeronautics, covers the state's system of airports including those in the Denver region except for Denver International Airport, and serves as a partial basis for the aviation element of the 2035 MVRTP. Aviation is discussed in this chapter in terms of four airport categories: air carrier, military, reliever, and general aviation. Air carrier airports offer scheduled passenger service. Military airports support the aviation activity of the various branches of the U. S. Department of Defense. Reliever airports are designated by the Federal Aviation Administration (FAA) to alleviate congestion at commercial airports. Though general aviation activities may occur at all airports, airports are only classified as general aviation if they are not already classified in any of the other categories.

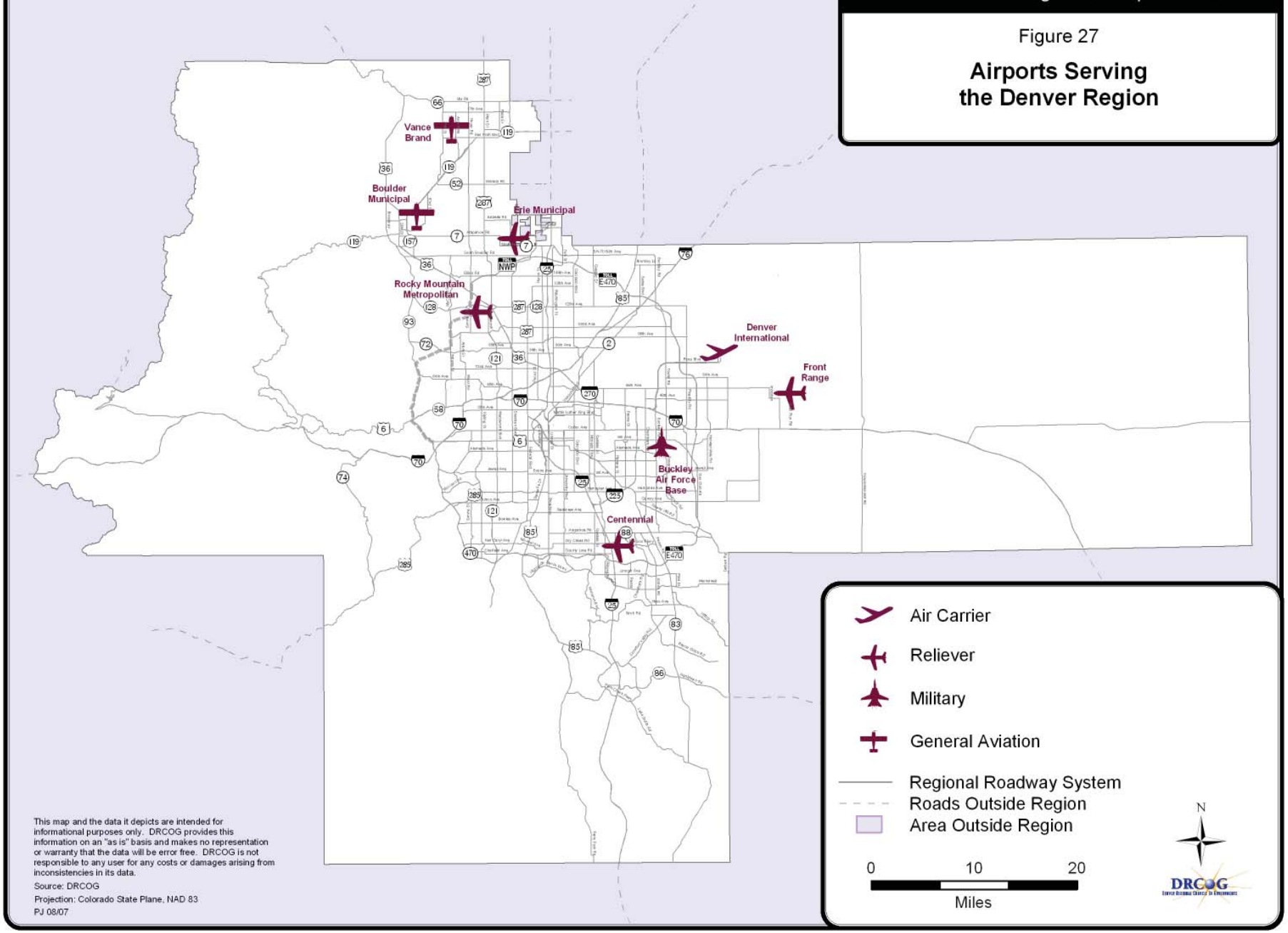
Regional Airport System

The existing public airports will serve the region in the future. No additional airports are formally proposed. The region's 2035 airport system is composed of one air carrier, one military, four reliever, and two general aviation airports (see Figure 27).

2035 Metro Vision Regional Transportation Plan

Figure 27

Airports Serving the Denver Region



This map and the data it depicts are intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no representation or warranty that the data will be error free. DRCOG is not responsible to any user for any costs or damages arising from inconsistencies in its data.

Source: DRCOG

Projection: Colorado State Plane, NAD 83

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Denver International Airport (DIA) services airlines providing scheduled passenger service as well as cargo service. DIA is designed to accommodate aircraft of greater than 75,000 pounds gross weight. DIA's airfield pavement design aircraft is the B747-400, which has a maximum gross takeoff weight of 850,000 pounds. As discussed in Chapter 4, Section G, passenger activity at DIA is expected to more than double by 2035. Air cargo activity is forecast to nearly double by 2035.

The region's only military airport is Buckley Air Force Base (AFB). Buckley AFB supports flights for the Air National Guard and Army National Guard, including the 22 fighter jets and 50 helicopters based there.

The region's relievers are Centennial, Erie Municipal, Front Range, and Rocky Mountain Metropolitan (formerly Jefferson County) airports. Centennial, Front Range and Rocky Mountain Metropolitan airports provide most of the region's corporate air traffic capacity. The three airports currently have runways designed to accommodate aircraft weighing between 12,500 and 75,000 pounds gross weight. Erie Municipal's runway is designed to accommodate aircraft weighing 12,500 pounds.

Boulder Municipal and Vance Brand are the general aviation airports of the region. Boulder Municipal Airport can accommodate aircraft weighing up to 16,000 pounds gross weight and Vance Brand Airport can accommodate aircraft weighing up to 30,000 pounds gross weight. Boulder Municipal Airport will continue to accommodate the majority of the soaring (glider) activity in the metropolitan area.

To accommodate peak-period traffic, airports are normally considered for capacity expansion when they reach 60 percent of design operational capacity. Two of the region's airports are forecast to reach this milestone by 2025. The 2005 CASP reports that, in 2025, Rocky Mountain Metropolitan is expected to be at 88 percent of capacity and Centennial will be operating at 86 percent of capacity.

Centennial Airport is currently operating at 66 percent of capacity. It is the third-busiest general aviation airport in the country. Due to availability of land and compatible land use issues, expansion projects at Centennial are extremely unlikely in the foreseeable future. For this reason, the 2005 CASP proposed the consideration of a new utility airport in the south or southeast metro area to relieve Centennial of some of its light general aviation traffic. If a public entity can be identified to sponsor the development of a new airport, such a facility could help Centennial accommodate the forecast growth in corporate aircraft traffic. However, a new airport is not included in the DRCOG region in the 2035 MVRTP.

While Rocky Mountain Metropolitan is forecast to exceed 60 percent of capacity, expansion is unlikely due to availability of land and compatible land use constraints. Boulder Municipal, Erie Municipal, and Vance Brand airports are expected to operate at less than 50 percent of capacity in 2025, and will, therefore, likely be in a position to accept any light general aviation traffic that might be displaced from Rocky Mountain Metropolitan Airport in the future due to excessive delays.

Air cargo is an important growing activity at DIA. Additional air cargo handling capacity will likely be required before 2035. The likely location for most expansion will be either at DIA and/or Front Range Airport with limited expansion of the type of current services at Rocky Mountain Metropolitan Airport.

Most of the public airports will require expansion of their facilities to keep up with demand and repairs to infrastructure to maintain basic facilities. Several key capital improvements have been identified within the 2035 planning period for each of the airports:

- Denver International Airport
  - Construct up to four new runways and associated parallel taxiways;
  - Extend taxiways;

- Upgrade facilities to permit handling larger aircraft (taxiways and gates);
- Construct deicing pads;
- Expand concourses and gates;
- Improve/expand terminal, automated guideway transit system and baggage handling;
- Construct commuter rail station;
- Expand parking and widen airport roads; and
- Expand cargo and support facilities.

- Boulder Municipal Airport
  - Construct service road; and
  - Rehabilitate runway, taxiway, and ramp.

- Centennial Airport
  - Acquire land for approaches;
  - Rehabilitate runways, taxiways, and adjacent surface pavement areas;
  - Construct new taxiways;
  - Construct de-icing pad; and
  - Pave runway shoulders.

- Erie Municipal Airport
  - Rehabilitate runway lighting system;
  - Install taxiway lighting;
  - Update airport master plan; and
  - Construct hangar.

- Front Range Airport
  - Extend and strengthen Runway 8/26;
  - Relocate self-fuel storage facility and expand fuel farm;
  - Upgrade instrument landing system equipment;
  - Rehabilitate taxiways, ramps, and aprons;
  - Construct perimeter road; and
  - Improve lighting for Taxiway A.

- Rocky Mountain Metropolitan Airport
  - Overlay and widen Runway 11R/29L;
  - Overlay and rehabilitate taxiways and other runways;
  - Realign Airport Road; and
  - Update Airport Master Plan.

- Vance Brand (Longmont) Airport
  - Improve taxiway;
  - Reconstruct airport entrance road;
  - Rehabilitate airfield lighting; and
  - Update Airport Master Plan.

Airports and the Environment

Environmental concerns that can affect airport planning activities are primarily in three areas: noise, water quality, and air quality. Perceived noise impact in areas around airports is typically at the root of local opposition to any airport expansion to meet growing demand. To help reduce perceived and actual aircraft noise impacts in the region, airports should work with the Federal Aviation Administration to develop and implement noise abatement policies and preferential runway programs where possible. Of major importance is the need for airport compatible land use policies in the areas that are potentially affected by airport operations. Local governments need to develop and implement such land use policies that protect the existing airport investment. The DRCOG publication, *Airport Compatible Land Use Design Handbook*, provides some guidelines.

Of the regulated air pollutants, the Colorado PM_{10} and Carbon Monoxide SIPs indicate that aircraft contribute to carbon monoxide and nitrogen oxides (NO_x) emissions. According to those SIPs, aircraft contributed an estimated 3.5 percent of the region's total NOx, and less than 1 percent of the region's total carbon monoxide in 2007. Aircraft also create PM_{10}, SO2, and VOC emissions. The Clean Air Act mandates that jet engine manufacturers meet emissions standards for smoke and hydrocarbons, but tests are not required for carbon monoxide or NOx. Aircraft piston engine emissions are not currently regulated for any pollutants, and standards are not anticipated due to the relatively low emission levels from this source.

5. FISCALLY CONSTRAINED 2035 REGIONAL TRANSPORTATION PLAN

The vision for the future transportation system presented in the previous chapter would cost about $128 billion in 2008 constant dollars. This chapter presents the portions of that plan that could be accomplished with the funds reasonably expected to be available. For this reason, it is called the Fiscally Constrained 2035 Regional Transportation Plan (RTP).

The funding reasonably expected to be available to the DRCOG region has been developed cooperatively in three arenas:

- **Transit**. The RTD FasTracks program has developed a comprehensive assessment of resources available to the entire RTD system. This financial plan is updated regularly and subject to detailed scrutiny by the DRCOG Board.
- **Regional roadways and other state highways**. CDOT's Office of Financial Management and Budget leads a cooperative multi-agency process for developing estimates of long-range funding. This process is documented in the report *Colorado Department of Transportation 2035 Revenue Estimate and Resource Allocation*, adopted by the Colorado Transportation Commission December 14, 2006. This "resource allocation" process identifies "regional funds" available primarily for roadway purposes.
- **Local revenues**. These are estimated by DRCOG staff based on information obtained from and coordination with local governments, special districts, and authorities.

The revenue estimates are presented in more detail later in this chapter. In round terms, in 2008 constant dollars, approximately $88 billion is expected to be available. This is only 69 percent of the amount needed to accomplish the unconstrained plan. Thus, it is evident that the Fiscally Constrained 2035 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 need for additional revenue sources is clear to the region's decisionmakers. Several action strategies have been identified to increase funding to close the gap between the cost of the Metro Vision transportation system and the fiscally constrained revenues:

Transportation Funding Action Strategies

- Encourage the provision of local and private sector funds for use on transportation facilities that primarily serve local and private development access needs;
- Continue to ensure the region receives an equitable distribution of federal and state transportation funds;
- Support local, regional, and state efforts to increase transportation revenues necessary to meet the region's transportation needs, including tolling initiatives as appropriate;
- Actively seek federal discretionary funding for regionally significant transportation projects; and
- Promote cooperation among elected officials, the business community, citizen groups, the Colorado Department of Transportation, and the Regional Transportation District in seeking new funding sources.

The Fiscally Constrained 2035 RTP was prepared by reducing the Metro Vision transportation system to the highest priority projects and pooled expenditures that can be accommodated with future expected revenues. Those projects and expenditures retained in the Fiscally Constrained 2035 RTP provide the greatest transportation benefit to the region in the key multimodal corridors and the most benefit toward implementing the Metro Vision growth and development elements.

The Fiscally Constrained 2035 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 Fiscally Constrained 2035 RTP to receive future federal or state funding. Smaller-scale projects have to be consistent with eligibility standards for the applicable pool category from which they will obtain funding. Funding will be allocated to projects by DRCOG through Transportation Improvement Programs (TIPs) and by CDOT

through State Transportation Improvement Programs (STIPs). Final designs and alignments for federally funded projects must be determined through future 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

Development of the Fiscally Constrained 2035 RTP built from the 2030 RTP and the process used to prepare it. The following steps were followed to develop the Fiscally Constrained 2035 RTP:

- **Costs.** Total Metro Vision transportation needs identified in the 2030 RTP for all expenditure categories were reconsidered, validated, and updated. Cost estimates for regionally funded roadway projects in the Fiscally Constrained 2030 RTP were reviewed in detail. All costs were updated to a 2008 constant dollar basis.
- **Revenues**. Revenues from CDOT, RTD, the U.S. Department of Transportation, local governments, private entities, and other sources were tabulated.
  - Regionally funded roadway projects. Potential new funding sources were considered in the "resource allocation" process, but none were felt to be sufficiently committed to be deemed reasonably expected. The revenue estimates were based on existing sources and include only what could be generated under current law and reasonable economic conditions.
  - Transit. The current RTD FasTracks financial plan includes sales/use tax estimates and funding sources such as bonding, COPS (certificates of participation), and TIFIA loans (a loan from the U.S. Department of Transportation under the Transportation Infrastructure Finance and Innovation Act of 1998) .
  - Local revenues. Local government roadway revenue forecasts were derived from the receipts and expenditure reports provided to CDOT annually. The 1984 through 2005 revenues were converted into 2005 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. Curves were developed for each group and applied to the population forecast for the region. The final results were adjusted to 2008 constant dollars and to year of expenditure dollars.
- **Allocations.**
  - For roadway revenues identified in the "resource allocation" process, allocations to specific CDOT-defined investment categories were adopted by the Transportation Commission after substantial discussion and deliberation. In general terms, there were no major allocation shifts between the resource allocation used for the 2030 plan and that adopted for the 2035 plan. Of the allocations to investment categories potentially available for capital purposes, DRCOG consulted with planning partners to define the share of those regional funds that would be made available to the capital projects that would be identified in the Fiscally Constrained 2035 RTP. No significant reduction to the share for capital projects was endorsed, even though system quality will decrease substantially. This is partly due to the fact that many of the capital projects include reconstruction, and partly due to the observation that even if ALL regional funds were devoted to preservation/maintenance,

it would STILL be insufficient to maintain current conditions.

- 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.

- **Project selection**.
  - Regionally funded roadway capital improvements. The recomputed costs of the roadway capital projects contained in the Fiscally Constrained 2030 RTP were found to exceed the revenues available for them—meaning that not all of the projects in the Fiscally Constrained 2030 RTP could be retained in the Fiscally Constrained 2035 RTP. Since the process used for prioritizing projects to be included in the 2030 RTP was comprehensive and arduous, the DRCOG transportation committees and Board directed that projects not already in the Fiscally Constrained 2030 RTP would not be considered for inclusion in the Fiscally Constrained 2035 RTP. Appendix 3 summarizes the process used to select roadway capital projects to remain in the Fiscally Constrained 2035 RTP. A key addition was use of the congestion mobility score derived from the congestion management process. Approximately $800 million (2008 constant dollars) worth of regionally funded roadway projects in the Fiscally Constrained 2030 RTP had to be dropped for the 2035 RTP to meet fiscal constraint. These projects remain in the vision, but now are identified as unfunded.
  - Transit capital improvements. The regionally significant transit projects identified in the Fiscally Constrained 2030 RTP are those contained within RTD's FasTracks plan. Recently, RTD has identified that costs are escalating and revenues are lagging, and RTD has been working diligently to develop a new financial plan that captures these changes. Under state statute adopted pursuant to Senate Bill 90-208, the MPO has specific powers of review for fixed guideway projects and financing, including revisions thereto, and the protocols established indicate that this review be completed before resultant amendments to the Fiscally Constrained RTP are processed. At the time the 2035 Fiscally Constrained RTP was being developed, RTD had not finalized a revision to the financial plan nor submitted a comprehensive re-examination of the FasTracks plan for review pursuant to Senate Bill 90-208. In concept, FasTracks capital improvements would still be delivered as approved by the voters in November 2004 and the financing plan would be modified to show use of other innovative financing mechanisms to accomplish that. For purposes of the Fiscally Constrained 2035 RTP, regionally significant aspects of the Fiscally Constrained 2030 RTP's transit element were assumed to be implemented without change and no other regionally significant transit projects have been added. The financial plan has been adjusted slightly to reflect 2008 constant dollars.
  - Other transit improvements. A state revenue source, referred to as Senate Bill 97-001, requires expenditure of 10 percent of its revenues for transit purposes. Over the life of the 2035 plan, CDOT estimates this source will generate more than $650 million in 2008 constant dollars for strategic transit projects statewide. At the current time, the Transportation Commission allocates those funds in a "special" short-

range process, and has determined that funds beyond the current allocation will not be allowed to be assumed by individual planning regions as available for long range planning purposes. The Fiscally Constrained 2035 RTP has, therefore, not assumed the availability of such revenues and no specific projects using these funds (other than those previously selected) have been included in the RTP.

- Local improvements. DRCOG surveyed local governments, special districts, and authorities as to their plans for using 100 percent locally derived funds to construct, improve, preserve, maintain, and operate regional and local transportation facilities. Regionally significant projects committed as being built with these local resources were identified.

B. Estimated Revenues and Expenditures

DRCOG, in coordination with CDOT, the Regional Transportation District (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 28-year period of 2008 through 2035. The analysis covers the DRCOG region. Values are presented in two formats; year of generation/ expenditure and constant current (2008) dollars.

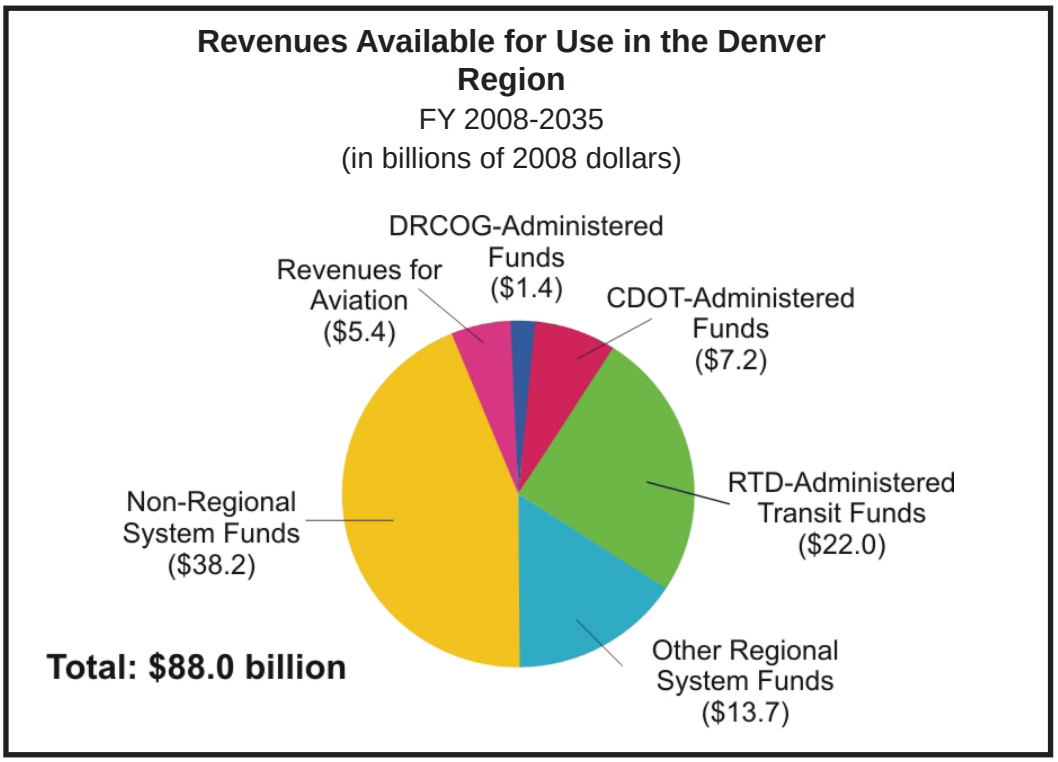
The two values reflect different perspectives in presenting revenues/costs over a long time period under the assumption that construction and maintenance costs will increase. However, revenues typically grow over time as well. Federal planning regulations have recently come to require that fiscally constrained transportation plans state costs in "year of expenditure" (YOE) dollars and demonstrate fiscal constraint by reporting revenues in equivalent terms (year of generation); for example, assuming that $20 million of 2020 revenues is devoted to a project that costs $20 million to build in 2020. Reporting revenues and costs in constant current dollars, the traditional way of reporting these in Colorado, means that the buying power of future years' funds is brought into current terms by application of factors based on anticipated increases in costs. So the project that costs $20 million to build in 2020 might only cost $15 million to build today, and would therefore require the buying power of $15 million expressed in today's revenues. With inflation, revenues/costs presented in year of generation/expenditure are always larger numbers than when presented in constant current dollars.

The CDOT "resource allocation" process and the RTD financial plan process begin by estimating revenues by the year of generation. The constant 2008 dollar estimates are computed from that (see the methodology documented in the *Colorado Department of Transportation 2035 Revenue Forecast and Resource Allocation*). Local resource estimates were generated in current 2008 dollars and were assumed to grow over time for year of generation/expenditure presentation by the factors developed and utilized in the "resource allocation" process.

Revenues

Estimated revenues are illustrated in Figure 28 and detailed in Table 5. RTD will administer the largest share of revenues, nearly $22 billion in 2008 constant dollars ($33 billion in YOE dollars). The largest individual funding source is RTD, which is estimated to generate non-federal revenues of nearly $20 billion in 2008 constant dollars ($30 billion YOE). Of this amount, $17 billion is estimated to be generated by the RTD sales and use tax, and $2 billion (2008 constant dollars) through farebox revenues. These revenue

Figure 28


Revenues Available for Use in the Denver Region
FY 2008-2035
(in billions of 2008 dollars)
DRCOG-Administered Funds ($1.4)
Revenues for Aviation ($5.4)
CDOT-Administered Funds ($7.2)
RTD-Administered Transit Funds ($22.0)
Non-Regional System Funds ($38.2)
Other Regional System Funds ($13.7)
Total: $88.0 billion

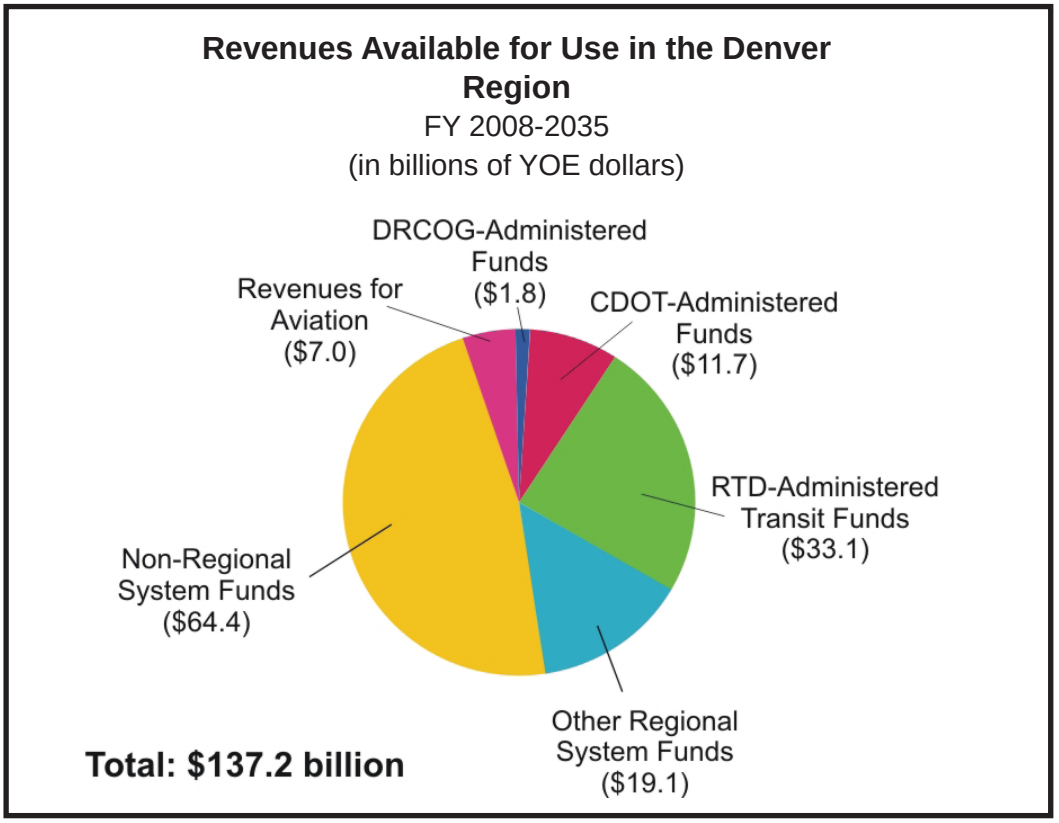

Revenues Available for Use in the Denver Region
FY 2008-2035
(in billions of YOE dollars)
DRCOG-Administered Funds ($1.8)
Revenues for Aviation ($7.0)
CDOT-Administered Funds ($11.7)
RTD-Administered Transit Funds ($33.1)
Non-Regional System Funds ($64.4)
Other Regional System Funds ($19.1)
Total: $137.2 billion

Table 5
Fiscally Constrained 2035 RTP Revenues
(Total from 2008 to 2035)

Funding Source/Administrator	Revenues ($ millions, rounded) Constant (FY08 $)	Inflated (YOE $)
DRCOG Administrated Funds		
STP-Metro	$ 575	$ 740
Local Match/Overmatch for STP-Metro	$ 210	$ 285
STP-Enhancement	$ 95	$ 120
Local Match/Overmatch for STP-Enhancement	$ 60	$ 70
Congestion Mitigation/Air Quality (CMAQ)	$ 415	$ 530
Local Match/Overmatch for CMAQ	$ 80	$ 105
DRCOG subtotal:	**$1,435**	**$1,850**
CDOT Administered Funds		
Strategic Projects (current 7th Pot)	$ 1,085	$1,765
Strategic Projects after 7th Pot	$ 1,490	$3,165
Surface Treatment Program	$ 1,175	$1,995
Bridge Programs	$ 495	$ 735
System Quality Maintenance/Tunnels	$ 780	$1,025
Congestion Relief Program	$ 180	$ 315
Mobility Maintenance (snow & ice)	$ 335	$ 440
Gaming	$ 195	$ 325
Safety Programs	$ 725	$ 945
Program Delivery	$ 350	$ 460
Regional Priority Program (RPP)	$ 275	$ 345
Local Participation in CDOT Projects	$ 40	$ 60
FTA Specialized Transit Programs (5310, 5311, 5316, 5317)	$ 115	$ 135
CDOT subtotals:	**$7,225**	**$11,700**
RTD Administered Funds		
RTD Sales and Use Tax	$17,345	$26,155
Farebox revenues	$ 2,300	$ 3,470
FTA New Starts	$ 1,140	$ 1,720
FTA Formula Funds (5307,5309, 5316, 5317)	$ 1,070	$ 1,615
Other RTD revenues	$ 140	$ 175
RTD Subtotal:	**$21,975**	**$33,105**
Other Revenues for Regional System		
Local/Private Funding for System Improvements	$ 2,160	$ 2,860
Local Funding for Regional System Operations & Preservation	$ 7,445	$10,555
Toll Funding for System Improvements	$ 440	$ 630
Toll Authority Funding for Preservation, Operations, & Debt	$ 2,645	$ 3,625
Local Funding for Transit Operations	$ 590	$ 765
Local & GOCO Lottery Funding for Bike/Ped	$ 420	$ 665
Other Regional System Subtotal:	**$13,245**	**$18,845**
Revenues for Non-Regional Facilities*		
Federal Forest/Lands Program	$ 10	$ 15
Local/Private Funds for Non-Regional Facilites	$27,880	$47,035
Local Funds for Non-Regional System Preservation	$10,290	$17,360
Non Regional Subtotal:	**$39,360**	**$66,440**
Revenues for Aviation	**$** 5,445	$7,045
Grand Total:	**$88,000**	**$137,250**

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

estimates do not assume an increase in RTD's basic sales tax rate. They do assume that transit fares will be increased in line with inflation.

The second largest allocation of funds, $7.2 billion in 2008 constant dollars ($11.7 billion in YOE dollars), will be administered by CDOT. Federal and state fuel taxes are the primary source. About 30 percent of the CDOT-administered revenues will originate from Federal Highway Administration (FHWA) formula sources (Surface Transportation Program, Interstate Maintenance, National Highway System, Bridge, etc.). CDOT combines all of the federal funds with state funds and then redistributes them through several categories as shown in Table 5. All federal funds expended in the Denver TMA must be approved by DRCOG for inclusion in six-year TIPs.

DRCOG will administer and select projects for three FHWA formula categories. Excluding match, these total approximately $1.1 billion in constant 2008 dollars ($1.4 billion in YOE dollars). STP-Metro funds can be used on a wide variety of project types, most commonly on roadway improvements. STP-Enhancement 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 primarily to improving air quality. Example CMAQ projects include:

- DRCOG RideArrangers 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; 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 $14 billion in revenues in 2008 constant dollars ($20 billion in YOE dollars) to complete projects on and preserve and operate the regional transportation system. Some of these are reported in Table 5 as local match to DRCOG or CDOT-administered funds. An additional $38 billion in 2008 constant dollars 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 Recreational Trails Program and the Transportation and Community and System Preservation Program (TCSP). Projects chosen to receive funding from these programs must be included in the TIP. The Fiscally Constrained 2035 RTP does not include estimates for these types of revenues nor identify specific projects that might receive them. DRCOG will endorse those programs and projects identified in or consistent with the goals and policies of the *Metro Vision 2035 Plan, 2035 MVRTP*, and other plan elements identified in Chapter 1, Section B. In general, projects of this nature are not regionally significant and the awards are not overly large, so RTP amendments may not be needed.

Federal earmarks or discretionary awards are reflected in the Fiscally Constrained 2035 RTP in three ways:

- 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.

- Federal earmarks called out in SAFETEA-LU authorization are assumed to be "already expended" and are not included in the Fiscally Constrained 2035 RTP financial plan. This was done for ease of presentation. SAFETEA-LU earmarks come over the five-year period 2005 through 2009, and earmarked projects are currently in varying stages of implementation. The base assumption is that all SAFETEA-LU earmarks will be completed. These projects are listed in Appendix 4 along with the total earmarks authorized.

- The "resource allocation" process also defined that any future earmarks that would diminish the amount of federal funds expected by the state in the formula programs would not be considered as additional revenue. Depending on the size of such awards, if they are for projects that are not currently specified or inferred in the Fiscally Constrained 2035 RTP, it may be necessary to amend the Fiscally Constrained 2035 RTP to show earmarked projects and remove other projects that had been assumed to be undertaken with "regional revenues." If federal earmarks or discretionary awards are determined to truly be above the estimated formula amounts, an RTP amendment would be processed to include any that are for regionally significant project work. If requested, DRCOG will endorse requests for earmarks or discretionary funds for projects contained in the Fiscally Constrained 2035 RTP. DRCOG may also endorse requests for studies or pre-implementation actions for projects identified in or consistent with Metro Vision 2035 Plan, 2035 MVRTP, and other plan elements identified in Chapter 1, Section B if they do not diminish the amount of federal funds expected by the state in formula programs.

Expenditures

Table 6 displays the estimated needed costs for categories of transportation activities in 2008 constant dollars and the fiscally constrained revenues in 2008 constant dollars that are estimated to be expended through 2035 to address them. Figure 29 displays the surface transportation expenditure categories shown in Table 6. Table 7 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;
5. Debt service payments; and
6. Aviation facilities.

The first 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.

Table 6
Metro Vision Transportation System Costs and Fiscally Constrained 2035 RTP Expenditures
(from 2008 to 2035 in FY '08 $ millions)

System Category		Total Estimated Cost	Fiscally Constrained Expenditures
1. Preservation and Maintenance	**Total**	**$33,400**	**$21,700**
A. Regional Roadway System:			
- Resurfacing, Maintenance		$11,440	$ 7,080
- Toll Operations		$ 730	$ 730
- Road Reconstruction (Specific Projects + Pool)		$ 3,460	$ 1,970
- Bridge (Specific Projects + Pool)		$ 3,610	$ 1,300
B. Off-street Bicycle/Ped Facility Maintenance		$ 35	$ 35
C. Non-regional Roads		$13,460	$10,420
. Non-regional Bridges		$ 640	$ 155
2. Base Transit Service	**Total**	**$15,300**	**$14,700**
-RTD Systems Facilities & Fleet		$ 2,370	$ 2,370
-Base RTD Bus/Rail Service		$10,785	$10,785
-Base RTD Specialized ADA Service		$ 830	$ 830
-Maintain Other Transit Services (E & D, Rural)		$ 1,300	$ 700
3. Management, Operational, & Air Quality	**Total**	**$ 4,900**	**$ 2,300**
-Roadway Operational, Multimodal, RR Grade Separations		$ 1,060	$ 370
-Transportation Management, ITS, Signal Systems		$ 390	$ 270
-Maintain and Operate Management, ITS, Signals		$ 2,800	$ 1,150
-Safety Specific Improvements		$ 410	$ 320
-TDM Program + RideArrangers		$ 150	$ 80
-Air Quality Conformity Programs and Purchases		$ 100	$ 70
4. Capital Improvements-Capacity Expansion	**Total**	**$63,900**	**$39,500**
A. Regional Roadway Systems:			
-Additional GP Lanes		$11,030	$ 3,275
-Interchange (new & upgrade)		$ 2,950	$ 1,370
-Bus/HOV Lanes (Tier 1 + Tier 2)		$ 460	$ 340
-I-70 Mountain		$ 1,500	$ 850
B. New Regional Transit:			
-FasTracks Rapid Transit / BRT stations / DUS		$ 4,510	$ 4,510
-Other Regional Rapid Transit (Tier 2 part)		$ 3,560	$ 0
-Other Conceptual Rapid Transit lines (Tier 3)		$ 3,870	$ 0
-RTD Bus Capital Expansion (FasTracks bus + CMAQ)		$ 570	$ 570
C. Other:			
-New Bicycle/Pedestrian Facilities		$ 1,000	$ 690
-Other Enhancement		$ 50	$ 20
-Front Range Commuter Bus		$ 45	$ 0
-State Intercity Corridors (Tier 2 part)		$ 4,180	$ 0
-Eastern Freight Rail Bypass + UPRR Limon Subd. Improvements		$ 270	$ 0
-New UPRR and BNSF Intermodal + DRIR, Denver, Utah Jct. etc.		$ 980	$ 0
-New Minor Arterials and Collectors		$11,510	$10,510
-New Local (developer) Streets		$17,370	$17,370
-Forest/Fed $		$ 20	$ 10
5. Debt Service (CDOT & RTD)	**Total**	**$ 4,400**	**$ 4,400**
-RTD FasTracks Debt Service		$ 2,725	$ 2,725
-Toll Highway Debt Service		$ 1,670	$ 1,670
6. Aviation Facilities		**$ 6,400**	**$ 5,400**
	GRAND TOTAL	**$128,300**	**$88,000**

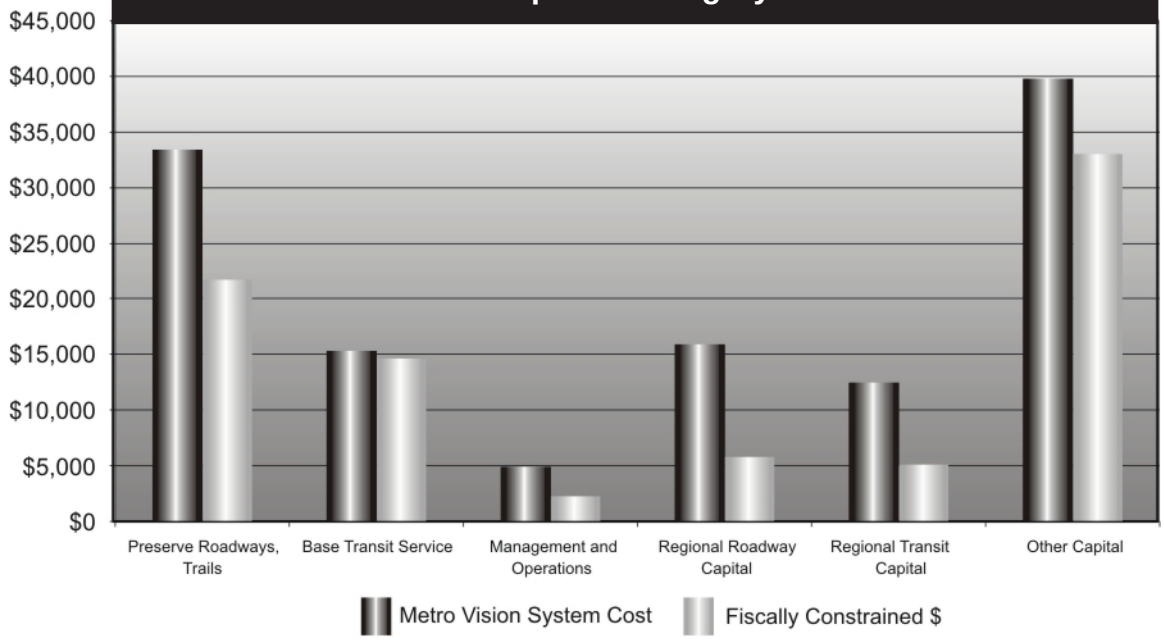
Source: RTD, DRCOG, and CDOT

Table 7
Fiscally Constrained 2035 RTP Expenditures
(from 2008 to 2035 in YOE $ millions)

System Category		Fiscally Constrained Expenditures
1. Preservation and Maintenance	**Total**	**$33,900**
A. Regional Roadway System:		
- Resurfacing, Maintenance		$ 9,610
- Toll Operations		$ 950
- Road Reconstruction (Specific Projects + Pool)		$ 3,300
- Bridge (Specific Projects + Pool)		$ 2,210
B. Off-street Bicycle/Ped Facility Maintenance		$ 60
C. Non-regional Roads		$17,530
. Non-regional Bridges		$ 260
2. Base Transit Service	**Total**	**$22,000**
-RTD Systems Facilities & Fleet		$ 3,570
-Base RTD Bus/Rail Service		$16,260
-Base RTD Specialized ADA Service		$ 1,250
-Maintain Other Transit Services (E & D, Rural)		$ 900
3. Management, Operational, & Air Quality	**Total**	**$ 3,300**
-Roadway Operational, Multimodal, RR Grade Separations		$ 550
-Transportation Management, ITS, Signal Systems		$ 390
-Maintain and Operate Management, ITS, Signals		$ 1,700
-Safety Specific Improvements		$ 430
-TDM Program + RideArrangers		$ 100
-Air Quality Conformity Programs and Purchases		$ 90
4. Capital Improvements-Capacity Expansion	**Total**	**$64,800**
A. Regional Roadway Systems:		
-Additional GP Lanes		$ 5,080
-Interchange (new & upgrade)		$ 2,070
-Bus/HOV Lanes (Tier1 + Tier 2)		$ 570
-I-70 Mountain		$ 1,350
B. New Regional Transit:		
-FasTracks Rapid Transit / BRT stations / DUS		$ 6,790
-Other Regional Rapid Transit (Tier 2 part)		$ 0
-Other Conceptual Rapid Transit lines (Tier 3)		$ 0
-RTD Bus Capital Expansion (FasTracks bus + CMAQ)		$ 850
C. Other:		
-New Bicycle/Pedestrian Facilities		$ 1,000
-Other Enhancement		$ 30
-Front Range Commuter Bus		$ 0
-State Intercity Corridors (Tier 2 part)		$ 0
-Eastern Freight Rail Bypass + UPRR Limon Subd. Improvements		$ 0
-New UPRR and BNSF Intermodal + DRIR, Denver, Utah Jct. etc.		$ 0
-New Minor Arterials and Collectors		$17,730
-New Local (developer) Streets		$29,300
-Forest/Fed $		$ 10
5. Debt Service (CDOT & RTD)	**Total**	**$ 6,300**
-RTD FasTracks Debt Service		$ 4,110
-Toll Highway Debt Service		$ 2,160
6. Aviation Facilities		**$ 7,050**
	GRAND TOTAL	**$137,200**

Source: RTD, DRCOG, and CDOT

Figure 29
2035 Metro Vision Regional Transportation Plan
Total Vision System Cost & Fiscally Constrained Revenues by Expense Category



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

In 2008 constant dollars, approximately 41 percent of the funds expended on transportation will be used for preservation and maintenance of the roadway system and the base transit system. Table 6 details the expenditure of $36 billion in these activities. Of that, about $10.5 billion will be spent to preserve and maintain the regional roadway system, far less than the $19 billion needed. About $10.5 billion will be spent to preserve and maintain non-regional roads and bridges, again less than the $14 billion needed. RTD and other transit operators will spend about $15 billion to provide base transit service. The deficit in base transit service is approximately $500 million, principally for specialized service.

As inferred by the great disparity between needs and fiscally constrained expenditures, roadway system quality will decrease dramatically. As previously discussed, more reasonably anticipated resources could conceivably have been devoted to regional roadway system quality. However, even putting ALL "regional roadway capital" funds to bridge and roadway reconstruction and maintenance activities does not fully address the need. Performance would be substantially below that experienced today. Simply put, current resources are insufficient to maintain the system at a desired level.

Management and Operation of the Roadway System

About $2 billion will be used for operational and safety improvements and management activities to enable more efficient travel on the system. Management and operational strategies (see Chapter 4, Section I) to improve the efficiency and reliability of the roadway system 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 less than half of the identified need.

Travel Demand Management

A little more than half of the envisioned cost for providing travel demand management services will be funded in the Fiscally Constrained 2035 RTP. Extensive services will still be provided with the $80 million in 2008 constant dollars 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 (see Chapter 4, Section J) will be critical to reducing motor vehicle travel demand and offering mobility options.

C. Regional System Improvements

Excluding debt service on bonds, about $11.5 billion in 2008 constant dollars will be available for capacity and other major improvements to the regional surface transportation system. This equates to nearly $18 billion in YOE dollars. Aviation system expenditures will total somewhat more than $5 billion in 2008 constant dollars ($7 billion in YOE).

The characteristics of the fiscally constrained 2035 surface transportation system are compared to the existing 2005 system in Table 8. Table 8 also shows the characteristics for the full unconstrained Metro Vision system described in Chapter 4.

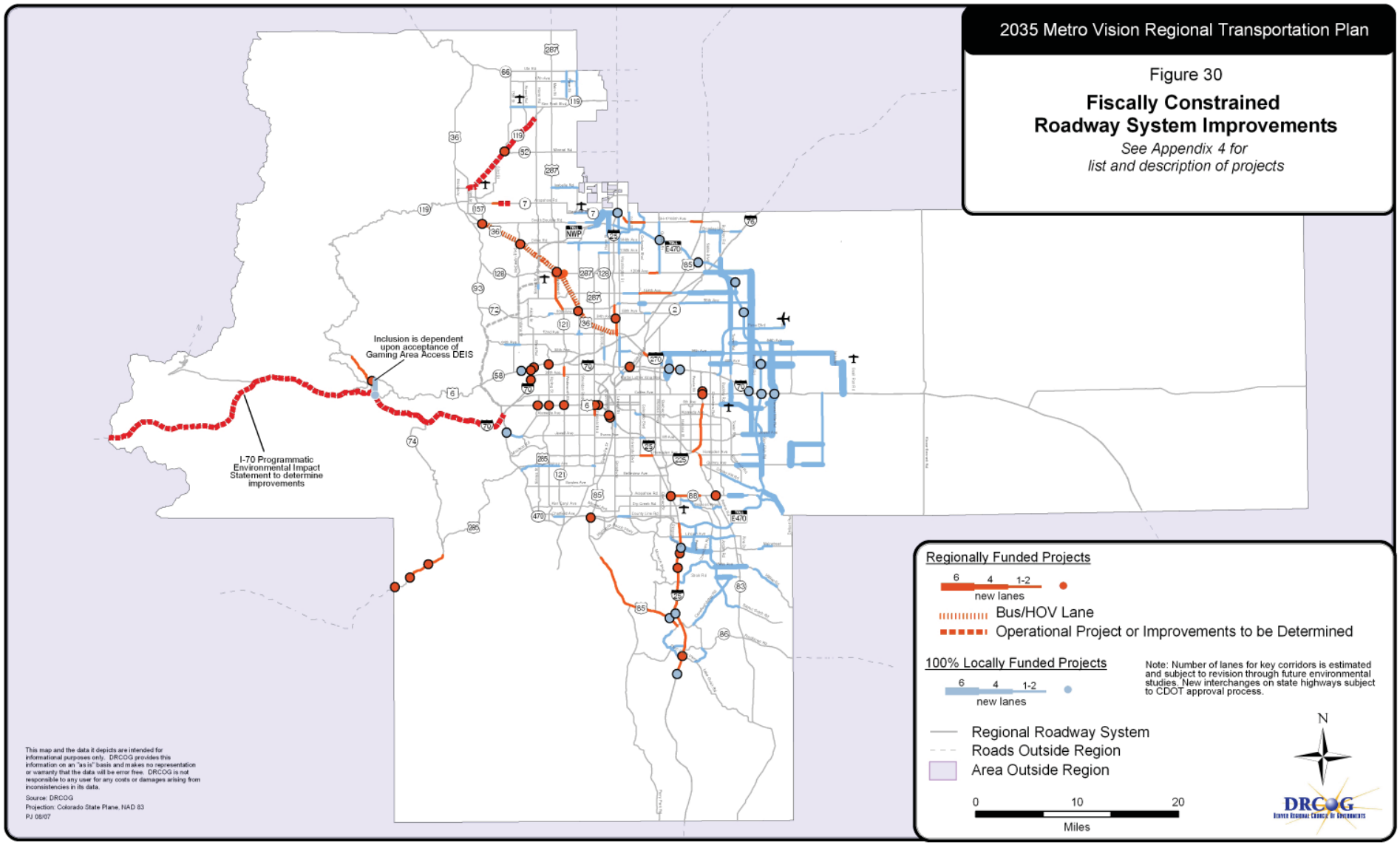
Fiscally Constrained 2035 Roadway System

Regionally significant roadway capacity improvements included in the Fiscally Constrained 2035 RTP are illustrated on Figure 30 and listed in Appendix 4. They are depicted as either regionally funded or funded with 100 percent locally derived revenues. Figure 31 depicts the fiscally constrained roadway system that will result from the improvements. The specific number of lanes and alignment of some roadways are estimated at this time. Final definition will occur in future studies.

Table 8
Fiscally Constrained 2035 RTP System Characteristics

System Characteristic	2005	2035 Fiscally Constrained	2035 Metro Vision
Regional Roadway Lane-Miles (includes reclassified roads)			
Freeways/Tollways	1,752	1,938	2,232
Major Regional Arterials	984	1,101	1,221
Principal Arterials	3,570	4,660	5,113
Total Regional Roadway System	**6,306**	**7,699**	**8,566**
Interchanges			
On Freeways/Tollways	211	224	231
On Major Regional Arterials, not Freeways	22	27	45
Rapid Transit Centerline Miles			
Light Rail	31	52	52
Undetermined Technology	0	99	420
High-Occupancy Vehicle/Bus Facilities	17	36	54
Bus Fleet (fixed-route systems)	1,130	1,480	1,480
Bus Hours (millions in annual revenue service)	2.4	3.3	3.3
Bus Miles (millions in annual revenue service)	36.8	48.3	48.3
Rail Cars	49	311	undetermined
park-n-Ride Lots			
Number	82	113	undetermined
Spaces	21,900	48,800	undetermined

Source: DRCOG for highway, bicycle and airport statistics and rapid transit estimates.
RTD for bus and rail fleet and park-n-Ride estimates.


2035 Metro Vision Regional Transportation Plan
Figure 30
Fiscally Constrained
Roadway System Improvements
See Appendix 4 for
list and description of projects
Inclusion is dependent upon acceptance of Gaming Area Access DEIS
I-70 Programmatic Environmental Impact Statement to determine improvements
Regionally Funded Projects
6 4 1-2
new lanes
Bus/HOV Lane
Operational Project or Improvements to be Determined
100% Locally Funded Projects
6 4 1-2
new lanes
Note: Number of lanes for key corridors is estimated and subject to revision through future environmental studies. New interchanges on state highways subject to CDOT approval process.
Regional Roadway System
Roads Outside Region
Area Outside Region
0 10 20
Miles
N
DRCOG
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Source: DRCOG
Projection: Colorado State Plane, NAD 83
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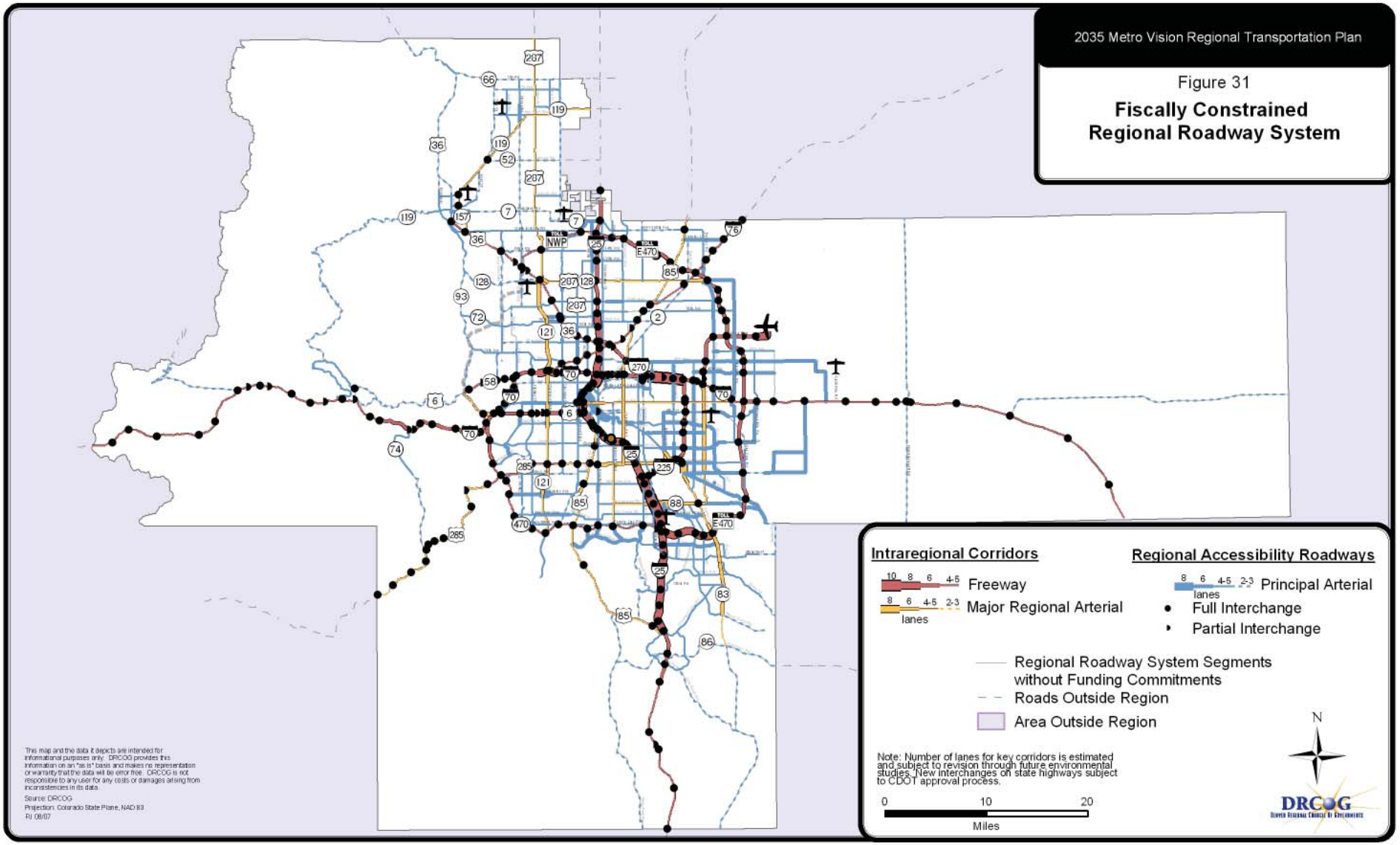
2035 Metro Vision Regional Transportation Plan
Figure 31
Fiscally Constrained
Regional Roadway System
Intraregional Corridors
10 8 6 4-5 Freeway
8 6 4-5 2-3 lanes Major Regional Arterial
Regional Accessibility Roadways
8 6 4-5 2-3 lanes Principal Arterial
Full Interchange
Partial Interchange
Regional Roadway System Segments without Funding Commitments
Roads Outside Region
Area Outside Region
Note: Number of lanes for key corridors is estimated and subject to revision through future environmental studies. New interchanges on state highways subject to CDOT approval process.
0 10 20
Miles
N
DRCOG
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Source: DRCOG
Projection: Colorado State Plane, NAD 83
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The key fiscally constrained roadway improvements are presented below, arranged by the transportation vision concept categories presented in Chapter 3 and assigned to the specific roadways.

Statewide Connector Roadways

- I-70 in Clear Creek County and western Jefferson County (undetermined improvements);
- US-285 widening from Richmond Hill to Shaffers Crossing; and
- US-285 grade-separated intersections:
  - US-285/Shaffers Crossing (constructed with FY2007 and earlier funds)
  - US-285/ Pine Junction;

Intraregional Corridor Roadways

Freeways:
- I-225 widening from Parker Road to 6th Avenue;
- I-25 widening from US-36 to Thornton Parkway;
- US-36 widening from 96th Street to East Flatiron exit;
- I-25 widening in Douglas County;
- I-270 widening from Vasquez Boulevard to Quebec Street;
- I-70 viaduct replacement (partial) from Brighton Boulevard to Colorado Boulevard;
- I-70 widening from I-270 to Havana Street;
- Pena Boulevard widening from I-70 to DIA;
- Bus/HOV lane along US-36 from Boulder to I-25. This project will also include bus rapid transit (BRT) accommodations such as slip ramps to transit stations; and
- E-470 widening from I-25 south to I-25 north.

New Freeway Interchanges:
- C-470/Alameda Parkway;
- I-25/Douglas Lane;
- I-25/North Meadows Drive;
- I-25/Ridgegate (includes some SAFETEA-LU earmark funds);
- I-70/Harvest Mile Road;
- SH-58/Cabela Drive; and
- E-470 at 48th Avenue, 88th Avenue, 112th Avenue, Potomac Street, and Quebec Street.

New Movements at Freeway Interchanges:
- I-70/SH-58;
- I-70/ Central Park Boulevard/Havana (system-level feasibility study approval by CDOT is pending);
- I-225/Colfax/17th Ave.;
- I-70/Picadilly/Colfax; and
- US-36/Wadsworth Boulevard/120th Avenue.

Major Improvements of Freeway Interchanges
- I-25 at SH-7, Alameda/Santa Fe, and Arapahoe Road;
- I-70 at 32nd Ave., 44th Ave/Ward Rd., Kipling, Vasquez, and E-470;
- US-6 at Simms, Kipling, Wadsworth, and Federal;
- US-36 at Table Mesa, McCaslin, and Sheridan; and
- C-470 at Santa Fe.

Elimination of Freeway Interchanges
- US-6/Bryant;
- I-25/Surrey Ridge Road; and
- I-25/Schweiger Road.

Major Regional Arterial Roadways:
- 120th Avenue widening from Holly Street to Quebec Street;
- Arapahoe Road widening (SH-88) from I-25 to Potomac Street;
- US-85 widening from Castle Rock to Titan Road;
- Wadsworth Boulevard widening from 36th Avenue to 46th Avenue and from 92nd Avenue to SH-128;
- SH-119 operational improvements from Foothills Parkway to Hover Road;
- Parker Road widening (SH-83) from Quincy Avenue to Hampden Avenue;
- Hampden Avenue widening from Colorado Boulevard to I-25 and from Dayton Street to Havana Street; and

- Railroad grade-separation on Wadsworth Boulevard at Grandview Avenue (under construction with FY2007 and previous year funds).

Major Regional Arterial Grade-Separated Intersections:
- Arapahoe Road (SH-88)/Parker Road (SH-83);
- Longmont Diagonal (SH-119)/Mineral Road (SH-52); and
- US-85/ North Meadows Drive.

Regional Accessibility Roadways (Principal Arterials)

About 285 lane-miles of new principal arterial roadways are planned for construction as part of the Fiscally Constrained 2035 RTP. About 805 lane-miles will be added to existing facilities through widening projects. 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 Fiscally Constrained 2035 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 (Figure 30) but are eligible for future TIP funding from the following categories:

- Safety;
- Operational;
- Management and ITS;
- Reconstruction; and
- Bridges.

Fiscally Constrained 2035 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 on 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:

- Improvements to I-70 viaduct;
- Widening of I-270, I-25 north of US-36, I-25 south of C-470, I-70 east of I-270, and I-225 north of Parker Road;
- Widening key arterials such as US-85 south of Titan Road, 56th Avenue, Wadsworth Boulevard, and SH-7 east of I-25;
- 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 2035 Improvements that Address System Quality

Practically all of the regionally funded roadway improvements shown on Figure 30 include reconstruction of the current facility and structures in the estimated cost. Obvious exceptions are entirely new roadways (e.g., 120th Avenue connection across US-36) and interchanges (e.g.,

Arapahoe Road/Parker Road). Some of the projects with notable reconstruction aspects include:

- I-70 viaduct replacement (partial) from Brighton Boulevard to Colorado Boulevard;
- I-225 widening from Parker Road to 6th Avenue;
- I-270 widening from Vasquez Boulevard to Quebec Street;
- I-25 widening from US-36 to Thornton Parkway;
- US-285 widening from Richmond Hill to Shaffer's Crossing;
- US-85 widening from Castle Rock to Titan Road; and
- Major improvements of freeway interchanges such as I-25/Alameda/Santa Fe, I-70/Vasquez, US-6/ Wadsworth, US-6/Federal, and US-36/Sheridan.

Fiscally Constrained 2035 Transit System

The rapid transit system contained in the Fiscally Constrained 2035 RTP is depicted on Figure 32 and the improvements are listed in Appendix 4. The Fiscally Constrained 2035 RTP also includes the fixed-route bus network. The park-n-Ride facilities that support the Fiscally Constrained 2035 rapid and bus transit system are shown in Figure 33 and listed in Appendix 2.

Fiscally Constrained 2035 Rapid Transit System

In November 2006, the Southeast Corridor light rail line opened for service. It represents another step toward the completion of the 2035 fiscally constrained rapid transit system depicted in Figure 32. An additional 120 miles of rapid transit lines will be constructed as part of the RTD FasTracks Plan. These additional lines should be completed by 2016. Several major urban centers will be developed around rail stations.

Bus/HOV lanes 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 facility to Boulder along US-36. The US-36 lanes will be enhanced with special stations, ramps, and vehicles to serve as a bus rapid transit (BRT) system. The I-25 Express lanes north of downtown will continue operation as "managed lanes."

2035 Fixed-Route Bus Network and Services

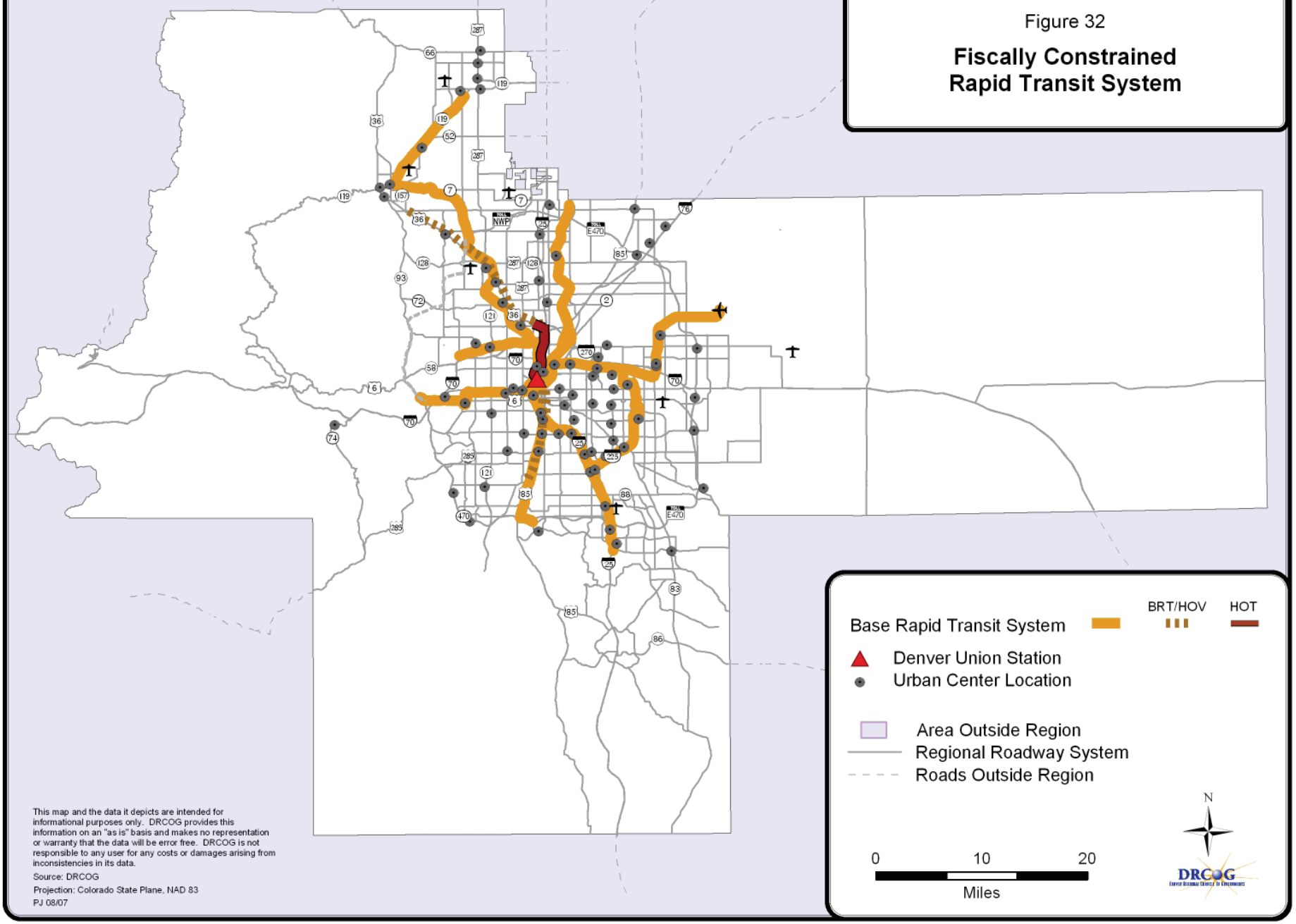
RTD will expand its fixed-route public bus service extensively within its boundary. Fixed-route service includes scheduled regional, express, and local routes. Overall bus service will increase by about 36 percent by 2035 over the service levels provided in 2005. This value accounts for bus routes that will be eliminated or redeployed after rail transit lines open. Key elements of the 2035 system include:

- Increase bus fleet from 1,130 to 1,480;
- 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;
- RTD will facilitate expanded bus service through an integrated system of timed transfer points; and
- Physical and operational improvements (arterial BRT) will be made to multimodal streets that will have high-frequency bus service such as:
  - Colfax Avenue;
  - Colorado Boulevard;
  - Broadway (Denver, Englewood, and Littleton);
  - Broadway (Boulder);
  - Federal Boulevard;
  - Sheridan Boulevard;
  - Alameda Avenue;
  - 28th Street; and
  - Wadsworth Boulevard.

2035 Metro Vision Regional Transportation Plan

Figure 32

Fiscally Constrained Rapid Transit System



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Source: DRCOG

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

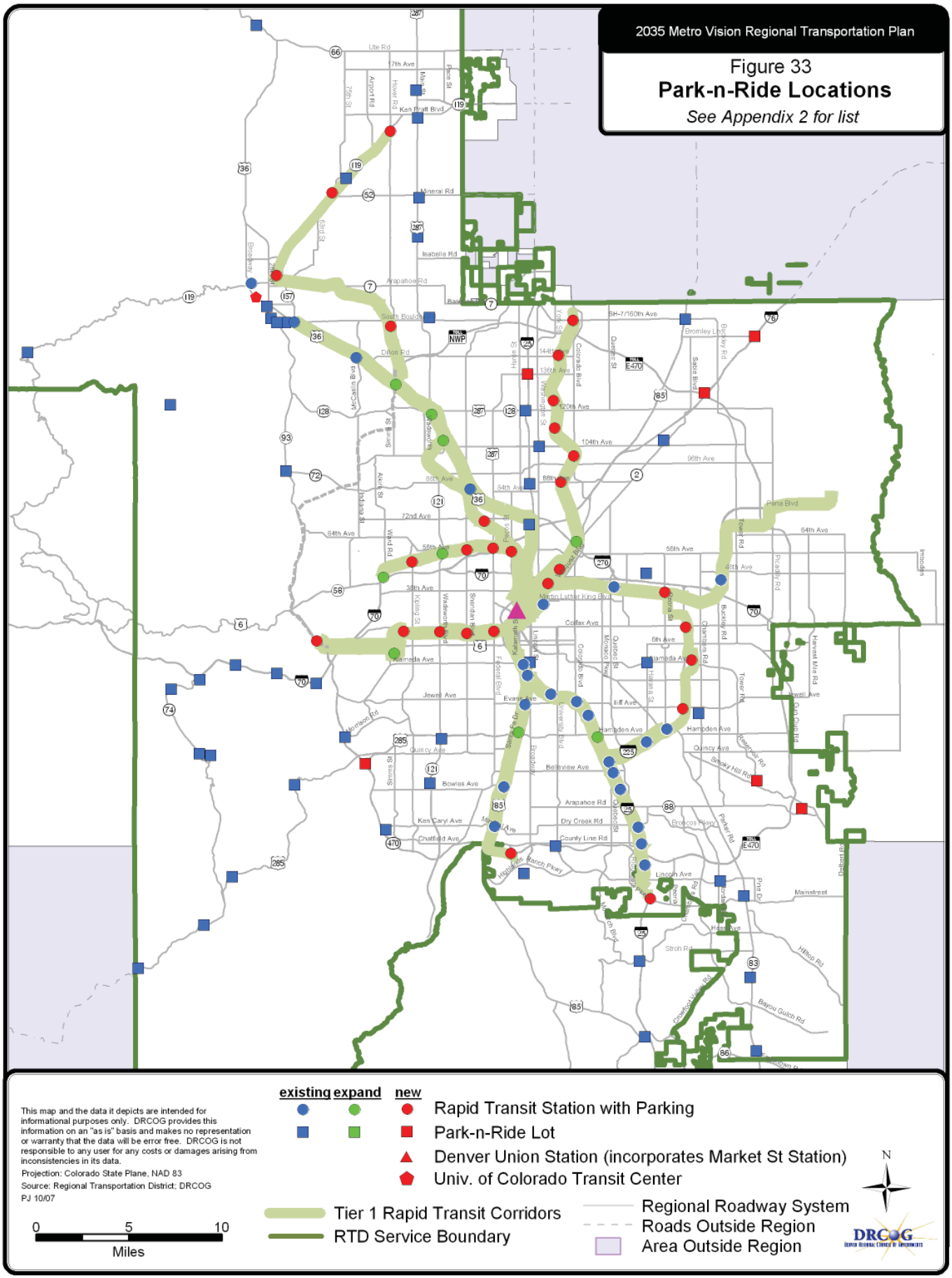
RTD's park-n-Ride lots provide an important place for thousands of patrons to access transit service. They are an integral part of the rapid transit and bus systems. Several existing lots fill up early in the morning each weekday, prohibiting more commuters from using transit. Many new lots will be constructed by 2035 and several existing lots will be expanded (see Figure 33 and listing in Appendix 2). park-n-Ride lots can be associated with rapid transit stations or can serve bus routes only. By 2035 the following fiscally-constrained resources are envisioned:

- 110 RTD park-n-Ride lots (stand-alone and rail stations with parking);
- 2 carpool lots (CDOT-operated);
- 1 non-RTD transit parking facility;
- approximately 48,800 parking spaces; and
- 41 integrated bus timed-transfer points.

In addition to the park-n-Ride transit stations, there are numerous existing and planned stations without parking (see Appendix 2). There are currently 16 transit stations without parking that are located primarily in the urban center of Denver and associated with the Central Corridor and Central Platte Valley light rail line. An additional 14 stations without parking are planned in the FasTracks program.

Over 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.

In order to improve efficiency, new systems will transmit information to variable message signs on the roadways to inform drivers of the availability of spaces 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.


2035 Metro Vision Regional Transportation Plan
Figure 33
Park-n-Ride Locations
See Appendix 2 for list
existing
expand
new
Rapid Transit Station with Parking
Park-n-Ride Lot
Denver Union Station (incorporates Market St Station)
Univ. of Colorado Transit Center
Tier 1 Rapid Transit Corridors
RTD Service Boundary
Regional Roadway System
Roads Outside Region
Area Outside Region
This map and the data it depicts are intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no representation or warranty that the data will be error free. DRCOG is not responsible to any user for any costs or damages arising from inconsistencies in its data.
Projection: Colorado State Plane, NAD 83
Source: Regional Transportation District; DRCOG
PJ 10/07
0
5
10
Miles
N
DRCOG

Fiscally Constrained Aviation

Airport funding for capital projects comes from a number of sources as detailed below:

- The Airport Improvement Program, a federal airport grant program administered by the Federal Aviation Administration (FAA), is funded primarily through user taxes on airline tickets and aviation fuels;
- Passenger facility charges imposed by air carrier airports, subject to FAA approval, are collected by airlines for each passenger who enplanes at the collecting airport, with current DIA charges at $4.50 per enplaned passenger;
- Excise taxes on aviation fuels are charged by the State of Colorado, and 65 percent of the tax revenue collected is returned to the collecting airport to be used for aviation purposes;
- The Colorado Discretionary Aviation Grant Program, administered by the Colorado Aeronautical Board, is funded with the 35 percent of aviation fuels excise tax not returned to the collecting airports. The purpose of the grant program is to benefit the state air transportation system, with individual grants generally limited to $50,000; and
- Airports may also generate operating revenue by implementing fuel flowage fees, landing fees, lease and rental fees, sale of agricultural crops, etc. These revenues can be used to fund the day-to-day operation of the airport, or as local match for state and federal grant programs. Local match can also be provided through the sale of revenue bonds or from local general funds.

Improvements to the region's airport system will be limited to the funds available from the resources identified, and other funding opportunities that may develop. Table 9 lists identified total needs for the region's airports and an estimate of the funds that may be available through 2035. Fiscally constrained funding for the general aviation airports will only allow the completion of a portion of the improvements identified in Chapter 4. Priority will be given to the rehabilitation of runways, taxiways, and safety areas.

Table 9
Identified Metro Vision Costs and Estimated Funds For the Region's Airports (millions of current dollars)

Airport	Projected Needs	Estimated Fiscally Constrained Funds Available
Denver International (DIA)	$5,872.9	$5,353.4
Boulder	$27.9	$11.5
Centennial	$126.9	$22.0
Erie Municipal	$8.5	$6.0
Front Range	$142.8	$21.0
Rocky Mountain Metropolitan	$217.5	$24.0
Vance Brand (Longmont)	$11.6	$8.0
Total	**$6,408.1**	**$5,445.9**

Source: CDOT Division of Aeronautics survey of airports and DIA.

Other Funding Considerations

- Fiscally constrained 2035 roadway system improvements on Figure 31 indicated to be funded with 100 percent locally-derived revenues are not eligible for FHWA formula funds;

- Overmatch incentives for the TIP have historically resulted in a 30 to 40 percent match for non-capacity projects. This level of match has therefore been assumed for such projects in the plan. A 20 percent match has been assumed for STP-Metro or CMAQ-funded roadway/HOV capital improvements;

- Nearly all federal STP-Enhancement funds expected to be available will be used for bicycle and pedestrian improvements. Some enhancement funds will be used for other eligible improvements. Additional bicycle and pedestrian improvements are expected to be part of highway capacity improvements;

- Elderly and disabled 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 5316 funding sources; and

- To demonstrate conformity, interim years of the Fiscally Constrained 2035 RTP must be examined. DRCOG and air quality planners defined these interim years to be 2015, 2020, and 2030. DRCOG, local governments, CDOT, and RTD identified, for modeling purposes, best estimates as to which projects in the Fiscally Constrained 2035 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 identified by the “resource allocation” process. Fro ease of modeling, the regional rapid transit system of Figure 32 was assumed to be fully operational by the 2015 interim stage, with the exception of the US-36 BRT/HOV lane. Appendix 5 identifies the Fiscally Constrained 2035 RTP roadway projects and the staging year the improvements are estimated to be completed. This staging process is neither a guarantee of funding in a certain period nor a limitation. 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.

6. TRANSPORTATION BENEFITS AND IMPACTS

The 2035 Metro Vision Regional Transportation Plan (2035 MVRTP) elements play a major role in improving the quality of life, economy, environmental quality, and mobility for the residents of the Denver region.

The 2035 MVRTP's balanced approach would help:

- Urban centers thrive;
- Focus growth into the urban growth boundary/ area;
- 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; and
- Clean the air for people to breathe and see through.

Negative impacts of the transportation system would be minimized and mitigated for new projects as determined through the environmental and corridor study process.

Funding constraints that currently exist, however, will limit the benefits that will actually be realized. The Fiscally Constrained 2035 RTP will make the best use of insufficient funds to still achieve important benefits, but these benefits will fall short of those envisioned in the 2035 MVRTP.

A. System Performance

This section presents measures comparing the performance of the existing 2005 system with that of the 2035 fiscally constrained system.

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 2005 and 2035 are shown in Table 10. A summary of this information follows:

- The number of person trips will increase at a rate comparable to population growth.
- Vehicle miles traveled will increase at a rate somewhat higher than population 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 20 miles per hour.
- The percentage of miles traveled in severe congestion will double.
- Overall transit tripmaking will more than double. Transit ridership on the rail lines will increase seven-fold.
- Transit-job accessibility for all residents, especially those living in low- income and minority communities, will increase, due primarily to the RTD FasTracks rapid transit and bus improvements.

The condition of the region's roadway infrastructure will also suffer. On the overall state highway system in Colorado, pavement condition is projected to drop from about 37 percent in poor condition now to about 75 percent in poor condition in 2035. CDOT estimates that a more than doubling of revenue is required to maintain pavement condition at today's level. The percent of bridges in poor condition would increase from about 5 percent of all bridges in 2006 to about 50 percent in 2035. The maintenance "level of service" (a performance measure adopted by CDOT to address maintenance actions) would drop from B now to F (failing) by 2016, and continue to "fail" through 2035. CDOT estimates that it would take a near doubling of the CDOT budget (about another $1 billion per year in 2008 constant dollars) to maintain the state highway system quality at its current level of performance, let alone address increasing congestion. System quality for the state highway system in the Denver region is expected to be little different than the state as a whole.

Table 10
2035 Fiscally Constrained RTP Roadway and Transit Performance Measures

System Measures - Weekday DRCOG Region [1]	Existing 2005	2035 Fiscally Constrained	Change From 2005
Population	2,659,000	4,197,000	58%
Employment	1,561,000	2,517,000	61%
Person trips (excluding walk & bicycle)	11,444,000	18,141,000	59%
Vehicle trips	8,572,000	13,696,000	60%
Vehicle miles traveled (VMT)	65,710,000	113,097,000	72%
Vehicle hours traveled (VHT)	1,873,500	3,880,200	107%
Avg. vehicle speed - all day (mph)	35.1	29.1	-17%
Avg. vehicle speed - peak hours (mph)	29.1	19.5	-33%
Person miles traveled (excludes transit)	89,891,000	153,081,000	70%
Person hours traveled (excludes transit)	2,563,000	5,252,000	105%
Rail transit trips (boardings)	31,600	232,500	636%
Total transit trips (linked trips)	219,600	467,600	113%
Person miles traveled on transit	1,179,000	2,991,000	154%
Transit share of all daily trips	2.2%	2.9%	
Transit share of daily work trips	4.9%	6.5%	
Share of total population with good transit-job accessibility (2)	38%	43%	
Share of population in low-income or minority areas with good transit-job accessibility (2)	64%	83%	
Roadways with 3+ hours of severe congestion (lane-miles)	1,200	3,600	203.1%
Vehicle hours of delay	242,800	1,099,190	352.7%
Percent of VMT in severe congestion	14.9%	30.5%	

(1) - Reported for DRCOG model area, which is larger than Denver TMA and smaller than entire DRCOG region. Source - DRCOG Travel Models: C2_07_05Base, C2_07_2035RTP
(2) - Good accessibilty = 100,000+ jobs within a 55-minute transit trip

Energy Consumption

The following Metro Vision transportation policies and actions strategies address energy consumption:

Energy: Metro Vision Transportation Policies and Action Strategies

Policy #14. Environmental Quality. Develop a transportation system that protects and enhances the environment.

- Prioritize transportation system improvements that minimize transportation-related fuel consumption and air pollutant emissions; and
- Encourage the use of alternative fuel sources and clean-burning technology and the provision of supporting infrastructure and services for alternative fuels.

Direct energy impacts of the transportation system derive from the energy consumed by vehicles using the system--automobiles, trucks, buses and trains. Indirect impacts include energy used by equipment constructing and maintaining the system.

Direct energy consumption by motorists in 2035 will be dependent on seven key factors, the last three of which are very hard to predict:

- Growth in vehicle miles traveled;
- Level of traffic congestion and frequency of stop-and-go driving;
- Availability and convenience of transit, shared-rides, and nonmotorized travel modes;
- Fuel efficiency of the overall motor vehicle fleet;
- Price of fuel;
- Supply of fuel; and
- Use of alternative fuels.

Direct energy consumption by the transit system in 2035 would require consideration of similar factors.

Using a methodology promulgated by FTA ("Reporting Instructions for the Section 5309 New Starts Criteria"), the direct energy consumption associated with the Fiscally Constrained 2035 RTP is about 760 billion BTU/day in 2035, compared to 435 billion BTU/day in 2005. This computation assumes no radical changes to price or supply of fuel. (Note: energy consumption in the United States in 2005 was approximately 275 trillion BTU/day).

The 2035 regional transportation system in conjunction with Metro Vision's growth and development elements will reduce the growth in VMT. The 2035 RTP also contains many other strategies and facility assumptions 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. Transit system, TDM, bicycle, and pedestrian improvements will provide alternative means of travel to single-occupant vehicles.

Safety

There will likely be many more annual crashes in 2035 than today, simply because of the growth in population and travel. If the rate of crashes per VMT remains unchanged from the 2004 rate, the number of annual reported crashes will increase from more than 76,000 in 2004 to over 130,000 in 2035. The number and severity of crashes in the future will also be dependent on legislative, law enforcement, and social actions.

B. Environmental Justice

An important consideration for the 2035 MVRTP is the impact of its elements on the minority and low-income populations of the Denver region. The applicable Metro Vision transportation policy and action strategies are:

Environmental Justice: Metro Vision Transportation Policies and Action Strategies

Policy #13. **Transportation for the Disadvantaged.** Provide a transportation system that considers the needs of and impacts on minority, low-income, elderly, and disabled persons.

- Ensure that minority, low-income, elderly, and disabled households receive a proportionate share of accessibility benefits, travel mode choices, and services from future transportation system improvements and are not disproportionately affected by negative impacts associated with those improvements.

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).

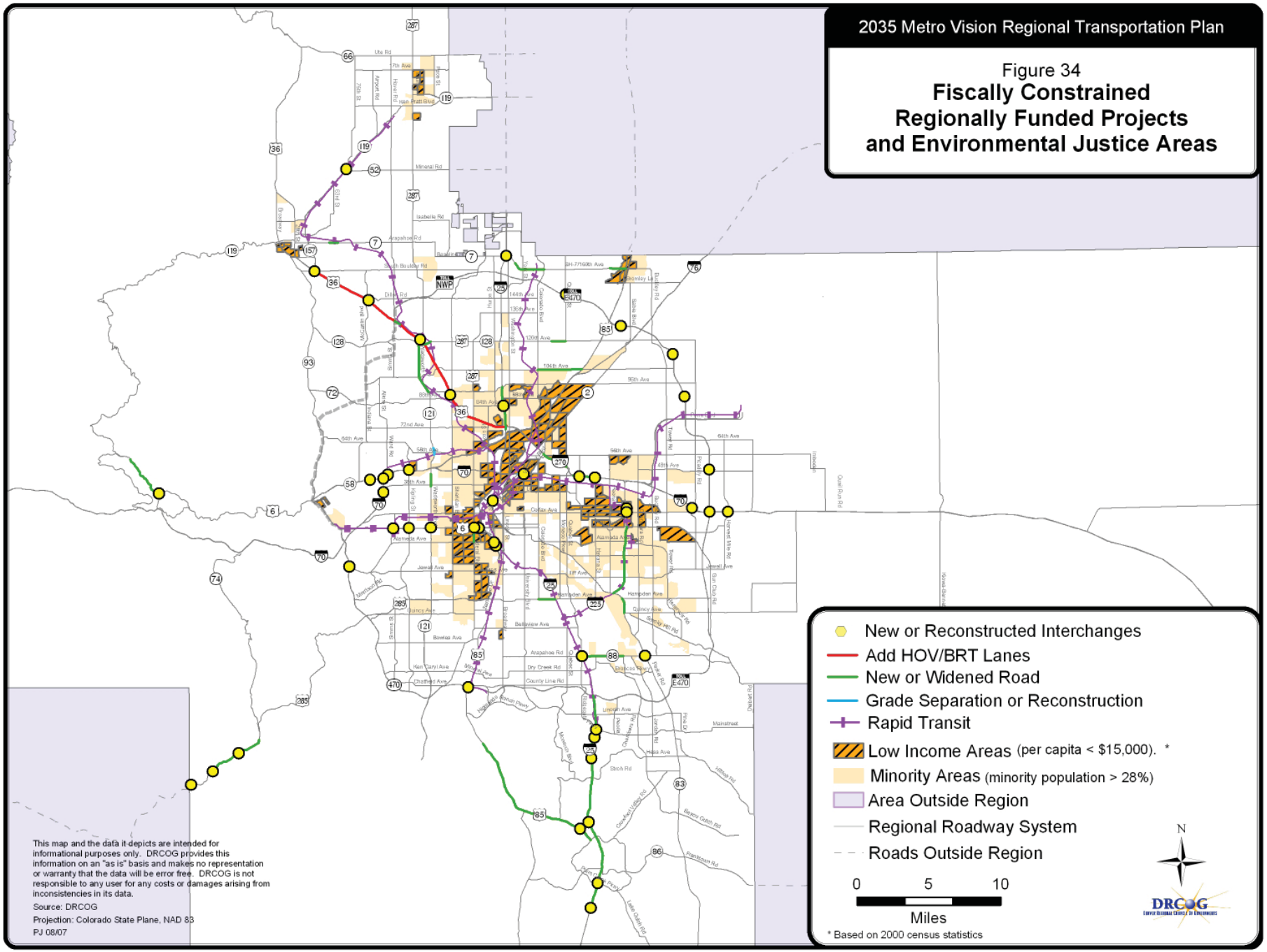
A low-income person means a person whose median household income is at or below the Department of Health and Human Services poverty guidelines. For the 2000 Census, the poverty threshold was approximately $17,000 for a family of four.

Transportation plans and programs (1) must provide a fully inclusive public outreach program (see Chapter 1); (2) should not disproportionately impact minority and low-income communities, and (3) must assure of the receipt of benefits by minority and low-income populations. The 2035 MVRTP (including the Fiscally Constrained 2035 RTP) addresses these three principles and they were considered throughout the decisionmaking process. These principles must also be considered in the project design and implementation phases for future specific projects.

Geographic Concentrations

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 as either “minority” or “low-income concentrated” make up the environmental justice areas of the region. Figure 34 shows the TAZs where, based on the 2000 Census data, the percent of minority population is at or above the regional minority percentage of 28 percent. The minority population is concentrated in census tracts to the north, southwest, and east of the Denver CBD. Other localized concentrations are in Boulder, Brighton, Longmont, and Lafayette.

In preparing TAZ data sets, DRCOG classifies zones based on per capita income (dividing total TAZ income by the TAZ population). The lowest classification (income less than $15,000 in 1999 dollars) is considered to be a reasonable approximation of low-income for use in the environmental justice assessment. Figure 34 also shows these low-income TAZs.


2035 Metro Vision Regional Transportation Plan
Figure 34
Fiscally Constrained
Regionally Funded Projects
and Environmental Justice Areas
New or Reconstructed Interchanges
Add HOV/BRT Lanes
New or Widened Road
Grade Separation or Reconstruction
Rapid Transit
Low Income Areas (per capita < $15,000). *
Minority Areas (minority population > 28%)
Area Outside Region
Regional Roadway System
Roads Outside Region
0 5 10
Miles
* Based on 2000 census statistics
N
DRCOG
This map and the data it depicts are intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no representation or warranty that the data will be error free. DRCOG is not responsible to any user for any costs or damages arising from inconsistencies in its data.
Source: DRCOG
Projection: Colorado State Plane, NAD 83
PJ 08/07

Travel Characteristics

Evaluations of the travel characteristics of the minority and low-income population of the Denver region were conducted based on 2000 census data. The analysis revealed several key factors:

- 66 percent of minority workers drove alone in private vehicles to work;
- Hispanics had the highest carpool rate to work (23 percent);
- Blacks had the highest use of public transit to work (13 percent);
- Whites had the highest drive-alone rate to work (77 percent); and
- Workers with lower incomes were more likely to use public transit or walk to get to work.

Automobile ownership is closely correlated to income. In 2000, about 67,000 households located throughout the Denver region did not have an automobile available. It is important that alternative modes of travel such as public transit, sidewalks and bike paths are provided for the use of residents of these households.

Benefits of the Metro Vision and Fiscally Constrained 2035 RTP

The 2035 MVRTP includes many projects, services, and policies that would improve transportation for people 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.

Fiscally Constrained 2035 RTP Benefits

Figure 34 displays the regionally-funded transportation 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 also be provided through future TIPs. More than half of the anticipated Fiscally Constrained 2035 RTP regional system expenditures will be for public transit and other non-roadway projects and services. It should also be noted that many future road projects would include elements that will benefit non-drivers.

Bus service will increase by about 36 percent through 2035. Six additional rapid transit rail lines and two extensions will be completed by 2016 as part of RTD's FasTracks Plan. BRT/HOV lanes will be added to US-36. The Fiscally Constrained Rapid Transit System, shown in Figure 32, is also displayed on Figure 34 in relationship to environmental justice areas.

Transit accessibility to jobs will greatly improve. Table 10 shows the share of population within the environmental justice areas that would meet the "good transit-job accessibility" criteria in 2005 (64 percent) and under the Fiscally Constrained 2035 RTP (83 percent). The criterion requires having at least 100,000 jobs located within a 55-minute transit trip of home.

Other beneficial components of the Fiscally Constrained 2035 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, if there are common workplaces or school destinations. Road capacity projects that reduce congestion will be of benefit to the majority of minority workers that travel by car to work.

In addition to the extensive transit system that is being planned by RTD, the Fiscally Constrained 2035 RTP provides additional funding sources to serve the needs of the disadvantaged population. FTA Section

5316—Job Access and Reverse Commute Program (JARC) is probably the most significant in terms of providing the most benefit to the environmental justice communities (although it doesn't specifically address minority populations). The JARC Program develops new transportation options for welfare recipients and other low-income individuals to access jobs and to better link urban areas and suburban job sites. The funds can be used for capital purchases, for operating costs, and for promoting the use of transit vouchers and passes. In the Denver-Aurora Urbanized Area, RTD acts as the designated recipient for the funds. The DRCOG region expects to receive more than $30 million in 2008 constant dollars of JARC funds though 2035.

The 2030 MVRTP Transit Element has identified potential transit projects that address job access/ reverse commute needs for JARC funding. The analysis provided an overview of employment areas that appear to be underserved by transit. Specific areas in the region that could be considered for JARC service and funding include:

- Northwest Denver Region—FlatIron Mall area in Broomfield;
- North Denver Region—Retail/service employment areas near I-25/120th Avenue and I-25/104th Avenue;
- East Denver Region—Montbello Industrial Park;
- Southeast Denver Region—Parker Road/ Leetsdale Drive corridor from Colorado Boulevard to I-225;
- Southwest Denver Region—Wadsworth Boulevard/Hampden Avenue intersection; and
- West Denver Region—Denver Federal Center in Lakewood and the Jefferson County Government Center.

Implementation of the full Metro Vision regional transportation system would greatly expand the benefits beyond those of the Fiscally Constrained system. However, additional funding sources must be secured to reach the desired Metro Vision system.

Impacts of the Fiscally Constrained 2035 RTP

The recommendations contained within the Fiscally Constrained 2035 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. Vehicle miles of travel will increase more in areas outside these environmental justice areas than within. Negative impacts of transportation projects, such as construction effects and right-of-way acquisitions, would be associated with the improvements shown in Figure 34 and are not disproportionately located in low-income or minority communities. There are no new major transportation facilities planned that would create new barriers to minority or low-income communities, given that the regional system contains few new roads (primarily improves existing ones) and the FasTracks rapid transit guideways for the most part follow current or former rail alignments or current freeways.

The Fiscally Constrained 2035 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; and
- Fish and wildlife;
- Social, community and economic impact;
- Wetlands; and
- Hazardous materials.

The Fiscally Constrained 2035 RTP transportation system has passed all regional air quality conformity tests required by the federal Environmental Protection Agency and State Implementation Plan for Air Quality.

C. 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, as reflected by the following Metro Vision transportation policies and action strategies:

Environment: Metro Vision Transportation Policies and Action Strategies

Policy #14. Environmental Quality. Develop a transportation system that protects and enhances the environment.

- Prioritize transportation system improvements that minimize transportation-related fuel consumption and air pollutant emissions;
- Promote improvements in roadway construction and street maintenance activities to reduce dust, particulates, and polluted water running off roadways;
- Provide a wide variety of transportation facilities as alternatives to the single-occupant vehicle, including rapid transit, bus service, high-occupancy vehicle (HOV) lanes, and bicycle and pedestrian facilities; and
- Cooperatively develop mitigation strategies with affected regulatory or resource agencies in instances of unavoidable environmental impact.

SAFETEA-LU included new 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.

Appendix 1 contains “corridor visions” describing the growth, development, and transportation visions for each of the 35 key multimodal corridors of the region. These now include detailed statistics on population and employment growth, as well as congestion measures from DRCOG’s Congestion Management Database. They also include a broad overview of selected environmental resources that could be impacted by any proposed transportation improvement. These “environmental overviews” are not intended to be a detailed discussion of specific environmental impacts—as this usually occurs in project development during the formal NEPA process—but are intended to introduce environmental considerations into the regional transportation planning process, and in so doing, more closely link the transportation planning and environmental processes.

The following sequential 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.

More resource-specific mitigation strategies can be found in the *2035 Statewide Transportation Plan Environmental Technical Report* see (http://www.dot.state.co.us/StateWidePlanning/PlansStudies/2035_swp/2035_Environmental_Technical_Report_Draft.pdf). The mitigation strategies described in the Statewide Plan cover all portions of the state; many are applicable to the DRCOG region. Further, CDOT has led much of the required coordination and consultation with the appropriate resource and regulatory agencies and tribes, and incorporated their comments as part of the overall mitigation strategy.

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 of the corridors in the DRCOG region are the site 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 recently issued a Draft Programmatic Cumulative Effects Analysis (PCEA) 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.

D. Air Quality Conformity

The conformity of the Fiscally Constrained 2035 RTP is documented in *Conformity of the Metro Vision Fiscally Constrained 2035 Regional Transportation Plan with the State Implementation Plan for Air Quality*. This conformity document demonstrates the Denver region's timely implementation of adopted Transportation Control Measures (TCMs) and 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 Fiscally Constrained 2035 RTP. A summary of the required emissions tests for the year 2035 follows.

- The Denver Carbon Monoxide Maintenance Plan provides for a budget of 1,600 tons per day within the Denver/Boulder non-attainment area. The 2035 estimate is 1376.8 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 2035 estimate is 36.2 tons per day, which is lower than the budget.

- The Denver PM_{10} State Implementation Plan (SIP) provides for two budgets—55 tons per day of direct PM_{10} emissions and 56 tons per day of nitrogen oxides (NO_x). The 2035 estimate is 45.8 tons per day of direct PM_{10} emissions and 32.1 tons per day of NO_x. Both of these are less than the relevant budgets.
- The Denver Ozone Maintenance Plan provides for two budgets--119 tons per day of volatile organic compounds (VOCs) and 134 tons per day of Nitrogen Oxides (NO_x). The 2035 estimate is 44.5 tons per day of VOC and 33.2 tons per day of NO_x. Both of these are less than the relevant budgets.

All adopted TCMs in adopted SIPs have been implemented. The last TCM, the Southeast Corridor light rail line, opened in 2006. To help assure compliance with the PM_{10} SIP, 31 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.

APPENDICES

APPENDIX 1

Denver Region Multimodal Corridor Visions

(Appendix 1 is presented in its entirety in a companion document)

APPENDIX 2

Park-n-Ride Lots and Stations in 2035

park-n-Ride Lots and Stations in 2035

(The total number of park-n-Rides spaces associated with FasTracks projects is subject to the outcome of each corridor's NEPA process.)

park-n-Ride Facility	Tier 1 Rapid Transit Corridor	Status	Existing Spaces (2007)	New Spaces	Total Spaces
104th Ave	North Metro	new	0	100	100
104th Ave/Washington		current	73	0	73
112th Ave	North Metro	new	0	250	250
124th Ave	North Metro	new	0	250	250
144th Ave	North Metro	new	0	600	600
14th/Walnut		current	302	0	302
162nd Ave	North Metro	new	0	700	700
30th/Downing	Central Corridor	current	27	0	27
30th/Pearl	Northwest Rail Corridor	new	0	600	600
40th/40th	Central Corridor	new	0	400	400
71st/Lowell	Northwest Rail Corridor	new	0	100	100
88th Ave	North Metro	new	0	150	150
Airport Blvd/40th Ave	East Corridor	current	1079	0	1079
Alameda	Central Corridor	current	287	0	287
Arapahoe at Village Center	Southeast Corridor	current	1586	0	1586
Arvada Ridge	Gold Line	new	0	250	250
Aspen Park		current	162	0	162
Aurora City Center	I-225	new	0	200	200
Belleview	Southeast Corridor	current	59	0	59
Bergen Park		current	160	0	160
Broadway		current	308	0	308
Broadway / 27th Way		current	59	0	59
Broadway Marketplace		current	221	0	221
Broomfield	US-36 BRT	expansion	905	750	1655
C-470/Lucent Blvd	Southwest Corridor	new	0	1000	1000
C-470/University		current	440	0	440
Castle Pines Parkway		CDOT	106	0	106
Castle Rock Outlet Mall*		FREX	100	0	100
Church of the Nazarene		current	49	0	49
Coal Creek		current	14	0	14
Colorado	Southeast Corridor	current	363	0	363
County Line	Southeast Corridor	current	388	0	388
Dayton	Southeast Corridor	current	250	0	250
Denver Union Station	Denver Union Station	expansion	385	250	635
Dry Creek	Southeast Corridor	current	235	0	235
E-470/I-76		new	0	280	280
E-470/Smoky Hill Rd		new	0	210	210
El Rancho		current	36	0	36
Englewood	Southwest Corridor	expansion	910	440	1350

park-n-Ride Facility	Tier 1 Rapid Transit Corridor	Status	Existing Spaces (2007)	New Spaces	Total Spaces
Evans	Southwest Corridor	current	99	0	99
Evergreen		current	45	0	45
Federal	Gold Line	new	0	600	600
Federal	West Corridor	new	0	2000	2000
Federal Center	West Corridor	expansion	646	354	1000
Fitzsimons South	I-225	new	0	600	600
Franktown		current	40	0	0
Genesee Park		current	21	0	21
Globeville-Swansea	North Metro	new	0	400	400
Goose Haven		current	19	0	19
Havana/Alameda		current	235	0	235
Highlands Ranch Town Center		current	177	0	177
Himalaya/Smoky Hill		new	0	160	160
Hogback Carpool Lot		CDOT	512	0	512
I-25/136th Ave		new	0	500	500
I-25/Broadway		current	1140	0	1140
I-76/Bromley		new	0	250	250
IBM @ Diagonal Highway	Northwest Rail Corridor	new	0	500	500
Iliff	I-225	new	0	450	450
Jeffco Government Center	West Corridor	new	0	700	700
Ken Caryl/C-470		current	268	0	268
Lafayette		current	136	0	136
Lincoln	Southeast Corridor	current	1734	0	1734
Lincoln/Jordan		current	102	0	102
Littleton Downtown	Southwest Corridor	current	361	0	361
Mineral Station	Southwest Corridor	current	1227	0	1227
Longmont Depot		current	101	0	101
Louisville	Northwest Rail Corridor	new	0	400	400
Lutheran Church of the Cross		current	41	0	41
Lyons		current	27	0	27
Montbello		current	84	0	84
Morrison		current	37	0	37
Nederland		current	75	0	168
Nine Mile	Southeast Corridor	current	1225	0	1225
Oak	West Corridor	new	0	200	200
Olde Town Arvada	Gold Line	expansion	200	400	600
Olympic		current	152	0	152
Orchard	Southeast Corridor	current	48	0	48
Paradise Hills		current	26	0	26
Parker		current	173	0	173
Pecos	Gold Line	new	0	400	400
Peoria/Smith	I-225	new	0	550	550

park-n-Ride Facility	Tier 1 Rapid Transit Corridor	Status	Existing Spaces (2007)	New Spaces	Total Spaces
Pine Junction		current	92	0	92
Pinery		current	79	0	79
Quincy/C-470		new	0	350	350
Ridgegate Parkway	Southeast Corridor	new	0	2000	2000
Roosevelt Park		current	114	0	114
SH-2/104th Ave		current	20	0	20
SH-119/Niwot		current	28	0	28
Sheridan	Gold Line	new	0	400	400
Sheridan	West Corridor	new	0	800	800
Southmoor	Southeast Corridor	expansion	496	292	788
Southwest Plaza		current	200	0	200
Stapleton	East Corridor	current	1769	0	1769
Table Mesa	US-36 BRT	current	824	0	824
Table Mesa Dr / Broadway		current	40	0	40
Tantra Dr		current	105	0	105
Thornton		current	817	0	817
Twin Peaks Mall @ Diagonal Highway*	Northwest Rail Corridor	new	0	100	100
University of Denver Station	Southeast Corridor	current	540	0	540
US 285/Mountain View		current	183	0	183
US 285/Twin Forks		current	77	0	77
US-287/Niwot Rd		current	40	0	40
US 36/Church Ranch	Northwest Rail Corridor	current	396	0	396
US-36/E Flatiron Circle	Northwest Rail Corridor	expansion	264	296	560
US 36/McCaslin	US-36 BRT	current	464	0	464
US 85/72nd Ave	North Metro	expansion	83	417	500
US 85/Bridge St		current	234	0	234
Wadsworth	West Corridor	new	0	1000	1000
Wadsworth/Hampden		current	284	0	284
Wagon Rd		current	1540	0	1540
Ward Rd	Gold Line	expansion	491	20	511
Westminster Center	US-36 BRT	current	1310	0	1310
Wondervu		current	25	0	25
Yale	Southeast Corridor	current	129	0	129

*100 parking spaces available to transit riders under a lease agreement with the mall.

Transit Stations without Parking		
Station Location	Tier 1 Rapid Transit Corridor	Status
10th/Osage	Central Corridor	current
14th/California	Central Corridor	current
14th/Stout	Central Corridor	current
16th/California	Central Corridor	current
16th/Stout	Central Corridor	current
18th/California	Central Corridor	current
18th/Stout	Central Corridor	current
20th/Welton	Central Corridor	current
25th/Welton	Central Corridor	current
27th/Welton	Central Corridor	current
29th/Welton	Central Corridor	current
38th Ave	Gold Line	new
4th Ave	I-225	new
Auraria	Central Corridor	current
Auraria West	Central Platte Valley	current
Bates	Southwest Corridor	new
City Center/Exposition	I-225	new
DIA	East Corridor	new
Fitzsimons Commons	I-225	new
Garrison	West Corridor	new
Invesco Field	Central Platte Valley	current
Knox	West Corridor	new
Lamar	West Corridor	new
Lone Tree Town Center	Southeast Corridor	new
Louisiana-Pearl	Southeast Corridor	new
Oxford	Southwest Corridor	current
Pepsi Center	Central Platte Valley	current
Perry	West Corridor	new
Red Rocks Community College	West Corridor	new
Sky Ridge	Southeast Corridor	new

APPENDIX 3

Roadway Capacity Improvements Selection Process

Roadway Improvement Prioritization

The costs of the remaining regionally funded projects in the Fiscally Constrained 2030 Regional Transportation Plan were recomputed to 2008 constant dollars and compared with the anticipated available revenues. This led to the realization that not all 2030 RTP projects could be retained in the 2035 RTP. Since the process for prioritizing projects in the 2030 RTP had been comprehensive and arduous, guidance from the DRCOG transportation committees was to NOT consider any projects not already in the fiscally constrained 2030 RTP as candidates for the fiscally constrained 2035 RTP.

The prioritization process used for the fiscally constrained 2030 RTP began with all new roadways and interchanges and regionally significant improvements (widening and major interchange improvements) needed to implement the Metro Vision transportation system. A three-step prioritization process for selecting improvements was developed and used:

- Priority #1 - Previous DRCOG Board commitments in the TIP and CDOT commitments in the STIP;
- Priority #2 - Improvements for which local governments have committed to acquiring 100 percent of the required funds from non-regional sources; and
- Priority #3 - Further improvements selected from a ranked list of individual projects evaluated with a criteria-based scoring system described subsequently.

For the fiscally constrained 2035 RTP, the “scores” from the 2030 process were retained unadjusted EXCEPT:

- Congestion severity was revised such that 50 percent of that score was based on the current congestion score from DRCOG’s congestion management program (computational process described on the following page). The other 50 percent was the previously computed congestion score from the 2030 RTP process based on v/c ratios.
- Cost per person mile traveled was recomputed using the new 2008 constant dollar project cost estimates. using the new 2008 constant dollar project cost estimates.

Congestion Mobility Grade (CMG) Calculation

		Points Assigned per Value of Measure				
Measure	**Factor**	**0 Pts.**	**1 Pt.**	**2 Pts.**	**3 Pts.**	**4 Pts.**
Travel Time Variation (TTV) - Peak / Off-Peak Free-Flow	Variation	< 1.10	1.11 to 1.2	1.21 to 1.5	1.51 to 2.0	2.01 +
# of Hours per day with Severe Congestion	Duration	< 1 hour	1	2	3 to 4	5 +
% of Travel Time in Delay During Peak Hour	Severity	< 5%	5.1 to 10%	10.1 to 30%	31.1 to 50%	51% +
Total Daily Hours of Delay per Mile	Magnitude	< 10 hours	11 to 35	36 to 80	81 to 250	251 +
Crashes per Year per Mile	Reliability	< 25	26 to 50	51 to 75	76 to 125	126 +

Grade	Congestion Score (Total Points)
A	0 to 1
B	2 to 6
C	7 to 10
D	11 to 16
F	17 to 20

When scores were close, consideration was given to projects that included reconstruction elements or were located in strategic corridors. DRCOG staff honored CDOT resource allocations by CDOT region and DRCOG staff also considered "corridor equity". In all, five projects in the fiscally constrained 2030 RTP were not recommended for inclusion in the fiscally constrained 2035 RTP, and projects in three other corridors were retained only after being cut back in length and/or scope. The cuts from the fiscally constrained 2030 RTP total approximately $800 million in constant 2008 dollars.

Evaluation Criteria for Highway Improvements
For Fiscally Constrained 2030 RTP Modeling Network Alternatives

Criteria Category	Point Distribution Process	Maximum Points
1. Congestion Severity *new 2030 E+C model run*	prorate by increments of 1 point based on 8 hour v/c >.75 on existing or parallel facility	35
2. Cost per Person Mile Traveled (PMT) *2030 "with improvements" model run*	prorate by 1 point increments, PMT based on vehicle occupancy factor times VMT (1.4 or 1.5 transit cor.)	15
3. Gap Closure *completes all or part of a lane or segment gap*	10 pts. for full segment gap, 8 pts. for full lane gap, 3 pts. for partial gap closure (no gaps > 3 miles)	10
4. Arterial Roadway Spacing *proximity to parallel roadways*	5 points if nearest parallel arterial is > 3 miles away 2 points if > 1.5 miles away	5
5. Regional System Classification *Improvement to Freeways and MRAs*	4 points for freeway segments 2 points for major regioinal arterial (MRA) segments	4
6. Total Users *2030 "with improvements" model run*	prorate by 1 point increments; users based on vehicle occupancy factor times ADT (1.4 or 1.5 transit cors.) e.g. 1 pt for 30,000+, . . . 4 pts for 150,000+	4
7. Serves Urban Forms *Reasonable applications that are submitted to DRCOG by November 5th*	5 points if project is within or immediately adjacent 3 points if within 1.5 miles	5
8. Safety Measure *current high crash hazard index locations* *injury and fatal crashes factored by 5*	weighted hazard index value (at least 1/4 of project length) 6 points to 10% of projects with highest index 3 points to next 15% of projects	6
9. 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
10. Serve Major Intermodal or High Security Facility *DIA, Union Station, GA airports* *2 intermodal freight terminals, Buckley AFB*	4 points if project is within or immediately adjacent 2 points if within 1.5 miles	4
11. Multimodal Corridor *support of major transit corridors*	new rapid transit corridor or MIS LPA - 10 pts. existing/committed SE, SW, and Central Cor. - 7 pts. High-Volume Bus Corridor - 5 pts.	10
Total Possible Points		**100**

APPENDIX 4

List of Fiscally Constrained 2035 Roadway
and Rapid Transit Capital Improvements and Costs

SAFETEA-LU Earmarks in DRCOG Region

Project Location/Name	Descriptions/Categorization	Authorized Federal Funds ($ million)	Demo IDs (federal reference numbers)
I-25; Douglas County	Transportation improvements. Directed to interchanges. Capital, with local.	$ 9.8	44, 73
I-70/SH-58	Transportation improvements, including rebuilding ramps, new ramps, and ROW. Capital, with regional.	$ 11.0	55, 71
I-70/Havana-Yosemite	Improvements to interchange, including reconstruction. Capital, with local.	$ 7.2	57, 67, 99
I-70 East multimodal	Transportation improvements to highway portion. Reconstruction, with regional.	$ 4.0	50, 79
I-225; Parker Rd to I-70	Transportation improvements including widening and interchange reconstruction. Capital, with regional.	$ 12.0	63, 81
C-470/US-85	Transportation improvements including interchange reconstruction. Capital, with regional.	$ 9.2	58, 84, 102
SH-44/Colorado to SH-2	Improve and widen. Capital, with regional to US-85.	$ 3.2	52
SH-83/SH-88	Transportation improvements including interchange construction. Capital, with regional.	$ 5.2	51, 80
SH-121/Bowles	Transportation improvements including intersection and roadway improvements. Roadway operational, with regional.	$ 3.6	47, 85
SH-121/Grandview	Transportation improvements including construction and architectural improvements at grade separation. Capital, with prior regional.	$ 7.0	39, 69
US-36; I-25 to Boulder	Transportation improvements, including design/build multimodal corridor, interchange and overpass reconstruction, and widen lanes and construct new interchanges. Capital, with regional.	$ 14.1	61, 66, 74, 91
US-36/Wadsworth	Transportation improvements to interchange. Capital, with regional.	$ 5.6	37, 68, 100
US-36/McCaslin	Construction of interchange. Capital, with regional.	$ 0.8	49
US-85/Bromley	Transportation improvements including interchange feasibility study and construction of needed improvements. Assumed roadway operational (no interchange).	$ 2.7	62, 76, 101
56th Ave. & Quebec St.	Improvements to roadways--"phase 1". Capital, with local.	$ 14.2	46, 88, 98
104th Avenue/US-85	Transportation improvements including study, design, and implementation of intersection improvements. Roadway operational.	$ 2.7	43, 77, 111
Pecos Street	Improvements to Overpass. Roadway operational, with regional.	$ 3.0	107
Denver Union Station	Improvements including renovations. Transit.	$ 53.0	97, PNRS
I-70; Denver to Garfield Co	Transportation improvements to West Mountain Corridor. Assumed roadway operational, with regional. <Only a portion of the earmark assumed in DRCOG>	$ 6.2	64, 82

Descriptions/categorization reflect SAFETEA-LU earmark descriptions (combined) and certain assumption of use. In most instances, earmarks alone are unable to implement project described in SAFETEA-LU text.

SAFETEA-LU authorizes earmarks annually over the period 2005 through 2009. Earmarks are subject to annual obligation limits, so the entire authorized amount is unlikely to come forward. Earmarks require local match; some implementing agencies are overmatching. Some projects have already encumbered all 5 years of earmarks, some have currently encumbered none.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements
(Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
A. Regional Highway Projects					
1. Regionally Funded					
104th Ave (SH- 44): Colorado to McKay	Add through lane(s)	1.2	2	$0.0*	Adams
104th Avenue: McKay Road to US-85 Widening	Add through lane(s)	1.9	2	$29.5	Adams
120th Avenue Connection: phase 2a Wadsworth Blvd to Alkire New Roadway	New Road	0.6	6	$50.3*	Broomfield
120th Avenue Connection: phase 2b Alkire Street to Emerald Street	New Road	0.3	6	$50.3*	Broomfield
120th Avenue: Holly St to Quebec St Widening	Add through lane(s)	1.0	2	$0.0*	Adams
Arapahoe Rd: Cherryvale Rd to 75th St Widening/Operational	Add through lane(s)	1.9	2	$19.5*	Boulder
Arapahoe Rd: I-25 to Potomac St Widening	Add through lane(s)	2.9	2	$40.0	Arapahoe
C-470: US- 85 (Santa Fe Dr), Phase I Reconstruction	Interchange Reconstruction	0.0	2	$20.0*	Douglas
Federal Blvd: Alameda Ave to 6th Ave Widening	Add through lane(s)	1.0	1	$4.3*	Denver
Hampden Ave: Colorado Blvd to I-25 Widening	Add through lane(s)	1.2	2	$38.5	Denver
I- 25/US- 36/SH-270 (new movement)	Interchange Reconstruction	0.8	1	$0.0*	Adams
I- 25: Arapahoe Rd Interchange Reconstruction	Interchange Reconstruction	0.0	2	$83.0	Arapahoe
I- 25: Douglas Ln/Crystal Valley to C-470 Widening	Add through lane(s)	18.5	0	$79.0*	Douglas
I- 25: Santa Fe Drive to Alameda (Bridge and Interchanges)	Interchange Reconstruction	1.8	2	$103.5	Denver
I- 25: US-36 to Thornton Pkwy Widening / 84th Ave interchange reconstruction	Add through lane(s)	3.7	2	$164.0	Adams
I- 70 viaduct (East Corridor): Brighton Blvd to York St,	Reconstruction	0.3	2	$256.0*	Denver
I- 70: Eisenhower Tunnel to C-470 Misc/Design	Miscellaneous/Design	45.7	2	$853.0	Jefferson, Clear
I- 70: I-270 to Havana St Widening	Add through lane(s)	1.5	2	$150.0	Denver
I- 70: Kipling St - reconstruct interchange	Interchange Reconstruction	0.0	2	$26.5	Jefferson
I- 70: SH-58, Ward Rd and 32nd Ave Interchanges	Interchange Reconstruction	0.4	1	$35.0*	Jefferson
I- 225/Colfax Ave/17th Pl Interchange Reconstruction	Interchange Reconstruction	0.0	1	$51.0*	Adams, Arapahoe
I- 225: Parker Rd to 6th Ave Widening	Add through lane(s)	10.0	2	$169.0*	Arapahoe
I- 270: Vasquez Blvd to Quebec St Widening	Add through lane(s)	1.9	2	$87.0	Adams, Denver
Parker Road: Arapahoe Rd New Interchange	New Interchange	0.0	2	$26.0*	Arapahoe
Parker Road: Quincy Ave to Hampden Ave Widening	Add through lane(s)	1.1	2	$21.5	Arapahoe
SH- 7: 164th Ave to Dahlia St, Riverdale Rd to US-85 Widening	Add through lane(s)	3.5	2	$46.5	Adams
SH- 30 / Hampden Ave: Dayton St to Havana St Widening	Add through lane(s)	0.4	1	$10.0	Denver
SH-119 (Longmont Diagonal): Foothill Pkwy to Hover Rd Operational Improvements	Highway Operational	9.8	1	$23.0	Boulder

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements (Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
SH-119: Black Hawk to proposed Black Hawk Tunnel & new interchange at SH-119	Add through lane(s)	3.3	2	$175.0	Gilpin
SH-119: SH-52 New Interchange	New Interchange	0.9	1	$27.5	Boulder
US- 6: Bryant St (Federal to I-25) Phase I, Interchange Reconstruction	Interchange Reconstruction	0.0	1	$32.5	Denver
US- 6: Kipling St Interchange Reconstruction	Interchange Reconstruction	0.0	2	$30.0	Jefferson
US- 6: Simms St Interchange Reconstruction	Interchange Reconstruction	0.0	2	$40.5	Jefferson
US- 6: Wadsworth Blvd Interchange Reconstruction & SH-121 widening to 14th Ave	Interchange Reconstruction	0.9	2	$70.0	Jefferson
US- 36 BRT: Foothills Pkwy to I-25 Phase I, HOV/Bus lanes	Add HOV lane	18.2	2	$252.0*	Adams, Boulder,
US- 36: 96th St to Interlocken East Widening	Add through lane(s)	0.5	2	$47.0	Broomfield
US- 36: McCaslin Blvd Interchange Reconstruction	Interchange Reconstruction	0.0	2	$9.2*	Boulder
US- 36: Sheridan Blvd Interchange Reconstruction	Interchange Reconstruction	0.0	2	$54.0	Jefferson
US- 36: Table Mesa Dr Interchange Reconstruction	Interchange Reconstruction	0.0	2	$0.0	Boulder
US- 85: Titan Rd to Meadows Pkwy Widening	Add through lane(s)	11.0	2	$73.0*	Douglas
US-285: Richmond Hill Road to Foxton Road - Widening and Interchange	New Interchange	1.8	2	$0.0*	Jefferson
US-285: Shaffer's Crossing New Interchange	New Interchange	0.0	0	$0.0*	Jefferson
US-285: Shaffer's Crossing to Richmond Hill Road - Widening and Interchange	Add through lane(s)	2.4	2	$70.5	Jefferson
Wadsworth Blvd: 36th Ave to 46th Ave Widening	Add through lane(s)	0.9	2	$13.0	Jefferson
Wadsworth Bypass: BNSFRR (Grandview) Grade Separation	Grade Separation	0.5	0	$0.0*	Jefferson
Wadsworth Interchange - Phase 3 - Interchange Reconstruction SH121 to US 287	Interchange Reconstruction	0.0	2	$153.5	Broomfield
Wadsworth Pkwy: 92nd Ave to SH-128/new 120th Ave Widening	Add through lane(s)	3.7	2	$30.5	Jefferson
Regionally Funded				**$3,514.5**	
2. 100% Locally Derived Funding					
6th Ave/6th Parkway: 6th Pkwy to Harvest Mile Rd New Road	New Road	0.4	3	$6.7	Arapahoe
6th Ave/SH30: Tower Rd to 6th Pkwy Widening	Add through lane(s)	1.9	4	$11.1	Arapahoe
6th Ave: Airport Blvd to Tower Rd Widening	Add through lane(s)	1.0	4	$3.5	Arapahoe
6th Parkway: SH-30 to E-470 Widening	Add through lane(s)	1.4	4	$3.4	Arapahoe
6th Pkwy: E-470 to Gun Club Rd Widening	Add through lane(s)	0.2	4	$3.6	Arapahoe
17th Ave: Alpine St to Ute Creek Dr Widening	Add through lane(s)	1.1	2	$8.0	Boulder
38th Ave: Brighton Blvd to Walnut St Widening	Add through lane(s)	0.3	2	$0.0	Denver
48th Avenue: Chambers Rd to Tower Rd Widening	Add through lane(s)	2.0	4	$18.2	Denver

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements (Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
48th Avenue: Imboden Rd to Quail Run Rd Widening	Add through lane(s)	1.0	4	$4.2	Adams
48th Avenue: Picadilly Rd to Powhaton Rd New Road	New Road	3.0	6	$36.0	Adams
48th Avenue: Powhaton Rd to Monaghan Rd New Road	New Road	1.0	6	$3.0	Adams
56th Avenue: E-470 to Imboden Rd Widening	Add through lane(s)	7.0	4	$45.0	Adams
56th Avenue: Havana Street to Pena Blvd Widening	Add through lane(s)	4.3	4	$45.7	Denver, Adams
56th Avenue: Himalaya Rd to Picadilly Rd Widening	Add through lane(s)	2.0	2	$4.6	Denver, Adams
56th Avenue: Pena Blvd to Tower Rd Widening	Add through lane(s)	0.8	2	$13.7	Denver
56th Avenue: Picadilly Rd to E-470 Widening	Add through lane(s)	1.0	4	$3.2	Adams
56th Avenue: Quebec to Havana St Widening	Add through lane(s)	1.7	4	$8.6*	Denver, Adams
56th Avenue: Tower Rd to Himalaya St Widening	Add through lane(s)	2.0	2	$9.0	Denver
58th Avenue: Washington St to York St widening	Add through lane(s)	1.0	2	$8.1	Adams
64th Avenue: Denver/Aurora City Limit to Himalaya Widening	Add through lane(s)	0.4	4	$10.5	Denver
64th Avenue: Harvest Mile Road to Powhaton Rd Widening	Add through lane(s)	1.0	2	$8.6	Adams
64th Avenue: Harvest Rd to Powhaton Rd New Road	New Road	1.0	2	$8.2	Arapahoe
64th Avenue: Himalaya Rd to Harvest Rd Widening	Add through lane(s)	3.5	2	$9.0	Adams
64th Avenue: Powhaton Rd to Monaghan Rd New Road	New Road	1.0	4	$9.3	Adams
64th Avenue: Terry St to Kendrick Street Widening	Add through lane(s)	1.5	2	$8.1	Jefferson
64th Avenue: Tower Rd to Denver/Aurora City Limits	New Road	0.1	4	$0.5	Denver
72nd Avenue and Sheridan Blvd Widening	Add through lane(s)	0.8	2	$5.0	Adams, Jefferson
88th Avenue / W. 86th Parkway: Independence St to Jellison St Widening	Add through lane(s)	0.4	2	$2.5	Jefferson
88th Avenue: Dahia St to 3000 ft east Widening	Add through lane(s)	0.6	2	$0.8	Adams
96th Avenue: Buckley Rd to Tower Rd New Road	New Road	1.0	6	$13.9	Adams
96th Avenue: SH-2 to Buckley Rd Widening	Add through lane(s)	4.0	4	$36.8	Adams
96th Avenue: Tower Rd to Picadilly Rd Widening	Add through lane(s)	2.1	4	$11.6	Adams
104th Avenue: Marion St to Colorado Blvd Widening	Add through lane(s)	1.6	2	$4.5	Adams
104th Avenue: SH-2 to E-470 widening	Add through lane(s)	4.6	4	$27.8	Adams
104th Avenue: US-85 to SH-2 Widening	Add through lane(s)	1.8	2	$11.3	Adams
120th Ave: E-470 to Tower Rd Widening	Add through lane(s)	0.6	4	$3.8	Adams
120th Ave: Tower Rd to Picadilly Rd Widening	Add through lane(s)	2.0	4	$8.4	Adams
120th Avenue: Sable Blvd (SH-2) to E-470	Add through lane(s)	1.9	4	$23.4	Adams
136th Avenue: Zuni St to Huron St Widening	Add through lane(s)	1.0	2	$4.9	Adams, Broomfield

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements (Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
144th Avenue: Washington St. to York St. Widening	Add through lane(s)	1.1	2	$5.6	Adams
144th Avenue: Sheridan Boulevard to Zuni Street Widening	Add through lane(s)	1.0	2	$8.8	Broomfield
144th Avenue: US 287 to Sheridan Boulevard Widening	Add through lane(s)	2.0	2	$9.4	Boulder, Broomfield
144th Avenue: York St to Colorado Blvd Widening	Add through lane(s)	0.9	2	$4.4	Adams
152nd Avenue/York St: Washington St. to York St., York St: 152nd Ave to E-470 Widening	Add through lane(s)	1.6	2	$1.3	Adams
Alameda Ave: C-470 to Bear Creek Blvd Widening	Add through lane(s)	1.6	4	$8.0	Jefferson
Alameda Ave: Steele St to Colorado Blvd Widening	Add through lane(s)	0.5	2	$3.6	Denver
Arapahoe Rd: Gartrell to Smoky Hill Rd New Road	Add through lane(s)	1.7	2	$2.3	Arapahoe
Arapahoe Rd: Himalaya St to Liverpool St Widening	Add through lane(s)	0.5	2	$4.9	Arapahoe
Arapahoe Rd: Waco St to Himalaya St Widening	Add through lane(s)	1.3	4	$10.3	Arapahoe
Broadway: Exposition Ave to Arizona Ave Widening	Add through lane(s)	0.6	1	$2.9	Denver
Bromley Lane: Hwy 85 to Sable Blvd Widening	Add through lane(s)	0.5	2	$1.1	Adams
Bromley Ln: Chambers Rd to 27th/Buckley Rd Widening	Add through lane(s)	1.5	4	$16.2	Adams
Bromley Ln: Tower Rd to I-76 Widening	Add through lane(s)	1.0	2	$1.5	Adams
Broncos Pkwy: Easter Ave to Potomac St Widening	Add through lane(s)	1.3	2	$3.6	Arapahoe
Broncos Pkwy: Havana St to Peoria St Widening	Add through lane(s)	1.0	2	$6.4	Arapahoe
Broncos Pkwy: Jordan Rd to Parker Rd Widening	Add through lane(s)	0.9	2	$5.5	Arapahoe
Buckley Road: 118th Ave to Cameron Dr Widening	Add through lane(s)	1.3	4	$10.9	Adams
Buckley Road: 136th Ave to Bromley Ln Widening	New Road	4.0	2	$12.2	Adams
C-470: Alameda Ave New Interchange	New Interchange	0.8	2	$19.3	Jefferson
Cabela Interchange: SH-58 to Cabela Dr. New Interchange	New Interchange	0.5	1	$13.3	Jefferson
Central Park Blvd: 36th Ave to Smith Road New Road	New Road	0.2	6	$1.4	Denver
Central Park Blvd: 49th Ave to 56th Ave New Road	New Road	0.8	4	$3.4	Denver
Central Park Blvd: Martin Luther King Blvd to 36th Ave New Road	New Road	0.3	4	$0.7	Denver
Central Park Blvd: Smith Road to 49th Ave New Road	New Road	1.3	6	$5.5	Denver
Chambers Rd/Bayou Gulch Rd: SH-83 (Parker Rd) to Crowfoot Valley Rd New Road	New Road	6.1	2	$15.9	Douglas
Chambers Rd: Crowfoot Valley Rd. to Hess Road New Road	New Road	5.6	2	$17.7	Douglas

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements
(Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
Chambers Rd: Hess Rd to Lincoln Avenue New Road	New Road	6.4	2	$19.5	Douglas
Chatfield Avenue: Garrison Street to Wadsworth Blvd Widening	Add through lane(s)	1.0	2	$9.5	Jefferson
Colorado Blvd: 156nd Ave to 160th Ave/SH-7 Widening	Add through lane(s)	1.1	2	$2.2	Adams
Colorado Blvd: SH-7 to 168th Ave Widening	Add through lane(s)	1.1	2	$6.3	Adams
County Line Rd: Phillips St to University Blvd Widening	Add through lane(s)	1.2	2	$6.5	Arapahoe, Douglas
Crowfoot Valley Rd: Founders Pkwy to Macanta Rd Widening	Add through lane(s)	1.1	2	$1.6	Douglas
Crowfoot Valley Road: Chambers Rd to Stroh Rd Widening	Add through lane(s)	1.4	2	$11.0	Douglas
Crowfoot Valley Road: Macanta Rd to Chambers Rd Widening	Add through lane(s)	3.6	2	$5.3	Douglas
E-470: 48th Avenue New Diamond Interchange	New Interchange	0.9	1	$18.2	Adams
E-470: 88th Avenue New Diamond interchange	New Interchange	0.0	1	$13.9	Adams
E-470: I-25 to I-76 Widening	Add through lane(s)	11.0	2	$60.3	Adams
E-470: I-25 to Parker Rd Widening	Add through lane(s)	4.8	2	$25.2	Douglas
E-470: I-70 to Pena Blvd Widening	Add through lane(s)	7.4	2	$23.1	Adams, Denver
E-470: I-70/Gun Club Rd complex Interchange Reconstruction	Interchange Reconstruction	0.0	1	$182.5	Adams, Arapahoe
E-470: I-76 to Pena Blvd Widening	Add through lane(s)	7.5	2	$40.5	Adams
E-470: Parker Rd to I-70 Widening	Add through lane(s)	15.3	2	$45.2	Arapahoe
E-470: Potomac New Interchange	New Interchange	0.0	1	$6.3	Adams
E-470: Quebec Street New Interchange	New Interchange	0.0	1	$18.2	Adams
E-470:112th Avenue: New Diamond Interchange	New Interchange	0.0	1	$13.9	Adams
East County Line Rd: 3rd Ave to Ute Hwy (SH-66) Widening	Add through lane(s)	3.0	2	$13.4	Weld, Boulder
Evans Ave: Colorado Blvd to I-25 Widening	Add through lane(s)	0.4	2	$2.2	Denver
Federal Blvd: Alameda Ave to 6th Ave Widening	Add through lane(s)	1.0	1	$15.5	Denver
Gun Club Rd: 1.5 mi S of Quincy Ave Widening	Add through lane(s)	1.0	4	$6.9	Arapahoe
Gun Club Rd: Quincy Ave to Yale Ave Widening	Add through lane(s)	2.0	4	$17.0	Arapahoe
Hampden Ave: Himalaya Rd to Gun Club Rd Widening	Add through lane(s)	1.9	2	$9.7	Arapahoe
Harvest Rd: 56th Ave to 64th Ave New Road	New Road	1.0	2	$1.8	Adams
Harvest Rd: 56th Ave to 64th Ave Widening	Add through lane(s)	1.0	3	$3.2	Arapahoe
Harvest Rd: I-70 to 56th Ave New Road	New Road	4.1	6	$8.7	Arapahoe
Harvest Rd: Jewell Ave to I-70 New Road	New Road	4.1	6	$37.1	Arapahoe
Hess Road (Castle Pines Pkwy): I-25 to Chambers Rd New Road	New Road	11.0	2	$25.7	Douglas
Hess Road: Chambers Rd to Parker Rd New Road and Widening	New Road	2.2	4	$18.5	Douglas
Hilltop Road: Canterberry Pkwy to Singing Hills Rd Widening	Add through lane(s)	3.0	2	$7.4	Douglas
Huron St: 160th Ave to SH-7 Widening	Add through lane(s)	0.9	4	$5.5	Broomfield

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements (Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
Huron Street: 150th Ave to 160th Ave Widening and re-alignment	Add through lane(s)	1.3	4	$6.3	Broomfield
I- 25: SH-7 Interchange Reconstruction	Interchange Reconstruction	0.0	1	$49.7	Broomfield, Adams
I- 25: Douglas Ln New Interchange	New Interchange	1.4	2	$22.4	Douglas
I- 25: N. Castle Rock (Castlegate Dr)	New Interchange	0.0	4	$20.6	Douglas
I- 25: Ridgegate Pkwy New Interchange	New Interchange	0.9	1	$25.4*	Douglas
I- 70: 32nd Ave Interchange Reconstruction	Interchange Reconstruction	0.7	1	$35.9	Jefferson
I- 70: Central Park Boulevard Interchange Reconstruction	New Interchange	5.4	1	$123.2	Denver
I- 70: Harvest Road New Interchange	New Interchange	0.0	0	$23.1	Arapahoe, Adams
I- 70: Picadilly Rd New Interchange	New Interchange	0.0	1	$23.1	Arapahoe, Adams
Imboden Road: 48th Ave to 56th Ave Widening	Add through lane(s)	1.0	4	$4.9	Adams
Jewell Ave: E-470 to Gun Club Rd Widening	Add through lane(s)	0.5	4	$1.8	Arapahoe
Jewell Ave: Gun Club Rd to Harvest Rd Widening	Add through lane(s)	1.0	4	$10.2	Arapahoe
Jewell Ave: Himalaya Rd to E-470 Widening	Add through lane(s)	1.4	3	$6.2	Arapahoe
Leon A. Wurl Pkwy: US-287 to Coal Creek Widening	Add through lane(s)	2.5	2	$13.3	Boulder, Weld
Lincoln Ave: Keystone Blvd to Parker Rd Widening	Add through lane(s)	1.6	2	$5.7	Douglas
Lincoln Ave: Peoria St to 1st Ave Widening	Add through lane(s)	0.7	2	$5.7	Douglas
Lincoln Avenue: I-25 to Peoria Street Widening	Add through lane(s)	1.3	2	$5.3	Douglas
Lincoln Avenue: 1st Street to Keystone Blvd Widening	Add through lane(s)	1.8	2	$5.7	Douglas
Mainstreet: Canterberry Pkwy to Tomahawk Rd Widening	Add through lane(s)	1.5	2	$6.1	Douglas
Mainstreet: Peoria St to Chambers Rd New Road	New Road	1.6	4	$13.2	Douglas
Meadows Pkwy: Coachline Rd to Meadows Blvd	Add through lane(s)	1.2	2	$8.5	Douglas
Monaghan Rd: Quincy Ave to Yale Ave New Road	New Road	2.0	6	$18.0	Arapahoe
Nelson Rd: 75th St to Affolter Dr Widening	Add through lane(s)	2.4	2	$11.1	Boulder
Pace St: 3rd Ave to SH-66 Widening	Add through lane(s)	2.5	2	$12.4	Boulder
Pecos Street: 52nd Avenue to I-76 Widening	Add through lane(s)	1.7	0	$6.8	Adams
Pena Blvd: I-70 to Tower Rd Widening	Add through lane(s)	5.1	2	$30.2	Denver
Pena Blvd: Jackson Gap St to DIA Terminal Widening	Add through lane(s)	1.5	2	$6.8	Denver
Pena Blvd: Tower Rd to Jackson Gap St Widening	Add through lane(s)	4.2	0	$19.5	Denver
Peoria St: E-470 to 0.7 mile south of Lincoln Ave Widening	Add through lane(s)	1.9	2	$8.6	Douglas
Peoria St: .70 mi S. Lincoln Ave to Mainstreet New Road	New Road	0.7	4	$5.0	Douglas
Picadilly Rd: 96th Ave to 120th Ave New Road	New Road	3.0	6	$38.6	Adams
Picadilly Road: 48th Ave to 56th Ave New Road	New Road	1.2	6	$13.9	Adams, Denver
Picadilly Road: 56th Ave to Aurora City Limits New Road	New Road	1.3	6	$24.0	Adams

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements (Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
Picadilly Road: 68th Ave to 80nd Ave New Road	New Road	1.4	6	$9.0	Denver
Picadilly Road: 6th Pkwy to Colfax Ave Widening	Add through lane(s)	1.6	4	$8.5	Arapahoe
Picadilly Road: 80th Ave to 92nd Ave New Road	New Road	1.9	6	$17.0	Denver
Picadilly Road: Colfax Ave to I-70 New Road	New Road	0.3	6	$2.1	Adams
Picadilly Road: I-70 to Smith Rd (realignment)	New Road	0.5	4	$3.4	Adams
Picadilly Road: Jewell Ave to 6th Ave Pkwy New Road	New Road	2.6	4	$25.0	Arapahoe
Picadilly Road: Smith Road to 48th Ave Widening	Add through lane(s)	2.2	4	$12.5	Adams
Plum Creek Pkwy: Gilbert St to Ridge Rd New Road	New Road	3.0	2	$5.0	Douglas
Quail Run Rd: I-70 to 48th Ave New Road	New Road	3.0	6	$27.8	Adams
Quebec St: 120th Ave to 128th Ave Widening	Add through lane(s)	1.0	2	$5.9	Adams
Quebec St: 128th Ave to 132nd Ave Widening	Add through lane(s)	0.3	2	$0.3	Adams
Quebec St: 132nd Ave to 160th Ave (SH-7) Widening	Add through lane(s)	3.5	2	$14.7	Adams
Quincy Ave: Hayesmount Rd to Watkins Rd Widening	Add through lane(s)	2.0	4	$12.6	Arapahoe
Quincy Ave: Irving St to Federal Blvd New Road	New Road	0.3	2	$3.0	Arapahoe
Quincy Ave: Monaghan Rd to Hayesmount Widening	Add through lane(s)	1.2	2	$14.9	Arapahoe
Quincy Avenue: C-470 to Simms Street Widening	Add through lane(s)	1.9	2	$12.6	Jefferson
Quincy Avenue: Kipling St to Carr St Widening	Add through lane(s)	1.0	2	$14.7	Jefferson
Quincy Avenue: Reservoir Rd to Gun Club Rd Widening	Add through lane(s)	5.1	0	$10.5	Arapahoe
Quincy Avenue: Simms Street to Kipling Parkway Widening	Add through lane(s)	1.0	2	$9.5	Jefferson
Ridge Rd: Plum Creek Pkwy to SH-86 Widening	Add through lane(s)	1.4	2	$4.9	Douglas
Ridgegate Pkwy: I-25 to Peoria St New Road	New Road	1.3	4	$12.0	Douglas
Ridgegate Pkwy: Lincoln Ave to I-25 Widening	Add through lane(s)	1.6	2	$12.6	Douglas
SH- 7: Boulder County Line to Sheridan Parkway Widening	Add through lane(s)	2.5	2	$4.4	Broomfield, Weld
SH- 7: Sheridan Pkwy to I-25 Widening	Add through lane(s)	1.4	4	$19.1	Broomfield
SH- 30/Gun Club Rd: Mississippi Ave to Yale Ave Widening	Add through lane(s)	4.3	2	$4.2	Arapahoe
Sheridan Blvd: Aspen Creek Dr to 144th Ave Widening	Add through lane(s)	0.7	2	$5.6	Broomfield
Sheridan Blvd: Lowell Boulevard to NW Parkway New Road	New Road	1.1	2	$2.0	Broomfield
Sheridan Pkwy: Northwest Pkwy to SH 7 New Road	New Road	1.2	2	$9.0	Broomfield
Simms Street: 108th Ave to 112th Ave Widening	Add through lane(s)	0.5	2	$3.3	Broomfield
Smoky Hill Road: E-470 to County Line Rd Widening	Add through lane(s)	3.1	2	$18.2	Arapahoe
Smoky Hill Road: Pheasant Run Pkwy to E-470 Widening	Add through lane(s)	4.8	2	$29.8	Arapahoe

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements (Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
South Boulder Rd/160th Ave: Boulder/Broomfield Co. line to Lowell Blvd New Road	New Road	0.9	2	$5.2	Broomfield
South Boulder Rd/160th Ave: Lowell Blvd St to Sheridan Pkwy Widening	New Road	1.2	2	$12.0	Boulder
Southwest Ring Rd (Coachline Rd): Meadows Pkwy to E of Auburn Dr. Widening	Add through lane(s)	2.0	2	$18.9	Douglas
Southwest Ring Rd: E of Auburn Dr to I-25 New Road	New Road	2.0	2	$10.0	Douglas
Stroh Rd: Chambers Rd to Crowfoot Valley Rd New Road	New Road	1.4	4	$14.9	Douglas
Stroh Rd: Crowfoot Valley Rd to Jay Morgan Blvd Widening	Add through lane(s)	0.5	2	$4.7	Douglas
Thornton Pkwy: Colorado Blvd to Riverdale Rd New Road	New Road	0.5	4	$11.0	Adams
Thornton Pkwy: Grant St to Washington St Widening	Add through lane(s)	0.2	2	$1.7	Adams
Tower Rd/Buckley Rd: 105th Ave to 118th Ave Widening	Add through lane(s)	2.3	4	$6.9	Adams
Tower Rd: 38th/40th Ave to 48th Ave Widening	Add through lane(s)	2.0	2	$21.0	Denver
Tower Rd: 48th Ave to 56th Ave Widening	Add through lane(s)	2.0	2	$4.2	Denver
Tower Rd: 56th Ave to Pena Blvd Widening	Add through lane(s)	2.5	2	$12.6	Denver
Tower Rd: 6th Avenue to Colfax Avenue New Road	New Road	2.1	4	$2.5	Arapahoe
Tower Rd: Colfax Ave to Smith Rd Widening	Add through lane(s)	0.9	4	$4.2	Arapahoe
Tower Rd: Pena Blvd to 105th Ave Widening	Add through lane(s)	3.6	4	$18.2	Adams
Tower Rd: Smith Rd to I-70 Widening	Add through lane(s)	0.4	2	$13.0	Adams
US- 85: North Meadows Dr extension	New Interchange	0.0	1	$14.3	Douglas
Wadsworth Blvd: US-285 South. Ramps to US-285 North ramps Widening	Add through lane(s)	0.1	2	$0.0	Jefferson
Washington St: 152nd Ave to SH-7 Widening	Add through lane(s)	1.9	2	$14.2	Adams
Washington Street: 58th Ave to SH-224 Widening	Add through lane(s)	1.5	2	$11.6	Adams
Washington Street: 136th Ave to 144th Ave Widening	Add through lane(s)	1.0	2	$4.5	Adams
Washington Street: 144th Ave to 152nd Ave widening	Add through lane(s)	0.7	2	$11.3	Adams
Washington Street: Elk Pl to 52nd Ave Widening	Add through lane(s)	0.0	2	$10.5	Denver
Washington Street-Phase IV: 52nd Avenue to 58th Avenue Widening	Add through lane(s)	0.8	2	$4.8	Adams
Watkins Rd: Quincy Ave to I-70 Widening	Add through lane(s)	7.1	2	$43.1	Arapahoe
Wolfensberger Rd: Coachline Rd to I-25 Widening	Add through lane(s)	1.4	2	$3.8	Douglas
Yale Ave: Hayesmount Rd to Watkins RD Widening	Add through lane(s)	1.9	4	$23.9	
Yale Ave: Monaghan Rd to Hayesmount Rd Widening	Add through lane(s)	1.2	4	$13.7	Arapahoe
York St: E-470 to SH-7 Widening	Add through lane(s)	1.4	2	$8.4	Adams

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

Appendix 4
Fiscally Constrained 2035 RTP Roadway and Rapid Transit Capital Improvements (Section 4 of Table 6 in 2035 Metro Vision RTP)

Project Location/Name	Description	Length (miles)	New Lanes	Plan Cost Estimate FY'08 to FY'35 ('08 $ Millions)	Counties
York Street: 160th Ave (SH-7) to 168th Ave Widening	Add through lane(s)	1.0	2	$5.9	Adams
100% Locally Derived Funding				**$2,598.0**	

B. Regional Transit Projects

1. New Regional Transit Projects in 2007 - 2012 TIP/STIP

RTD Bus Sytem Expansion (FasTracks and CMAQ)	Transit Vehicles (new)	0.0	2	$570.0	Regional
New Regional Transit Projects in 2007 - 2012 TIP/STIP				**$570.0**	

2. FasTracks Components

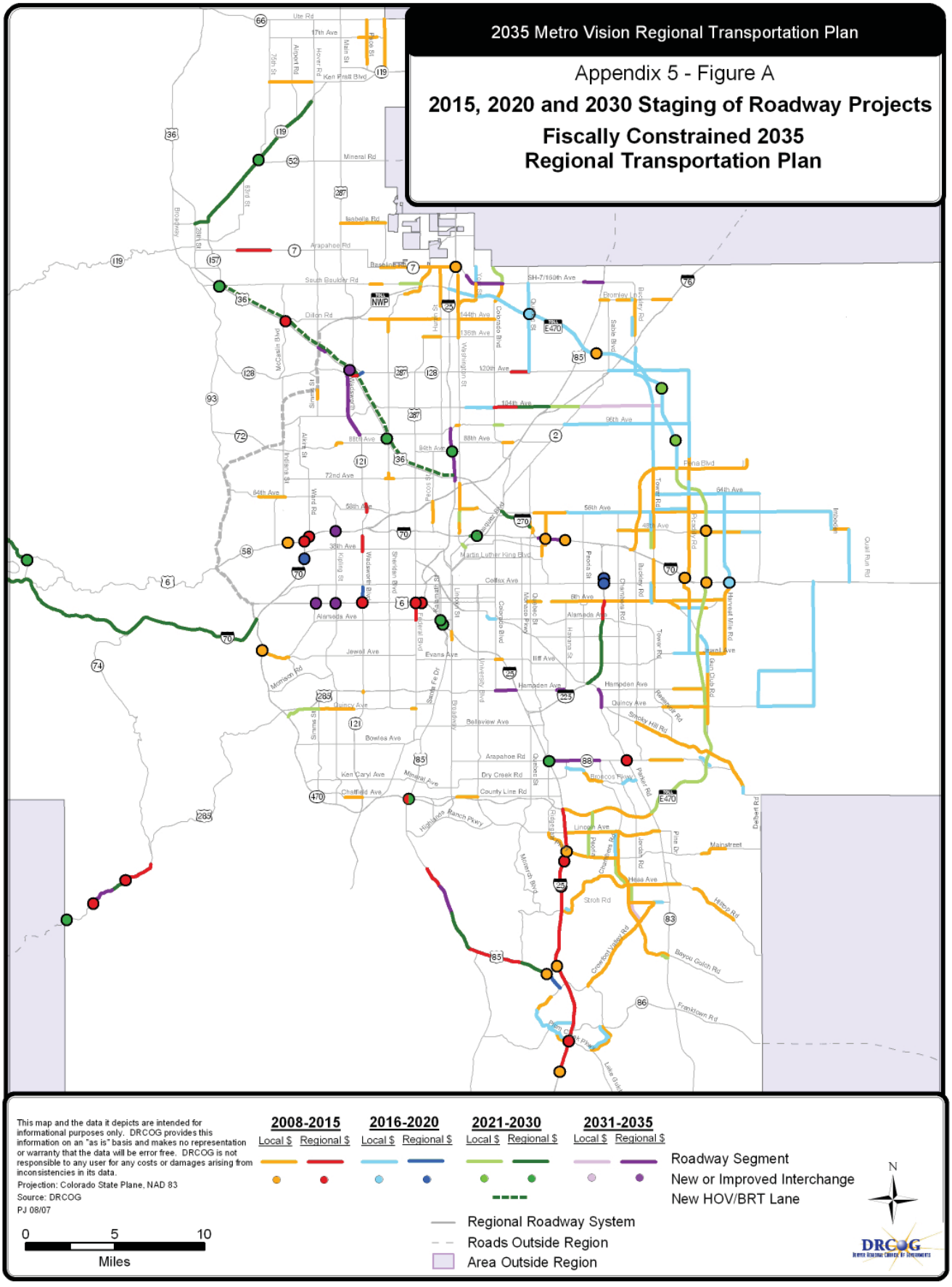
Central Connector - CDB Access: I-25/Broadway to Civic Center Station Rapid Transit	Rapid Transit	2.8	2	$0.0	Denver
Central Corridor Enhancements Rapid Transit	Rapid Transit	0.5	2	$29.3	Denver
Central Corridor Extension	Rapid Transit	1.3	2	$90.4	Denver
Denver Union Station Intermodal Center	Rapid Transit	0.0	2	$292.6	Denver
East Corridor Commuter Rail Line Rapid Transit	Rapid Transit	22.8	2	$798.0	Adams, Denver
Enhanced Bus/Rail Service Rapid Transit	Rapid Transit	0.0	2	$0.0	Regional
Gold Line LRT Corridor: Denver Union Station to Ward Rd Rapid Transit	Rapid Transit	11.1	2	$478.8	Adams, Denver,
I- 225 LRT Corridor: Parker Rd to East Corridor Commuter Rail	Rapid Transit	9.4	2	$465.5	Adams, Arapahoe
New Bicycle/Pedestrain Facilities, Tier 1 Rapid Transit (Other Enhancement)	Bicycle & Pedestrian Faciliti	0.0	2	$20.0	
North Metro Rail: DUS to SH-7 Rapid Transit	Rapid Transit	18.5	2	$458.9	Adams, Denver
Northwest Rail: Denver Union Station to Longmont (1st & Terry in Downtown Longmont)	Rapid Transit	37.6	2	$598.5	Adams, Boulder,
Other Items & Transit ITS	Intelligent Transportation Sy	0.0	2	$452.2	Regional
Southeast Corridor Extension & Enhancement: Lincoln Station to Ridgegate Rapid Transit	Rapid Transit	1.3	2	$186.2	Arapahoe, Douglas
Southwest Corridor Extension & Enhancement: Mineral Station to Lucent Blvd/C-470 Rapid Transit	Rapid Transit	2.5	2	$166.3	Arapahoe, Douglas
Transit Maintenance Facilities	Transit Maintenance	0.0	2	$299.3	Regional
Transportation Management, (Tier 1 Rapid Transit)	Intelligent Transportation Sy	0.0	2	$66.5	Regional
US- 36 BRT: Foothills Pkwy to I-25 Phase II, HOV/Bus lanes	Add HOV lane	18.2	2	$93.1*	Boulder,
West Corridor LRT Line Rapid Transit	Rapid Transit	12.6	2	$611.8	Denver, Jefferson
FasTracks Components				**$5,107.3**	

Note: * Plan costs = Total costs minus Federal earmarks and committed but currently unspent funds prior to fiscal 2008.

APPENDIX 5

2015, 2020 and 2030 Staging of Roadway Projects

Fiscally Constrained 2035 Regional Transportation Plan


2035 Metro Vision Regional Transportation Plan
Appendix 5 - Figure A
2015, 2020 and 2030 Staging of Roadway Projects
Fiscally Constrained 2035
Regional Transportation Plan
This map and the data it depicts are intended for informational purposes only. DRCOG provides this information on an "as is" basis and makes no representation or warranty that the data will be error free. DRCOG is not responsible to any user for any costs or damages arising from inconsistencies in its data.
Projection: Colorado State Plane, NAD 83
Source: DRCOG
PJ 08/07
0 5 10
Miles
2008-2015 Local $ Regional $
2016-2020 Local $ Regional $
2021-2030 Local $ Regional $
2031-2035 Local $ Regional $
Roadway Segment
New or Improved Interchange
New HOV/BRT Lane
Regional Roadway System
Roads Outside Region
Area Outside Region
N
DRCOG

APPENDIX 6

Existing Intermodal Freight Facilities

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 - (formerly Burlington Northern Santa Fe)

UP-Union Pacific

APPENDIX 7

Consideration of Federal Planning Factors

Consideration of Federal Planning Factors

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) 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 those categories and describes how the 2035 Metro Vision Regional Transportation Plan (2035 MVRTP) and the Fiscally Constrained 2035 Regional Transportation Plan (RTP) have considered them. Though the Fiscally Constrained 2035 RTP is contained within the 2035 MVRTP, this appendix, at applicable locations, refers to them as "the plans."

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.

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

The 2035 MVRTP addresses 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 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 2035 MVRTP includes safety related policies and actions contained in the Pedestrian and Bicycle Element of the RTP that will improve the safety of nonmotorized travelers and embraces the Regional Intelligent Transportation Systems Plan, which is based in part on improving traveler safety. The Fiscally Constrained 2035 RTP identifies funding commitments to future identified safety projects, strategies, and services.
Increase the security of the transportation system for motorized and nonmotorized users.

Residents and visitors will not be afraid to travel in the Denver region. The 2035 MVRTP notes appropriate action strategies 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.

Increase accessibility and mobility of people and freight.

A key goal of the 2035 MVRTP is to provide improved mobility for the region's citizens and businesses. Both roadway and transit improvements are identified and funded in the Fiscally Constrained 2035 RTP that reduce delay and enhance mobility. The plans also include a

number of alternative modes of transportation to provide travel choices. They call for and allocate future funds for the active promotion of alternative modes on three levels: regionally, in subareas, and at individual business sites. Pedestrian and senior citizen accessibility strategies are strongly referenced in the plans. Mobility of freight movements is specifically addressed. Management activities to improve freight mobility include incident detection and response and Intelligent Transportation Systems applications. The Fiscally Constrained 2035 RTP identifies pools of funding that can be used for all of the previously mentioned activities. That said, the amount of funding available for the Fiscally Constrained 2035 RTP is insufficient to retain current levels of congestion; delay will be increased substantially without additional funding.

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 elements are part of the Metro Vision planning process, of which the 2035 Metro Vision RTP is a part. Protecting and enhancing the environment is both a Metro Vision Plan element as well as a 2035 MVRTP Policy. The process provides for the active involvement of the air quality regulatory agencies and citizens interested in air quality. The Fiscally Constrained 2035 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, using a number of maps identifying key environmental considerations at the regional scale. The corridor visions include environmental overviews. Further, before individual major projects go through final design engineering and construction they must be part of appropriate environmental reviews and NEPA 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 2035 MVRTP. Metro Vision policies such as extent of urban growth (urban growth boundaries) and urban centers seek to avoid land use patterns that lead to sprawl and increased vehicles miles of travel and instead focus on more dense, pedestrian and transit-friendly development. In the 2035 MVRTP, the promotion and facilitation of alternative travel modes is acknowledged through the travel demand management (TDM) programs, such as DRCOG's RideArrangers, funded in the plan. 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. The energy consumption for the Fiscally Constrained 2035 RTP is reported.

Several policies, action strategies and funded improvements included in the plans will improve the quality of life for persons living throughout the region. The goal of the Metro Vision Plan is to "protect quality of life", and the elements and policies of both the Metro Vision Plan and the 2035 MVRTP are directed toward that goal. 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.

Development of the 2035 MVRTP was done in concert with the update of the Metro Vision Plan to 2035. The Metro Vision Plan explicitly considers State and local planned growth and economic development patterns through its processes of development, including extensive outreach to local governments and economic development organizations. The 2035 MVRTP is defined to serve the desired growth/development identified in the Metro Vision Plan. That said, limited funding reasonably expected to be available means that only a small portion of the desired transportation improvements can actually be implemented in the 2035 time horizon through the Fiscally Constrained 2035 RTP.

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

The 2035 MVRTP specifically addresses the integration of transportation system elements. It 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 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.

Promote efficient system management and operation.

The 2035 MVRTP makes extensive reference to system management and operational activities and they are funded in the Fiscally Constrained 2035 RTP. The plans identify 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.

Emphasize the preservation of the existing transportation system.

Preservation of the existing transportation system is an important policy of the 2035 MVRTP. A discussion of the need to maintain and preserve the existing transportation system is provided. The Fiscally Constrained 2035 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 Fiscally Constrained 2035 RTP is insufficient to preserve the existing transportation system to desired level of quality.

Overall, the Fiscally Constrained 2035 RTP cannot assure desired economic vitality, safety, security, mobility and accessibility, integration and connectivity, efficient system operations, or system quality, which will seriously challenge the region's future quality of life. State and regional officials are committed to pursuing additional financial resources for transportation.

APPENDIX 8

Response to State Requirements

Response to State Requirements

The Colorado Transportation Commission, pursuant to statutory authority in the Colorado Revised Statutes, promulgated Rules and Regulations for the Statewide Transportation Planning Process (the "Rules") in 1992, and amended them in July 1997. These "Rules" are intended to prescribe the statewide transportation planning process through which a 20-year, intermodal, comprehensive statewide transportation plan will be developed. The cooperative process was designed to coordinate regional transportation planning endeavors as a fundamental basis for developing the statewide plan. In May 2006, the Colorado Department of Transportation (CDOT) issued a 2035 Regional and Statewide Transportation Plan Guidebook to assist regional planning bodies in implementing the "Rules," facilitating consistency between plans and thus easing consolidation into the 2035 Statewide Transportation Plan. The Guidebook was primarily for use in the preparation of the 10 non-MPO regional transportation plans and their integration into the statewide plan. Further, in November 2005 CDOT updated its CDOT Operating Manual for MPO Transportation Planning.

The 2035 Metro Vision Regional Transportation Plan (MVRTP) (containing the Fiscally Constrained 2035 RTP) was developed in a manner consistent with the spirit and intent of the "Rules," as amplified by the Guidebook and the Operating Manual.

With regard to the development of regional transportation plans, there are four key provisions of the "Rules": public participation, transportation systems planning, regional transportation plan content, and air quality. This Appendix demonstrates that the 2035 MVRTP is complete in meeting the requirements of the "Rules" for each of these provisions.

Public Participation

DRCOG's Public Involvement in Regional Transportation Planning (October 2005) documents the actions to be carried out by DRCOG to ensure that opportunities exist for the public to be involved in transportation planning activities. The public involvement process is proactive and provides complete information, timely public notice, full public access to key decisions, and many opportunities for early and continuing involvement. Chapter 1 of the 2035 MVRTP provides an overview of the public involvement process used in its development, and a complete record of this has been prepared and is on file at DRCOG offices.

As a CDOT-defined subset of public participation, DRCOG participated with CDOT in its outreach to environmental resource and regulatory agencies.

Transportation System Planning

The "Rules" require an intermodal transportation systems planning approach, with specific consideration of federal planning factors. That DRCOG employs an intermodal and multimodal systems approach is demonstrated throughout the 2035 MVRTP document. Federal planning factors are addressed in Appendix 7.

Regional Transportation Plan Content

The "Rules" list nine elements, as follow:

- Preferred plan (referred to in the Guidebook as the Vision Element). The 2035 MVRTP includes the Metro Vision transportation system. It represents the preferred plan/vision element. It is summarized in Chapter 4 and further described in

corridor visions presented in Appendix 1;
- Fiscally constrained plan. The Fiscally Constrained 2035 RTP is described in Chapter 5;
- Analysis of federal planning factors. See Appendix 7;
- Assessment of social, environmental, energy, and economic impacts of the RTP. Chapters 5 and 6, Appendix 7, and the conformity statement document present assessments of these subjects;
- Identification of the results of completed MISs or corridor investment studies. MISs and CISs are no longer being prepared, having been replaced by more exacting NEPA studies. The corridor visions of Appendix 1 identify the many NEPA studies underway in the key multimodal corridors of the Denver region, and identify outcomes to date. Maps in Chapter 4 and 5 and the table in Appendix 4 display improvements identified in such studies. Results in other studies, as they are completed, will be incorporated in future amendments and updates to the 2035 MVRTP;
- Prioritization of projects in the regional transportation plan. The process used to select capital projects to be included in the Fiscally Constrained 2035 RTP is described in Chapter 5 and Appendix 3. Staging of roadway capital improvements is depicted in Appendix 5. For the 2035 RTP, CDOT requested that a 10-year implementation strategy be identified and such is shown within the corridor visions of Appendix 1;
- Funding plan. Chapter 5 describes the financial plan. It is based on/consistent with the Colorado Department of Transportation 2035 Revenue Forecast and Resource Allocation (December 2006);

- Public notification and participation. See Chapter 1 and the public involvement record referenced previously;

- Resolution of adoption. See Appendix 9.

The Guidebook also identifies some other RTP products:

- Linking planning and NEPA. DRCOG's efforts are identified in the corridor visions of Appendix 1.
- Environmental Mitigation activities, strategies, and consultation. Discussed in Chapter 6.
- Economic development activities. See Appendix 6 for assessment of Federal planning factors.
- Human Services Transportation Plan, integration into regional transit component of the RTP. Chapters 4 and 5 present relevant material.

DRCOG's adopted amended Transit Element serves as the coordinated Human Services Public Transit Plan for the Denver region and addresses all required federal requirements for such. DRCOG does not intend to prepare an accomplishments report or RTP Executive Summary as suggested by the Guidebook.

Air Quality

The document, Conformity of the Metro Vision Fiscally Constrained 2035 Regional Transportation Plan with the State Implementation Plan for Air Quality identifies air quality at-risk areas, mobile source emissions, and air quality implications. It demonstrates that the Fiscally Constrained 2035 RTP conforms to the requirements of the Clean Air Act.

APPENDIX 9

Adopting Resolution

DENVER REGIONAL COUNCIL OF GOVERNMENTS

STATE OF COLORADO

BOARD OF DIRECTORS RESOLUTION NO. 34, 2007

A RESOLUTION TO ADOPT THE *2035 METRO VISION REGIONAL TRANSPORTATION PLAN* INCLUDING THE *FISCALLY CONSTRAINTED 2035 REGIONAL TRANSPORTATION PLAN*, AND *CONFORMITY OF THE FISCALLY CONSTRAINED 2035 REGIONAL TRANSPORTATION PLAN WITH THE STATE IMPLEMENTATION PLAN FOR AIR QUALITY*

WHEREAS, it is a function and duty of the Denver Regional Council of Governments, as a regional planning commission under the laws of the State of Colorado, to make and adopt an advisory regional plan for the physical development of the territory within it jurisdiction; and

WHEREAS, the Denver Regional Council of Governments, as the Metropolitan Planning Organization, is responsible for the operation and maintenance of the continuing planning process designed to prepare and adopt transportation plans and programs; and

WHEREAS, the transportation planning process within the Denver region is carried out by the Denver Regional Council of Governments through a cooperative agreement with the Regional Transportation District and the Colorado Department of Transportation; and

WHEREAS, state and federal statutes require that a long-range Regional Transportation Plan be prepared, including highway and transit facilities that can reasonably be provided over a 20-year time horizon; and

WHEREAS, the *Metro Vision 2035 Plan* that guides the region's growth and development was adopted on December 19, 2007 in conjunction the with documents subject to this resolution; and

WHEREAS, the *2035 Metro Vision Regional Transportation Plan*, including the *Fiscally Constrained 2035 Regional Transportation Plan,* was prepared by the Denver Regional Council of Governments in cooperation with the Colorado Department of Transportation and the Regional Transportation District; and

WHEREAS, the *2035 Metro Vision Regional Transportation Plan*, including the *Fiscally Constrained 2035 Regional Transportation Plan,* was prepared in consideration of, and meets the planning requirements contained in, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and the state rules and regulations for the Statewide Transportation Planning Process and Transportation Planning Regions; and

A RESOLUTION TO ADOPT THE *2035 METRO VISION REGIONAL TRANSPORTATION PLAN* INCLUDING THE *FISCALLY CONSTRAINTED 2035 REGIONAL TRANSPORTATION PLAN*, AND *CONFORMITY OF THE FISCALLY CONSTRAINED 2035 REGIONAL TRANSPORTATION PLAN WITH THE STATE IMPLEMENTATION PLAN FOR AIR QUALITY*
Resolution No. _ 34_, 2007

WHEREAS, Section 176(c) of the federal Clean Air Act as amended requires that the Metropolitan Planning Organization not give its approval to a transportation plan or program unless such plan or program conforms to an approved or promulgated implementation plan for air quality; and

WHEREAS, the financial plan of the *Fiscally Constrained 2035 Regional Transportation Plan* meets fiscal constraint based on a reasonable estimate of funds available from 2008 to 2035; and

WHEREAS, an air quality analysis of the *Fiscally Constrained 2035 Regional Transportation Plan* has been prepared consistent with the requirements of the Clean Air Act as amended, and regulations promulgated by the U. S. Environmental Protection Agency, which indicates that the *Fiscally Constrained 2035 Regional Transportation Plan* conforms to the State Implementation Plan for Air Quality; and

WHEREAS, the Denver Regional Council of Governments held a public hearing on December 5, 2007 to consider the *2035 Metro Vision Regional Transportation Plan,* including the *Fiscally Constrained 2035 Regional Transportation Plan,* and the *Conformity of the Fiscally Constrained 2035 Regional Transportation Plan with the State Implementation Plan for Air Quality*; and

WHEREAS, the Transportation Advisory Committee and the Regional Transportation Committee have recommended that the Board of Directors adopt the*2035 Metro Vision Regional Transportation Plan,* including the *Fiscally Constrained 2035 Regional Transportation Plan,* with the text changes described in the List of Recommended Revisions attached, and find that the *Fiscally Constrained 2035 Regional Transportation Plan* conforms to the State Implementation Plan for Air Quality.

NOW, THEREFORE, BE IT RESOLVED that, pursuant to its *Articles of Association*, and the authority granted under sections 30-28-106 and 43-1-1104 through 1105 of the Colorado Revised Statutes, the Denver Regional Council of Governments hereby adopts, as part of the regional plan for the Denver Region, the *2035 Metro Vision Regional Transportation Plan* as presented at the public hearing, with the text changes identified in the List of Recommended Revisions attached to and made a part of this resolution. This plan supersedes the *2030 Metro Vision Regional Transportation Plan* previously adopted by the Denver Regional Council of Governments for the described area.

A RESOLUTION TO ADOPT THE *2035 METRO VISION REGIONAL TRANSPORTATION PLAN* INCLUDING THE *FISCALLY CONSTRAINTED 2035 REGIONAL TRANSPORTATION PLAN*, AND *CONFORMITY OF THE FISCALLY CONSTRAINED 2035 REGIONAL TRANSPORTATION PLAN WITH THE STATE IMPLEMENTATION PLAN FOR AIR QUALITY*
Resolution No. 34, 2007

BE IT FURTHER RESOLVED that, pursuant to its *Articles of Association*, and the authority granted under sections 30-28-106 and 43-1-1101 through 1105 of the Colorado Revised Statutes, as the Metropolitan Planning Organization for the Denver Region, the Denver Regional Council of Governments hereby adopts the *Fiscally Constrained 2035 Regional Transportation Plan* (Chapter 5 of the *2035 Metro Vision Regional Transportation Plan*), with the text changes identified in the List of Recommended Revisions attached to and made a part of this resolution. This plan supersedes any fiscally constrained regional transportation plan previously adopted by the Denver Regional Council of Governments for the described area.

BE IT FURTHER RESOLVED that the Board of Directors of the Denver Regional Council of Governments, as the Metropolitan Planning Organization, hereby determines that the *Fiscally Constrained 2035 Regional Transportation Plan* conforms to the applicable implementation plans approved or promulgated under the Clean Air Act, as amended, by virtue of the demonstrations incorporated in the report titled *Conformity of the Fiscally Constrained 2035 Regional Transportation Plan*, with the text changes identified in the List of Recommended Revisions attached to and made a part of this resolution, required pursuant to section 176(c) of the Clean Air Act, as amended.

BE IT FURTHER RESOLVED that the Chair of the Denver Regional Council of Governments is hereby authorized to certify copes of the plan to all counties and municipalities lying wholly or partly in the Denver region.

RESOLVED, PASSED AND ADOPTED this 19th day of December, 2007 at Denver, Colorado.

Rick Garcia, Chair
Board of Directors
Denver Regional Council of Governments

ATTEST:

Jennifer Schaufele, Executive Director

LIST OF ACRONYMS

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans with Disabilities Act
AFB	Air Force Base
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
BVRC	Boulder Valley Regional Center
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
CMP	Congestion Management Process
CO	Carbon monoxide
CO DNR	Colorado Department of Natural Resources
CO DOW	Colorado Division of Wildlife
DEIS	Draft Environmental Impact Statement
DIA	Denver International Airport
DMS	Dynamic Message Sign
DRIR	Denver Rock Island Railroad
DRCOG	Denver Regional Council of Governments
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
FREX	Front Range Express
FTA	Federal Transit Administration
GA	General aviation
GWR	Great Western Railway
HOT	High occupancy toll
HOV	High occupancy vehicle
HUTF	Highway Users Tax Fund

ISTEA	Intermodal Surface Transportation Efficiency Act
ITS	Intelligent Transportation Systems
JARC	Job Access and Reverse Commute
LCV	Longer combination vehicle
LPA	Locally preferred alternative
LRT	Light rail transit
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
NOx	Nitrogen oxides
NPL	National Priorities List
PEIS	Programmatic Environmental Impact Statement
PM10	Particulate matter less than 10 microns in size
PMT	Person-miles of travel
Ppm	Parts per million
RAQC	Regional Air Quality Council
RASP	Regional Aviation System Plan
ROD	Record of Decision
RPP	Regional Priority Program
RTC	Regional Transportation Committee
RTD	Regional Transportation District
RTP	Regional Transportation Plan
SFHA	Special Flood Hazard Area
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy for Users
SGPI	Shortgrass Prairie Initiative
SH	State Highway
SIP	State Implementation Plan
SO2	Sulfur Dioxide
SOV	Single occupant vehicle
SQG	Small Quantity Generator
STIP	State Transportation Improvement Program
STP	Surface Transportation Program
TAC	Transportation Advisory Committee
TANF	Temporary Assistance for Needy Families
TAZ	Transportation analysis zone
TCM	Transportation control measure
TDM	Transportation demand management
TDP	Transit Development Plan

TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TOD	Transit-oriented development
TMA	Transportation Management Area
TMO	Transportation management organization
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
UST/LUST	Underground Storage Tank/Leaking Underground Storage Tank
VMT	Vehicle miles traveled

LIST OF KEY AGENCY WEBSITES

Air Pollution Control Division (APCD): http://apcd.state.co.us
Colorado Department of Transportation (CDOT): http://www.dot.state.co.us
Denver Regional Council of Governments (DRCOG): www.drcog.org
Federal Highway Administration (FHWA): http://www.fhwa.dot.gov
Federal Transit Administration (FTA): http://www.fta.dot.gov
Regional Air Quality Council (RAQC): www.raqc.org
Regional Transportation District (RTD): www.rtd-denver.com
U.S. Census Bureau: http://www.census.gov/
U.S. Department of Transportation: http://www.dot.gov/
U.S. Environmental Protection Agency (EPA): http://www.epa.gov

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2035 METRO VISION REGIONAL TRANSPORTATION PLAN

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