

CHAPTER 5: SERVICE & CORRIDOR ALTERNATIVES

This chapter describes the four transit service alternatives for the 2040 planning horizon. These alternative visions focus on developing services along regional transit routes.

This is a long-range plan with a 25-year planning horizon. With the projected population growth, regional transit services are anticipated to be part of the future transportation network. The region's desire for commuter rail service is also reflected in the North I-25 FEIS. The preferred plan includes bus and rail services with a comprehensive set of regional routes connecting the cities and towns with each other and with the Boulder and Denver metro areas.

Three key challenges in this planning effort are:

- Refining the vision for regional transit services;
- Identifying how long-term planning impacts near-term choices for transit service development, finance, and governance; and
- Setting practical, near-term objectives and strategies to move the region towards achieving this vision.

The North I-25 FEIS identified a multi-modal solution to address the anticipated north-south transportation needs for the corridor from a statewide perspective. This 2040 RTE examines many of the same corridors, but adds a focus on the east-west connections needed for regional mobility and connectivity. The focus is also on the practical steps necessary to develop the foundations for these regional services.

North Front Range communities support the BATS, COLT, GET, and Transfort systems through local general funds or sales taxes. Berthoud, Fort Collins, Longmont, Loveland, and Boulder County developed the FLEX regional service along the US 287 corridor, governed and funded through an intergovernmental agreement. A plan which includes a vision for developing regional transit services, a conceptual network plan, which goes beyond goals and strategies providing options for governance, funding, and operations could move the region towards implementing a cohesive regional transit service network.

Figures 5.1 through 5.4 illustrate each of the four service alternatives and the level of service that could be expected for each by 2040. Based on these projected levels,¹ **Table 5.1** provides information on the routes and service levels in each alternative. **Table 5.2** is intended to provide an understanding of the level of service proposed in each alternative and the associated costs to help frame the discussion for governance and financing. Information in **Table 5.2** is based on information provided in the 2040 NFRMPO Regional Travel Demand Model.

¹ Hours for each route have been calculated using current drive times plus an allocation of time for stops along the route. The number of stops and dwell time within each stop significantly affects overall route travel time. Increasing congestion has been assumed over time.

Figure 5.1 Status Quo Alternative

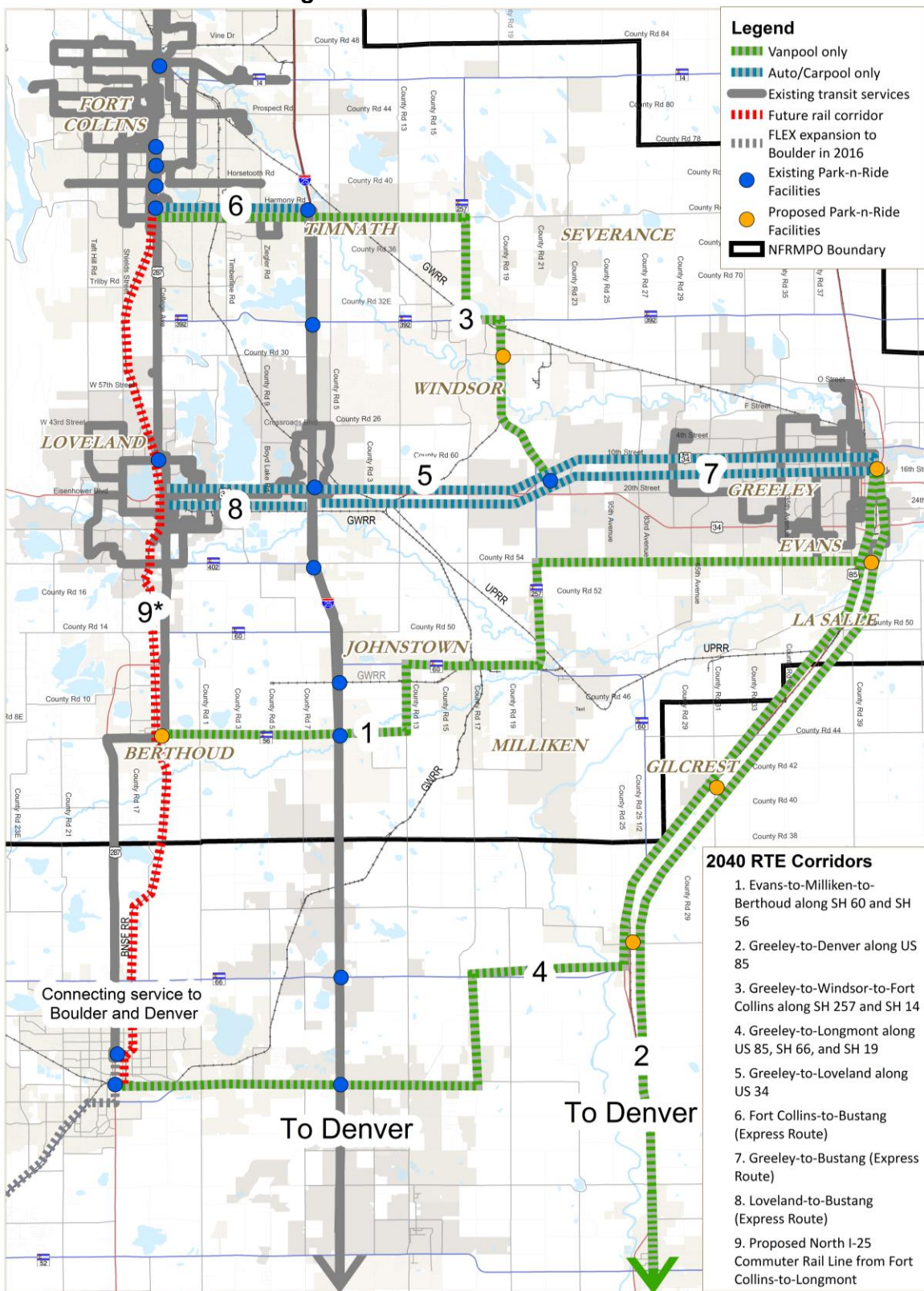


Figure 5.2 Basic Alternative

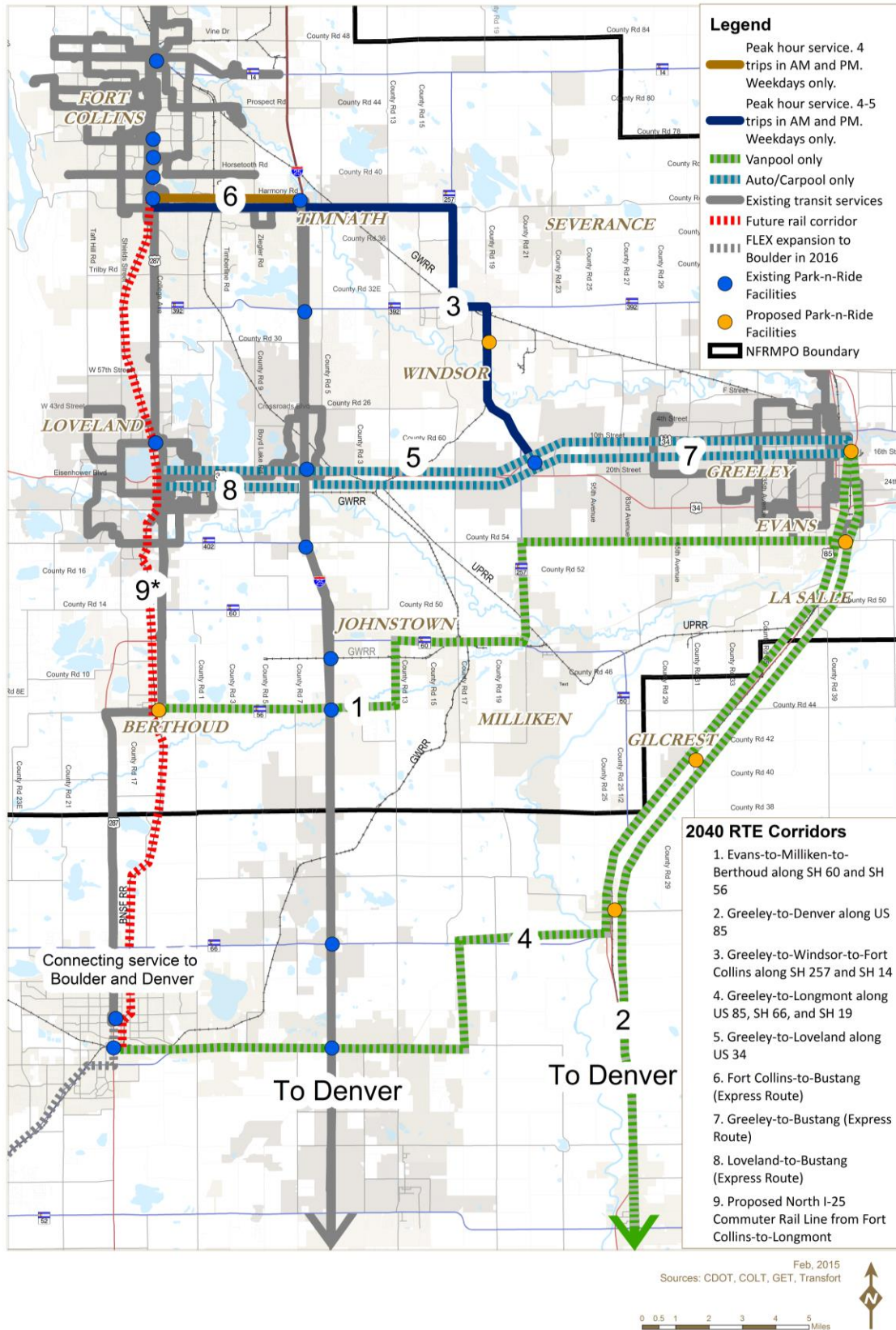


Figure 5.3 Moderate Alternative

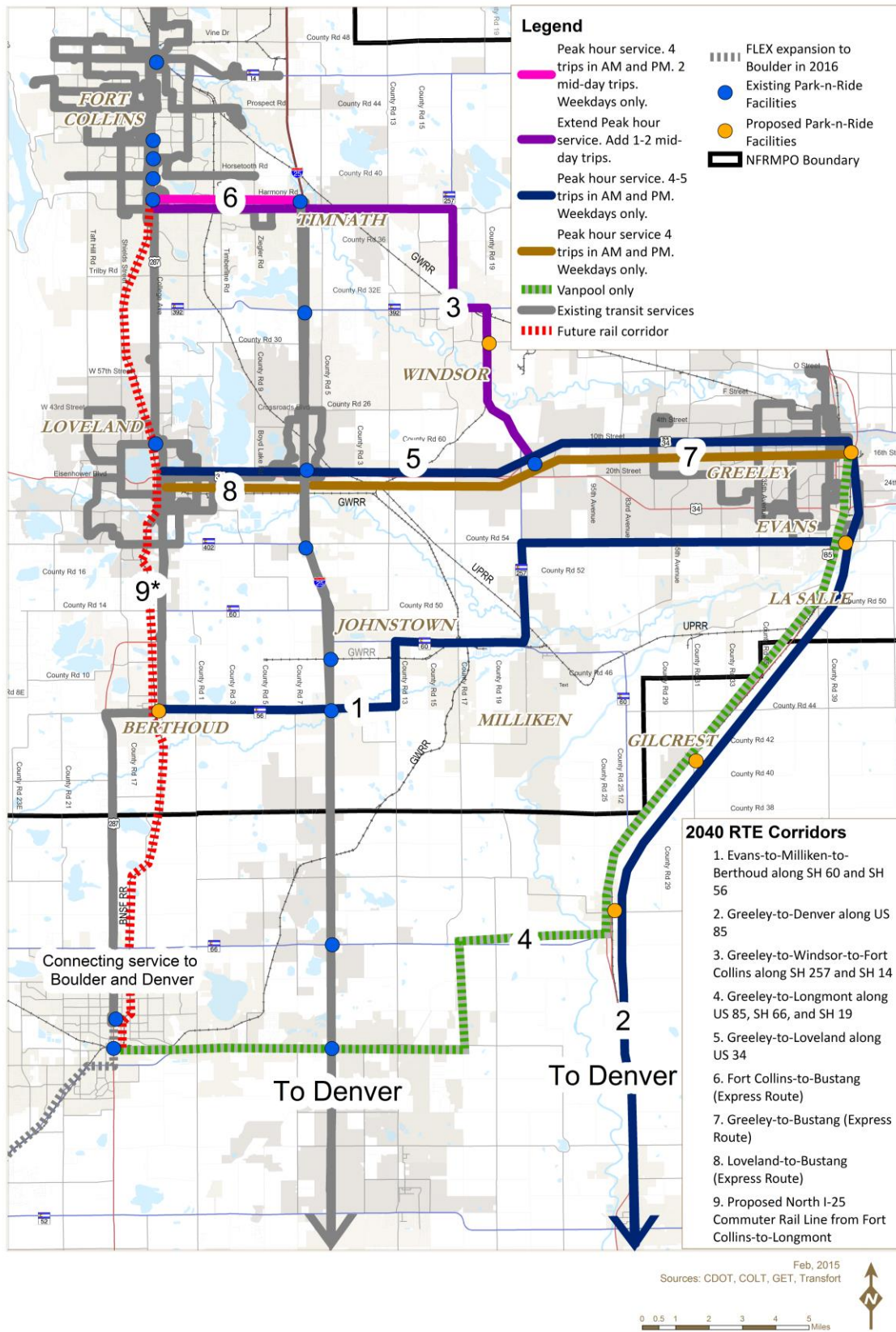


Figure 5.4 High Alternative

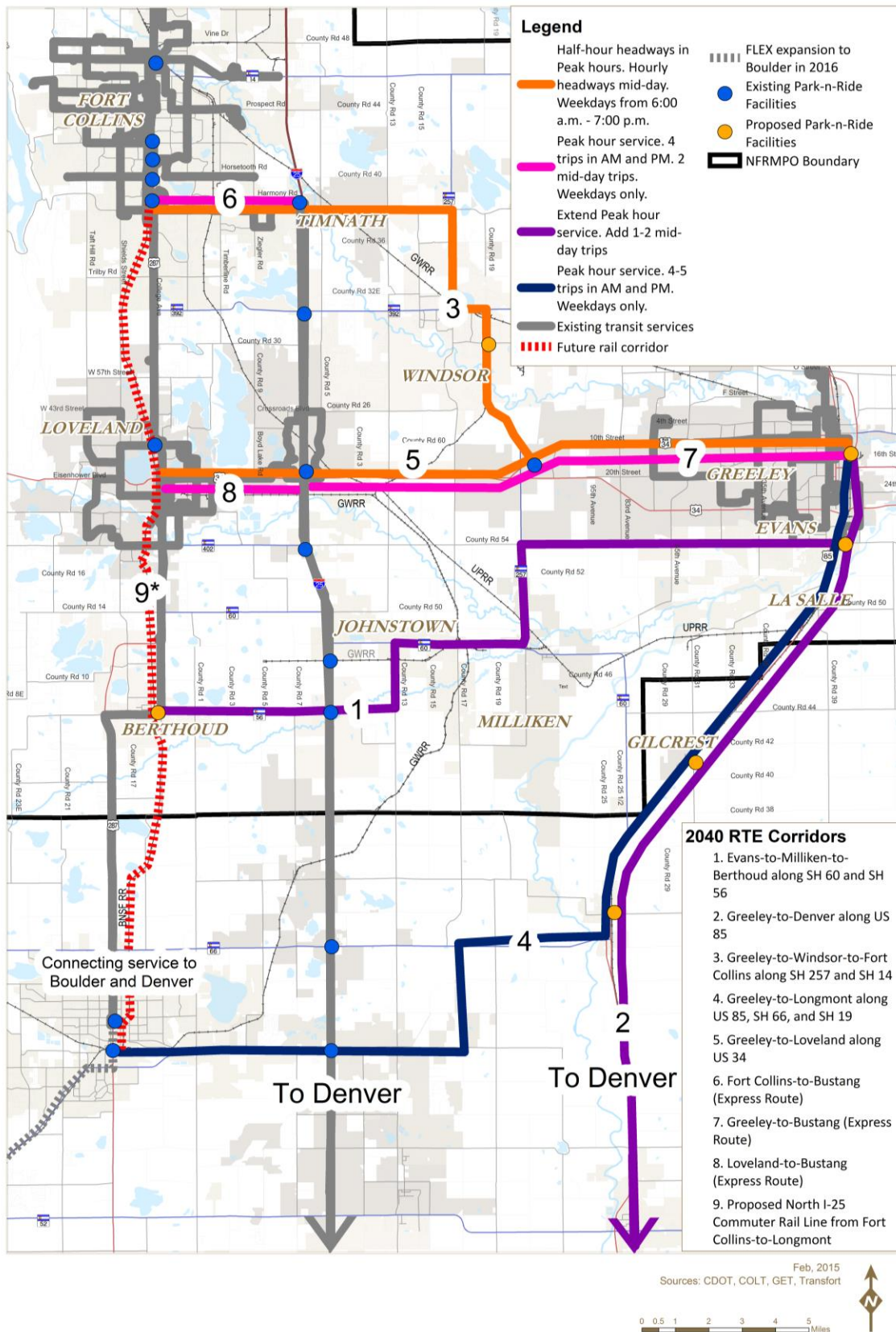


Table 5.1 Conceptual Service Plan

Corridor	Alternative			
	Status Quo	Basic	Moderate	High
Evans-to-Milliken-to-Berthoud along SH 60 and SH 56	Vanpool Only	Vanpool Only	Peak hour service. 4-5 trips in AM and PM. Weekdays only.	Extend Peak hour service. Add 1-2 mid-day trips
Greeley/Evans-to-Denver along US 85	Vanpool Only	Vanpool Only	Peak hour service. 4-5 trips in AM and PM. Weekdays only.	Extend Peak hour service. Add 1-2 mid-day trips
Greeley/Evans-to-Windsor-to-Fort Collins along SH 257 and SH 14	Vanpool Only	Peak hour service. 4-5 trips in AM and PM. Weekdays only.	Extend Peak hour service. Add 1-2 mid-day trips	Half-hour headways in Peak hours. Hourly headways mid-day. Weekdays from 6:00 a.m.-7:00 p.m.
Greeley/Evans-to-Longmont along US 85, SH 66, and SH 119	Vanpool Only	Vanpool Only	Vanpool Only	Peak hour service. 4-5 trips in AM and PM. Weekdays only.
Greeley/Evans-to-Loveland along US 34	Auto/Carpool Only	Auto/Carpool Only	Peak hour service. 4-5 trips in AM and PM. Weekdays only.	Half-hour headways in Peak hours. Hourly headways mid-day. Weekdays from 6:00 a.m.-7:00 p.m.
Fort Collins to Bustang (Express Route)	Auto/Carpool Only	Peak hour service. 4 trips in AM and PM. Weekdays only.	Peak hour service. 4 trips in AM and PM. 2 mid-day trips. Weekdays only.	Peak hour service. 4 trips in AM and PM. 2 mid-day trips. Weekdays only.
Greeley/Evans to Bustang (Express Route)	Auto/Carpool Only	Auto/Carpool Only	Peak hour service. 4 trips in AM and PM. Weekdays only.	Peak hour service. 4 trips in AM and PM. 2 mid-day trips. Weekdays only.
Loveland to Bustang (Express Route)	Auto/Carpool Only	Auto/Carpool Only	Peak hour service. 4 trips in AM and PM. Weekdays only.	Peak hour service. 4 trips in AM and PM. 2 mid-day trips. Weekdays only.

Table 5.2 Characteristics of Alternatives

Characteristic	Status Quo	Basic	Moderate	High
Annual Service Hours	17,737	42,479	85,382	160,820
Annual Miles	372,572	883,116	1,719,958	3,010,330
Peak Period Vehicles	4	11	17	30
Operating Costs at \$90/hour	\$1.6 M	\$3.8 M	\$7.7 M	\$14.5 M
Annualized Vehicle Costs (\$500,000/vehicle)	\$0.1 M	\$0.2 M	\$0.3 M	\$0.6 M
Annualized Operating Facility Costs	\$0 M	\$0.1 M	\$ 0.2 M	\$0.3 M
TOTAL ANNUAL COSTS	\$1.7 M	\$4.1 M	\$8.2 M	\$15.4 M

There is a general level of service, fleet size, and expenditure associated with each alternative. The actual development and demand may occur at a different rate in some corridors than is envisioned in this 2040 RTE. This would likely result in resources shifting between corridors, rather than increasing the overall level of service.

Regional services cannot exist apart from local and feeder services. Continued evolution of local transit services, as currently anticipated in the planning documents for each service, is expected. While residents will be able to access regional services by bus and car, it is important to provide effective transit access through local transit and bicycle and pedestrian facilities for residents who do not have access to automobiles.

The region is diverse and communities have varying levels of local services. Some areas do not provide local transit at all. Selecting a uniform vision for regional transit services is not required. When a transit service is being developed in a corridor, the emphasis will need to be on agreement between the communities to a specific level of regional services to connect them and ensure adequate access is provided so the service can be successful.

EVALUATION OF ALTERNATIVES

Perspectives on the recommendation for the region were solicited through meetings with local governments in the region. One such meeting was the City of Fort Collins Planning, Development, and Transportation Open House held at the Fort Collins Museum of Discovery on February 20, 2014. Additional meetings in other local communities were also held. Considerations in evaluating the alternatives included:

- **Transportation Network Diversity.** What is the relative importance of providing a diverse set of transportation options, and providing alternative transportation for

various trip markets? Of serving peak commuter needs? Of building a foundation for more extensive service?

- **Corridors.** Are the corridors included in each alternative for transit service appropriate?
- **Regional Services Parallel to Local Service Levels.** How well do the proposed regional services match with planned local transit service levels? Unless it is anticipated that most riders will walk or drive to the regional stops, the lack of adequate feeder service will diminish ridership on regional routes. Similarly, residents and social service programs will likely want transit services that are balanced, with local services parallel in quality to regional options.
- **Financing.** Do the residents support taxes that would be needed to finance public transit? What is the capacity to finance the various levels of service? Financing of transit services in regional corridors will require partnerships between communities within the MPO as well as with entities outside the NFRMPO boundaries and the State.
- **Quantitative Performance Measures.** These may include riders per trip or service mile; passenger miles provided or reduced vehicle miles traveled; fare recovery ratio; or cost per trip.
- **Congestion Mitigation.** To what extent should regional services focus on meeting the needs of the transit dependent population, veterans, and the increasingly aging population and to what extent should it provide congestion relief?
- **Reduce Emissions.** What impact do the regional transit services have on the environment, and in particular air quality?

Ultimately the choices made on the appropriate level of regional transit services will reflect the priorities of the region. Different communities may select different alternatives, reflecting the diversity in the region.

CORRIDOR DEVELOPMENT

The basic service alternative was built from the corridors identified in **Chapter 4**. The service alternatives used mode share calculations to identify the approximate level of ridership anticipated in each corridor, appropriate for the conceptual level of planning undertaken in this 2040 RTE. It is useful to compare the corridors on other factors as well to identify the potential of and priorities for developing corridor services. This section identifies a variety of tools for evaluating the corridors and provides a summary comparison between the corridors.

Designing service for each of the potential corridors will require additional analysis for the exact routes, level of service, and phasing. Additionally, there will need to be a discussion of who the partners will be and how the new service will operate. Considerations such as proximity to an existing local service as well as ridership will need to be taken into account when determining the service operator. The development of corridor service plans for each corridor is recommended. These plans would address detailed transit service planning issues as well as evaluate the potential for TDM activities.

Each route will also have unique logistical and access issues which must be considered. The timing and through routing must also be considered when routes are designed. The travel time and length of a route must be factored into the time needed to serve the route and the number of buses needed to keep it on schedule. This technical analysis should, and will necessarily, be supplemented by social and political considerations. Community or financial support may also incentivize certain routes. Ultimately, the best transit service plan will balance all of these factors: technical feasibility, social need, and political support.

EVALUATION OF POTENTIAL CORRIDORS

A variety of tools can be used to help decision-makers determine how to allocate financial and capital resources between corridors. Criteria are identified for initiating services in a corridor and for maintaining and expanding services. They can assist the MPO communities in building and supporting a comprehensive and cohesive network of regional services. These criteria can also be used to identify priorities for services among the various corridors.

Service Development Criteria

- Number of housing units, schools, and jobs within walking distance (½-mile) of bus stops.
- Number of housing units within driving distance, extending from ½- to 5-miles from park-n-ride facilities, transfer centers, or bus stops.
- Level of transit service connections.
- Number of vanpool riders traveling in a corridor. While the unique characteristics of vanpools make them an imperfect predictor of future transit systems, high numbers of vanpoolers in a corridor provide a ready market for a new transit system which may offer lower cost transportation to the passenger, independence, and more flexibility in travel time.
- Directness of service measured in travel time for the bus portion of route. If travel time is less than 1.5 times auto travel time, the corridor could be considered to

have high potential; between 1.5 and 2 times auto travel time – medium potential; or more than 2 times auto travel time – low potential.²

- Is the land use development along a corridor conducive to transit service with good bicycle/pedestrian and bus access? Serving developments by diverting regional buses from their main route is typically unproductive. The gain in passengers from a specific development can be offset by the loss of passengers frustrated by the additional time en route.

Service development criteria are used to compare the efficiency of various corridors. It is also useful to consider when development is anticipated to occur and the transit services that might be appropriate in the corridor over time.

The corridor between Greeley and Loveland, along the US 34 corridor (Corridor 5), stands out. This corridor performed the best in the transit model analysis and would allow an east-west transit connection currently missing in the region. While a trial transit service, the 34 Xpress, operated along this corridor for almost two years and was subsequently terminated due to low ridership, the corridor analysis shows there is a future demand for this service. It is recommended the Greeley/Evans area to Loveland corridor along US 34 be high on the list of corridors where detailed service planning is carried out.

Another corridor where early development of services planning may also be useful is the Greeley/Evans area to Denver corridor along US 85 (Corridor 2). Commuter bus service along US 85 was identified in the preferred alternative for the North I-25 EIS. This is a corridor with logistical complexities, including roadway access for pedestrians, park-n-ride access, set-backs for buildings, and local transit connections. Construction of new park-n-ride facilities is underway due to current demand for multimodal connections and future transit service. It may be useful to identify how to connect riders for the first and last miles of their trips. Working through these issues early in the process provides more opportunities to overcome difficulties and establish successful services.

Service Standards

Regional service standards should be established as criteria for maintain or expanding services. It will be important to establish criteria for maintaining and expanding services, similar to the criteria for initial development. Categories for maintaining or expanding services may be quantitative or qualitative. Quantitative measures could include:

- Passengers per trip or per hour;
- Total cost and fare recovery per trip; and
- Passenger miles traveled or vehicle miles reduced.

² TCRP Report 165: Transit Capacity and Quality of Service Manual, Third Edition

These quantitative measures will need to show the investment in these services generally compare fairly with other transit service investments. The scales for the routes will be different due to distance traveled, making passengers per trip a better measure across corridors than passengers per hour or per mile.

The qualitative measures are more difficult to capture and will be guided by the network plan, goals, and objectives. Important categories include:

- Providing stable and continuous services;
- Building on successes; and
- Providing a comprehensive network with services to all major population and activity centers.

The quantitative measures are supportive of each other, for example, a route with high ridership will rank well in each category. On the other hand, the qualitative measures require finding balance. Where resources are limited, choices to build on successes and placing additional resources into an existing route will pull resources away from establishing services in new corridors. This requirement for balance can be addressed in the development of the network plan and goals and also in evaluating governance and financing options.

Additionally, Environmental Justice (EJ) must be considered. EJ is defined by the EPA as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.³ This analysis includes the following principles:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations in relation to transportation improvements.
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
3. To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.⁴

³ EPA, Environmental Justice Website: <http://www.epa.gov/environmentaljustice/>

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CONCLUSION

This chapter has provided the big picture of four basic service alternatives:

- Status Quo
- Basic
- Moderate
- High

A rail alternative was also described; however, detailed planning was not completed as it is outside the scope and time horizon of this 2040 RTE. The alternatives are described by the level and type of regional services that would be provided in each corridor.

Additionally, information has been provided on how the individual corridors compare with each other and tools for developing services. These include:

- Criteria for developing regional transit services;
- Criteria for maintaining or expanding regional services; and,
- The recommendation that detailed service planning occurs for each corridor prior to implementing transit services.

In considering the basic service alternatives, it will also be useful to conduct a detailed financial analysis. This will provide a break-out of how costs might be split between federal, State, and local sources.

Ultimately, the choices made as the appropriate level of regional transit services will reflect the priorities of the region. It is likely different communities will select different alternatives reflecting the diversity in the region.

SUMMARY OF RECOMMENDATIONS FROM CHAPTER 5

The best transit service plan will balance all of these factors: technical feasibility, social need, and political support. The region should:

- Assist smaller communities within the region with senior transit services between communities and to transit centers is a recommended priority for essentials, such as medical and grocery store trips;
- Develop service standards for each corridor; and
- Continue work set out in the previously completed feasibility studies.