

CHAPTER 4: DEMAND ANALYSIS

A wide range of factors influence the demand for transit services. One factor is community values, which include the relative degree to which there is an emphasis on the provision or support of alternative transportation modes. Other factors include land use patterns and the relationship of residents to activity centers, travel patterns in the communities and region, population and employment density, transportation infrastructure (such as roadways, bicycle and pedestrian facilities, etc.) and the affordability and availability of viable transit services, including connecting services.

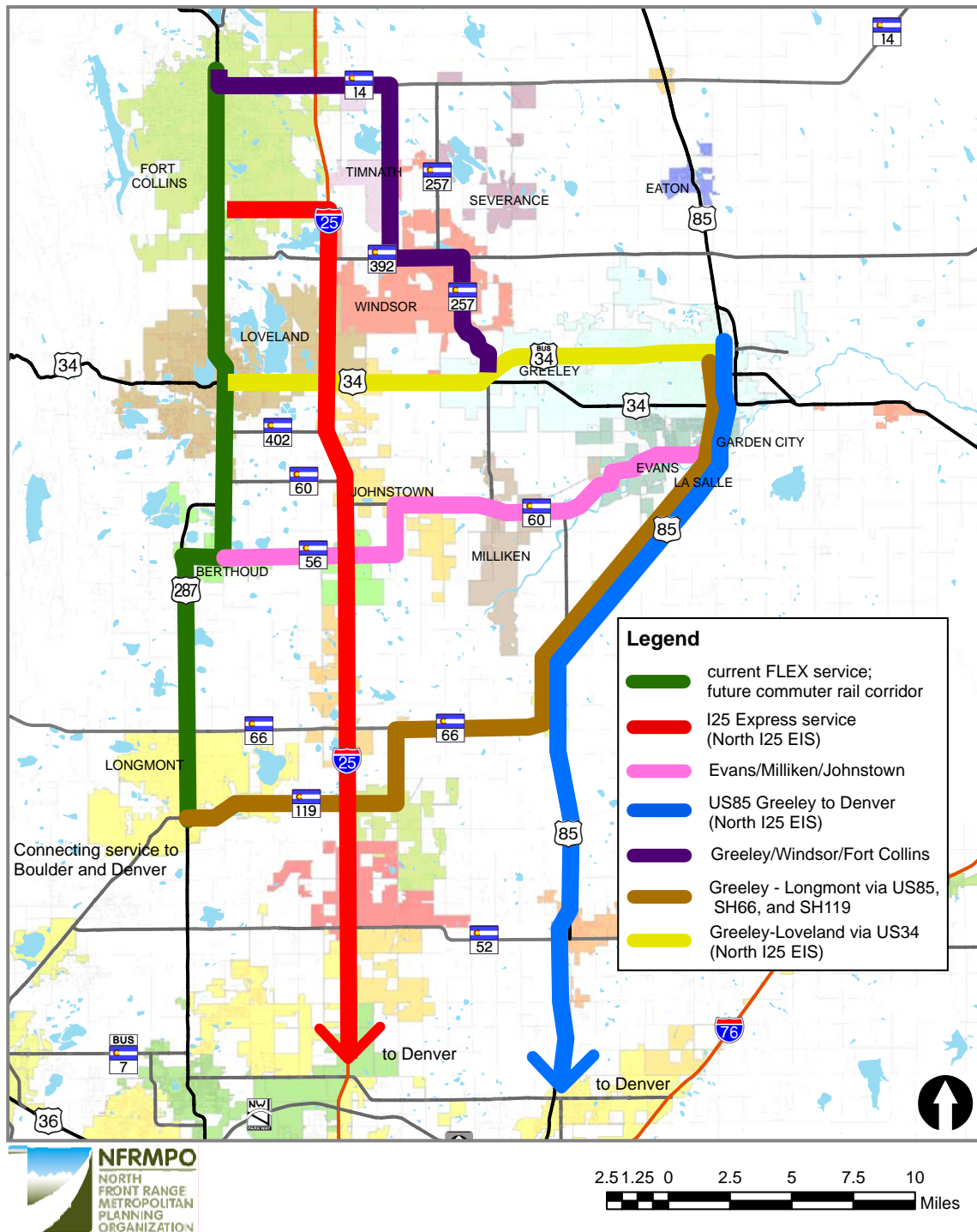
This section focuses on total potential demand for transit services in key regional corridors. The corridors are illustrated in Figure 4-1. These have been developed based on the region's travel patterns, and are similar to the corridors analyzed in the North I-25 EIS. The differences are:

- The Windsor corridor continues north to Highway 14, traveling to the Fort Collins downtown transit center rather than traveling on Harmony Road to the South Transit Center;
- The Johnstown/Milliken route continues east to Greeley/Evans and rather than ending in Milliken; and,
- An additional corridor has been defined to connect the Greeley/Evans area to State Highway 119 in Longmont, recognizing the importance of travel patterns from Weld County to Longmont and Boulder County.

It is recognized that additional services will be needed to connect communities within the region. Lines have been included to illustrate the routes similar to those planned in the Johnstown/Milliken/Windsor transit study to connect Windsor to Fort Collins (South Transit Center) and Milliken/Johnstown to Loveland. In addition, a route connecting Windsor to Loveland has been added.

Tools for calculating demand include basic demographic information and travel models. No one source of information is perfect, but together they can provide a realistic picture. For this region, both the combined travel model used in the North I-25 EIS and the 2035 NFRMPO travel model with a 2005 base year are useful.

Figure 4-1: Draft Regional Transit Corridors for Evaluation



An advantage of the combined travel model for the North I-25 EIS is that it includes the trips that cross the zones between the Denver planning area and the NFRMPO planning area. The NFRMPO model only includes trips internal to the region, with information on total external trips crossing at each station – but not information on the destination for these trips with one end outside the NFRMPO region. *However, the model run used in the Draft I-25 EIS resulted in transit estimates that appear to be quite high, so they must be used with caution.*

The NFRMPO and the Denver Regional Council of Governments (DRCOG) are currently updating their models in a manner that will allow for easier integration of data. Both agencies have completed household surveys and will be using this information to update their models over the next few months.

Beginning with the NFRMPO travel model, it is useful to frame the discussion by examining the traffic volumes that occur on the roadways today and anticipated in 2035, as illustrated in Figures 4-2 and 4-3. The congestion levels are very high on major regional roadways, and we begin to see traffic moving to alternate routes (e.g., from US 34 to SH 402 in Loveland) although these routes also quickly become congested. Given the high levels of congestion, it will be important to emphasize how the various modes (automobile, carpools, vanpools, and transit) can combine to improve the carrying capacity of the roadway network.

The consultant team has worked with the data in the NFRMPO travel model to develop an understanding of how the anticipated growth that will occur over the next 25 years will impact transit ridership in regional corridors. To this end, the region was divided into 15 sub-areas that provide information on where trips originate and the regional corridors in which they are most likely to travel. The zones, along with detailed tables with calculations for each zone, are presented in Appendix D.

The travel demand analysis included the following steps:

1. Creation of trip matrices for 2005, 2015, 2025, and 2035 showing the trip productions and attractions for each of the 15 zones.
2. Each zone pair was analyzed in order to determine which (if any) regional corridor would collect trips from the zone pair. Each zone pair was color-coded to reflect the corridor. A percentage was assigned to reflect an estimated amount of the trips that would fall into the regional corridor.

Figure 4-2: 2005 Base Year Model Volumes and Level of Service

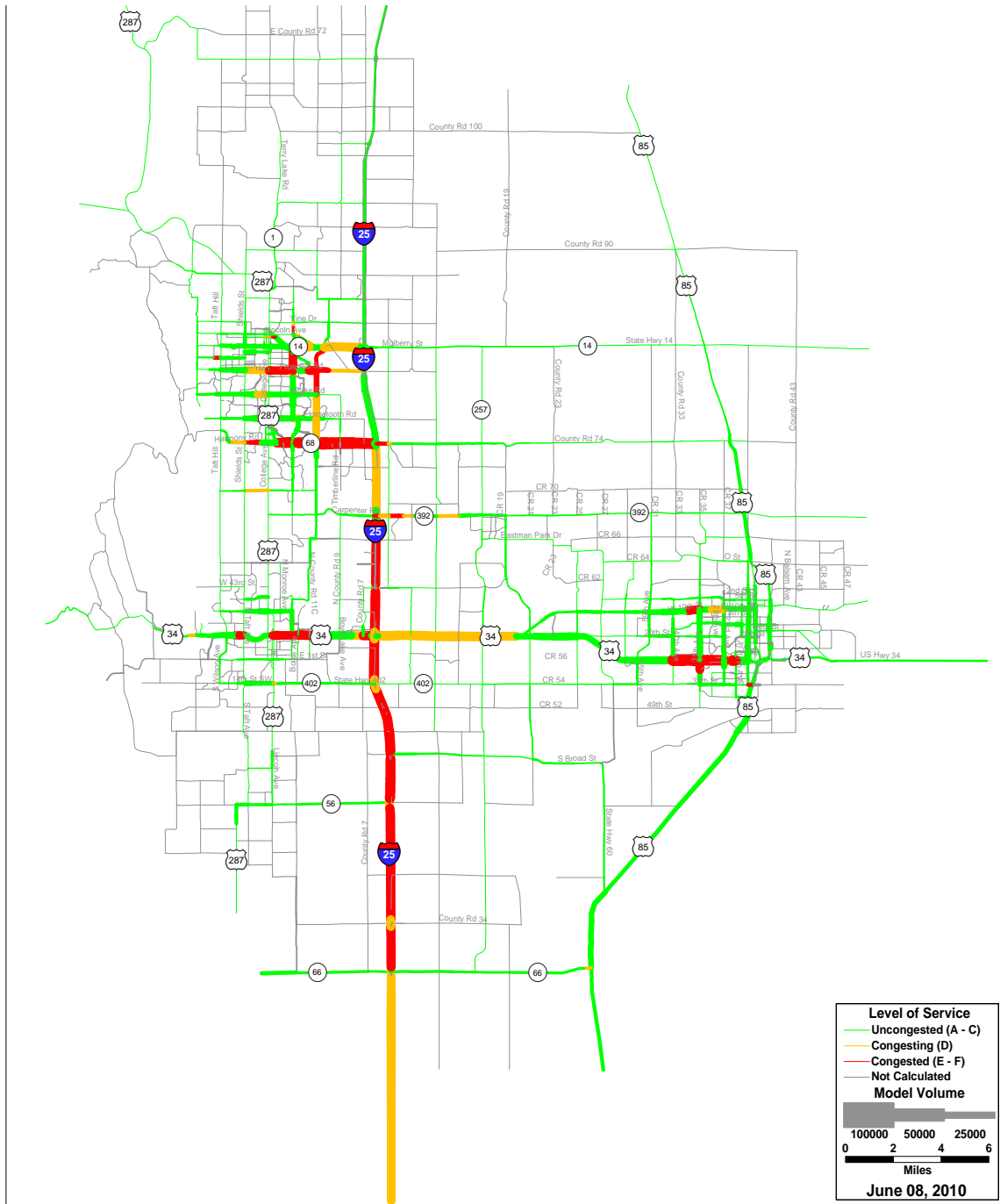
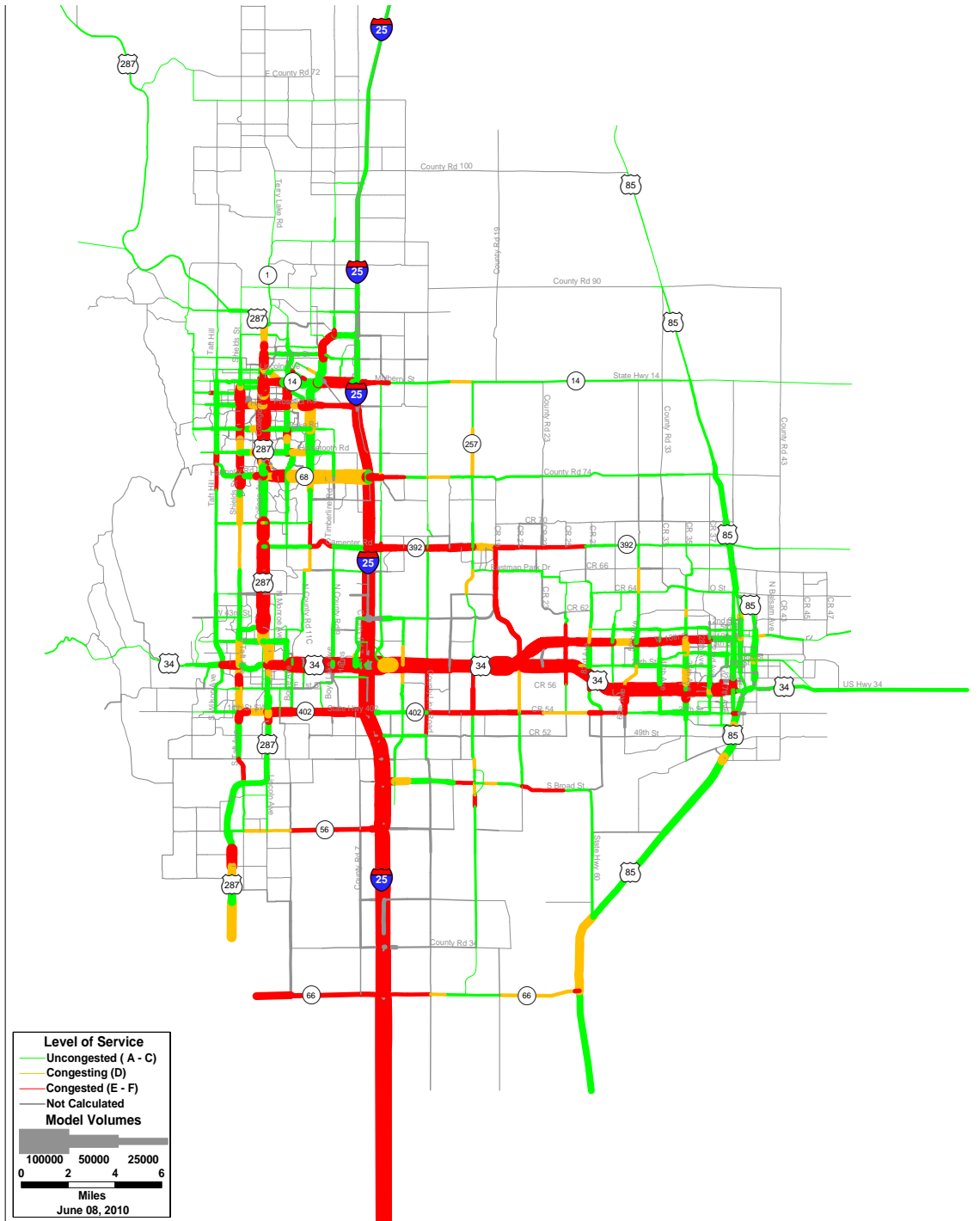


Figure 4-3: 2035 Model Volumes and Level of Service



1. The external trips were also identified for each zone. As with internal trips, each pair was identified with a regional corridor, if applicable, and a percentage assigned to reflect an estimated portion of the trips that would fall into the particular regional corridor.
2. Multiplying the total trips in each zone pair by the percentage for each corridor resulted in the trips that would have the potential demand for transit services.
3. A mode share of 0.5 -- 2% was selected to determine a range for trips that might be likely to use transit. A higher percentage of work trips might switch to the transit mode and over time these percentages might increase, but this range is reasonable given the overall conditions in these corridors. It is also consistent with the most recent Household Travel Survey undertaken by the NFRMPO in 2010.

The evaluation of the zone-to-zone trips showed some important changes as we move towards 2035:

- Overall trips nearly double in this time period. In 2005 the model estimates 2.2 million daily person trips while in 2035 the model estimates 3.7 million daily person trips.
- Much of the growth is projected to occur in the middle of the region – from Timnath to Mead and Johnston to West Greeley.

It is useful to compare the basic demand estimations from the North I-25 EIS to the results of this local analysis. Table 4-1 identifies each corridor and the estimates. Note that the North I-25 EIS estimates are for 2030 while the estimates prepared for the NFR Regional Transit Element are for 2035.

The comparison shows a high level of variation between estimation methods. The estimates for corridors A (US 287) and G (Fort Collins/Windsor/Greeley) are closest to those arrived at through the manual analysis.

Travel models are calibrated using real-world experience: do the ridership and traffic volumes predicted by the model match up to observed performance in the initial year? The difficulty is that since these are largely new corridors for transit service, there is little to compare them with. However, transit service does exist in the US 287 corridor and service similar to that proposed in the North I-25 EIS has operated in the I-25 corridor south of Denver.

Table 4-1: Comparison of Demand by Corridor

Corridor	North I-25 EIS 2030 Projection	NFRMPO Travel Model Analysis for 2035		
		0.5% of Trips	1% of Trips	2% of Trips
A: US 287	1,400 – 2,175	542	1,085	2,170
B: I-25		663	1,326	2,653
C: US 85	725 – 1,175	58	115	230
D: Greeley / Longmont (119)	N/A	26	52	104
E: Evans/Milliken /Johnstown	200	44	87	175
F: Hwy 34	2,500	207	415	830
G: Fort Collins/ Windsor/Greeley	260	130	260	519

Notes:

1. N I-25 EIS projections are for commuter rail, not bus service, in the US 287 corridor.
2. The Greeley/Longmont corridor was not included in the N I-25 EIS analysis.
3. The N I-25 EIS analysis did not connect corridor E to Evans – rather it operated only to Milliken.
4. Corridor G (Windsor) in the N I-25 EIS traveled north from Windsor on US 257 to Harmony Road, ending at the Fort Collins South Transit Center. In the NFRMPO travel model analysis the route travels north on Weld County Road 13 and east on SH 14 to the Downtown Transit Center.

- The FoxTrot service operating on US 287 between Fort Collins and Loveland was carrying approximately 325 passengers daily. In addition, the local Transfort route serving College Avenue in Fort Collins carries just over 1,000 riders daily. Additional riders now use the FLEX (which has replaced the prior FoxTrot route). The corridor totals in the analysis do not differentiate between types of services. The combined totals for current services amount to just over 1% of the total trips.
- The Front Range Express (FREX) service between Colorado Springs and Denver carries approximately 600 riders daily⁵. FREX serves a larger employment area and larger population base than North I-25 EIS bus service would serve. In addition to employees in downtown Denver, an equal number of jobs in the Denver Tech Center are served by FREX, although transfers are required. One would expect the North I-25 EIS service to carry somewhat fewer riders than the FREX service because the employment base

⁵ Source: Mountain Metro Transit statistics. A high ridership of approximately 800 one-way trips per day occurred in 2008 when gas prices were at their peak, but 600 represents ridership in more typical conditions.

it would directly serve is smaller. Therefore, the estimate of 0.5% of total trips is likely the closest – and it may be on the high side.

- The 34Xpress pilot garnered a handful of riders, but the service was not designed to be as direct as would be necessary or to connect with US 287 – both important conditions for service in these corridors. This trial points out the logistical problems associated with providing effective transit services in some of these corridors, as long excursions off the highway to enable passengers to access businesses slows down the service – or requires other feeder services to move passengers within walking distance of the businesses. While ridership on this route would likely grow over time, the estimate of 0.5% of total trips is a good starting point.

The estimates in this chapter reflect a conservative approach to determining potential routes that warrant additional evaluation and help to define the services that may be appropriate.