

Boulder County *US 287 BRT*

287

Bus Rapid Transit
Feasibility Study

EXISTING CONDITIONS



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INTRODUCTION

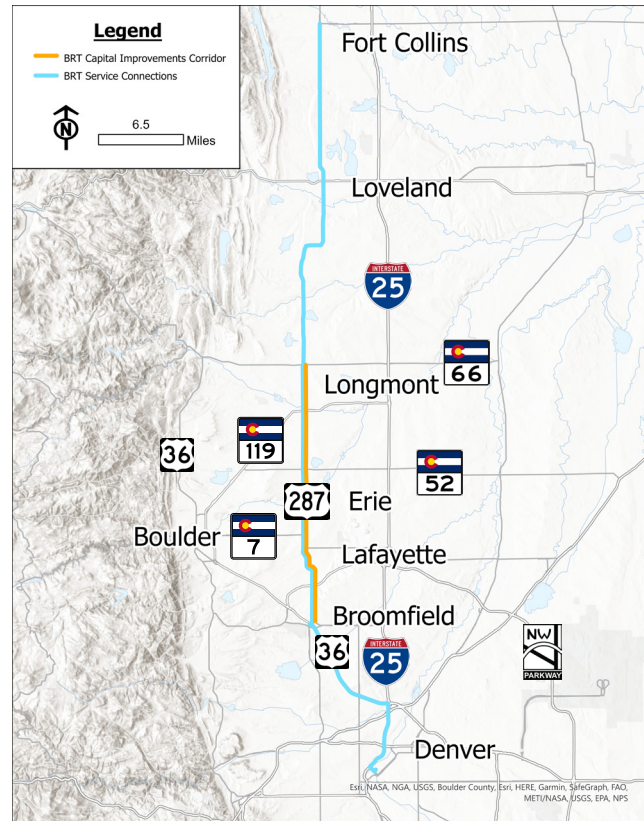
Study Objective

The US 287 Bus Rapid Transit (BRT) Feasibility Study intends to study and understand north-south mobility needs along US 287 and recommend specific capital and transit service enhancements for the corridor. A comprehensive understanding of multimodal needs and desires along the corridor is critical before making specific modal transportation investments. The primary goal of this study is to understand the feasibility of BRT on US 287, but the study also considers other transportation investments.

Study Area

Boulder County and City and County of Broomfield undertook this feasibility study to understand and prepare for future capital investments on US 287 within their jurisdictions; however, understanding the regional transit network and travel demand south to Denver and north to Fort Collins created the need for a larger study area. For this reason, capital recommendations are focused on US 287 between Broomfield and Longmont, but service improvements cover the greater region between Denver and Fort Collins.

Figure 1: Study Area



Covid-19 Implications

This study was conducted in 2020 during the Covid-19 pandemic that challenged traditional travel behavior assumptions. As a result, the project team took extra care to differentiate between pre-Covid transit and travel data and post-Covid projections. The assumptions made during the study should be re-visited during the next phase of study.

Detailed information on traffic projections, assumptions and factoring can be found on page 31 of the report.

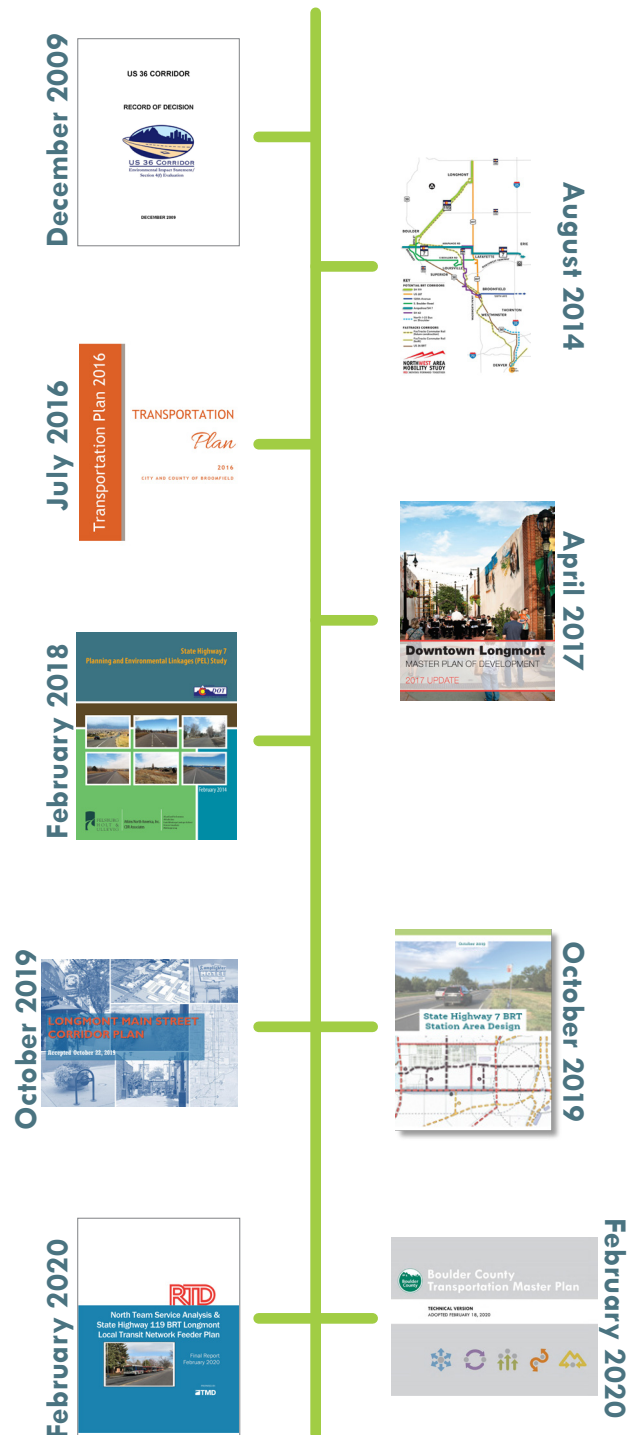
REVIEW OF PREVIOUS PLANS AND STUDIES

Over the years, several published plans and studies have set the context and framework for the US 287 BRT. These guiding plans and studies have set a solid foundation for the vision of transportation on the US 287 corridor, including the potential for BRT. The reviewed plans and studies included documents from Boulder County, local municipalities along the corridor, and the Regional Transportation District (RTD):

- Northwest Area Mobility (NAM) Study
- City and County of Broomfield Transportation Plan
- US 36 Environmental Impact Statement
- Downtown Longmont Master Plan of Development
- State Highway (SH) 7 Planning and Environmental Linkages (PEL) Study
- Longmont Main Street Corridor Plan
- Boulder County Transportation Master Plan
- State Highway 7 BRT Station Area Design
- RTD North Team Service Analysis & State Highway 119 BRT Feeder Plan

The following sections outline the information from each of these plans that is relevant to the US 287 BRT Feasibility Study.

Timeline of Previous Studies



Northwest Area Mobility Study (NAMS)

Adopted: August 2014 - Agency: RTD

In 2014, RTD and its partners completed the NAMS which evaluated several different corridors for the implementation of BRT. For each of the potential corridors, the report outlined service details, including headways, routes, potential station locations, Transit Signal Priority (TSP) locations, projected ridership, and capital cost estimates. Tables 1 and 2 summarize the key recommendations from the NAMS that pertain to implementation of BRT along US 287.

US 287 was one of the potential BRT corridors that was identified and evaluated in the NAMS. Of the potential BRT routes that were evaluated in the study, the US 287 BRT was projected to have the highest boardings per revenue hour while maintaining the lowest subsidy per boarding. Based on these promising findings, NAMS recommended that the US 287 BRT be implemented in the short-term and be prioritized over other BRT corridors in the region.

Table 1: US 287 BRT Key Characteristics Identified by NAMS

Statistic	Description
Starts/Ends:	US 287/ Wal-Mart PnR in Longmont to Transit Way and Uptown Avenue
Length:	<ul style="list-style-type: none"> 21.8 miles 58% bus on shoulder (On US 287 from Ken Pratt Blvd to Arapahoe Rd and from S. Public Rd to Midway Blvd.)
Travel Time (Start to End):	39 minutes from 21st PnR to Broomfield PnR
Number of Stations:	34
Projected 2035 Boardings:	8,000-9,000
Estimated Capital Cost:	\$56,300,000
Key Characteristics:	<ul style="list-style-type: none"> Direct connection from Longmont to US 36 BRT service corridor Opportunities for bus on shoulder application Limited stop service Connects Louisville and Lafayette to the north and south Connects to two other potential arterial BRT routes at the Broomfield US 36 BRT station

Source: RTD, 2014, NAMS

Table 2: US 287 BRT Station Locations, Transit Signal Priority, and Park and Ride Locations Identified by NAMS

	Station and TSP Locations	Queue/TSP	Station	PnR Location	# of Stations
1	Main Street at Wal-Mart PNR	Yes	Yes - Minor	Yes	1
2	Main Street at 21st Ave	Yes	Yes - Major	Yes	2
3	Main at 17th Ave	Yes	Yes	No	2
4	Main St at Mountain View Ave	No	Yes	No	2
5	*Coffman at 8th Street	No	Yes - Major	Yes	2
6	Coffman St at 6th Ave	No	Yes	No	2
7	*Coffman and 3rd Ave	Yes	Yes	No	2
8	*Main and 1st Ave	Yes	Yes - Major	No	2
9	US 287 and Delaware Ave	No	Yes	No	2
10	**US 287 and Pike	No	Yes	No	2
11	**US 287 and Niwot Rd	Yes	Yes	Yes	2
12	**US 287 and CO 52 (Mineral)	Yes	No	No	0
13	**US 287 and Jasper Rd	Yes	Yes	Yes	2
14	**US 287 and Arapahoe Rd	Yes	Yes	No	2
15	***S Boulder Road and S Public Rd	Yes	Yes - Major	Yes	2
16	S Public Rd and Empire Rd	Yes	Yes	No	2
17	**Miromonte Blvd and US 287	Yes	Yes	No	2
18	**Midway Blvd and US 287	Yes	Yes	No	2
19	Interlocken Loop at US 36 WB Ramp	Yes	No	No	0
20	Interlocken Loop at US 36 EB Ramp	Yes	No	No	0
21	Transit Way and Uptown Avenue	No	Yes	Yes	1

*BRT will use Coffman from 8th to 1st Ave

**Shoulder running from Ken Pratt to Arapahoe and Empire Rd to Midway Blvd

***New alignment: US 287 to S Boulder Rd to S Public Rd

Source: RTD, 2014, NAMS

City and County of Broomfield Transportation Master Plan

Adopted: July 2016

Agency: City and County of Broomfield

Published in 2016, the City and County of Broomfield's Transportation Master Plan outlines the vision, goals, policies and actions to guide the implementation of transportation infrastructure in the community. The plan identifies several transportation needs within the community, including along US 287. In the plan, US 287 is identified as one of the major roadways that is operating above capacity conditions. The high demand on US 287 creates an opportunity to BRT on the corridor as a potential solution to increase capacity. Additionally, the plan references the NAM study and cites US 287 as a potential BRT corridor within Broomfield.

US 36 Environmental Impact Statement

Adopted: December 2009

Agency: CDOT, RTD, FHWA and FTA

The US 36 Environmental Impact Statement (EIS) published in 2009 studied multi-modal improvements for the US 36 corridor between Denver and Boulder including improvements at the US 287 interchange. Some of the improvements have been completed, but several remain including the eastbound on and off-ramp configurations, the bridge widening, and the Alter Street Connection.

Table 3: Broomfield Potential BRT Corridors

Potential BRT Corridor	Description	Length (miles)	Number of Stations
120th Avenue	East-west connection from Broomfield to I-25/Adams County Government Center	16.3	18
US 287	Direct Connection from Longmont to US 36 - Lafayette and Broomfield from S. Public Rd to Midway Blvd.)	21.8	34
SH 7	East-west connection from Boulder to northern areas of Lafayette and Broomfield Broomfield PnR	17.9	44

Source: City and County of Broomfield, 2016, Transportation Master Plan

Downtown Longmont Master Plan of Development

Adopted: April 2017

Agency: City of Longmont

The Downtown Longmont Master Plan of Development outlines the community's vision, goals, and strategies for guiding development within Longmont's downtown. Since US 287 is Longmont's Main Street through its downtown, the corridor plays a critical role in the character and development of the area. One of the goals that is identified by the plan is to "improve and expand the infrastructure that ensures Downtown is well-connected and easily accessible by multiple transportation modes." The plan goes on to outline several strategies to achieve the vision and goals for Downtown Longmont, including several strategies to improve pedestrian comfort, enhance bicycle safety, encourage the use of alternative modes of transportation to access downtown, and align transportation and land use planning efforts to achieve a well-connected downtown. These multi-modal improvements along with the coordinated land use planning efforts could support the implementation of the BRT within Downtown Longmont by creating first mile/last mile connections as well as generating ridership.

State Highway 7 Planning and Environmental Linkages Study

Adopted: February 2018

Agency: Boulder County

The SH 7 PEL studies the existing transportation problems on SH 7 between 7th Street and US 287. The SH 7 PEL identifies several multimodal needs along SH 7, including opportunities to improve safety, access to transit facilities, bicycle infrastructure, pedestrian facilities, and traffic operations. The PEL recommended implementing managed lanes, a reversible transit lane, additional lanes at intersections, and several complementary bicycle and pedestrian improvements. The recommendations on SH 7 from the PEL would support the potential for a BRT to be implemented on SH 7 which would be an important regional connection for the US 287 BRT.

Longmont Main Street Corridor Plan

Adopted: October 2019

Agency: City of Longmont

The City of Longmont adopted the Longmont Main Street Corridor Plan to provide recommendations for multimodal enhancements along the corridor. The plan was done concurrently with the 1st and Main Station Transit and Revitalization Plan which promotes multimodal transportation and supporting land uses for future BRT and commuter rail services. The 1st and Main Station plan identified Coffman Street was the potential BRT corridor within downtown as opposed to the Main Street (US 287). As a

result, it is important to consider Coffman Street as part of the US 287 study to allow for potential connections to other transit services. The Longmont Main Street Corridor Plan also identifies several opportunities for infill and mixed-use development along Main Street. These opportunities for supporting land uses along the corridor could generate ridership for the US 287 BRT and provide opportunities for Transit Oriented Development (TOD).

Boulder County Transportation Master Plan

Adopted: February 2020

Agency: Boulder County

The Boulder County Transportation Master Plan (TMP) was adopted in February 2020. The plan is intended to identify transportation improvements that will be needed to meet future transportation needs within the county.

In the plan, US 287 was identified as one of the key north-south travel corridors in the county. As a key travel corridor US 287 was identified as one of the best opportunities to develop a multimodal corridor to serve internal travel between county communities and regional travel that begins or ends outside the county.

The plan also classified US 287 as a major regional corridor that is anticipated to experience moderate population and employment growth, especially in the northern section of Boulder County. It is noted that US 287 serves as the local Main Street through Longmont and that the City

of Longmont is in the process of completing a Main Street Corridor Plan which will set the vision for the future of this corridor.

Additionally, the Boulder County TMP also identifies several improvements that are recommended for implementation along US 287, including:

- Local transit connections
- New Park-n-Ride facilities
- Park-n-Ride capacity improvements
- Bus stop enhancements and first mile/last mile amenities
- Queue jump lanes
- Bike storage
- TSP
- Bikeable shoulders
- Multiuse paths
- Grade-separated crossings for bicyclists and pedestrians
- Intersection improvements for multimodal safety and operations
- Signal detection
- Crossing improvements

RTD North Team Service Analysis & State Highway 119 BRT Feeder Plan

Adopted: December 2019

Agency: RTD

In 2020, RTD performed analysis to take a broad network based approach to identify areas for optimizing local bus service and creating a system in Longmont to connect with proposed BRT. The local changes presented would occur simultaneously with the opening of SH 119 BRT system.

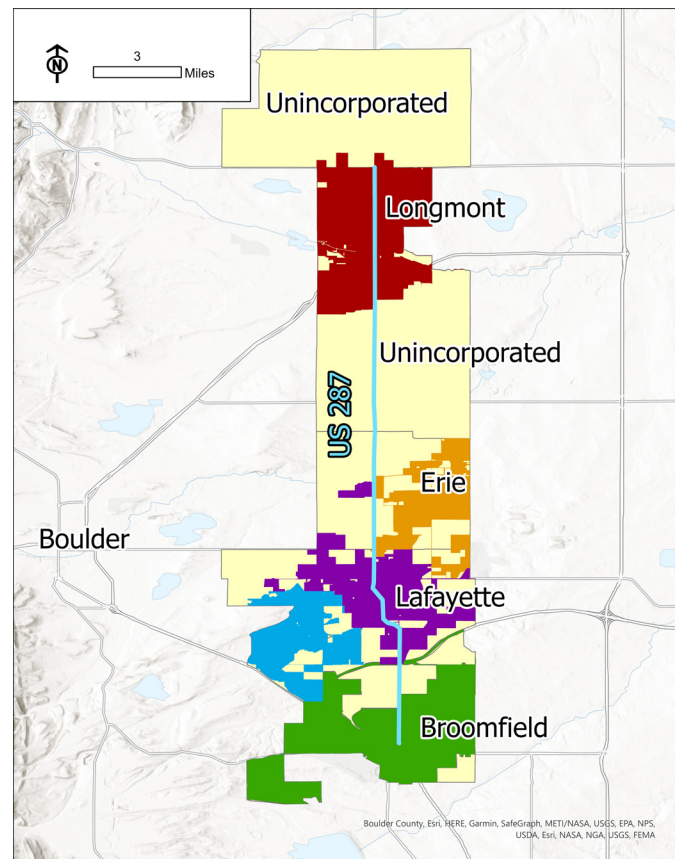
EXISTING CONDITIONS

As a 20-mile corridor, the study area for the US 287 BRT contains a diverse representation of demographics and transportation needs. The purpose of this section of the report is to analyze the existing conditions of the study area and summarize key findings that will inform later stages of the study.

The study area that is used throughout the Existing Conditions report is based on Census Tracts that are within two miles from the US 287 corridor. There are four municipalities that are located within the boundary of the study area: Longmont, Erie, Lafayette, and Broomfield. Figure 2 depicts the study area boundary as well as the areas within the boundary that are incorporated into the municipalities.

The following analysis uses this study area as the basis for determining the characteristics of the demographics that the US 287 corridor would serve. Additionally, this report includes documentation of the existing transportation conditions and infrastructure on the US 287 corridor, including information on the existing transit routes, pedestrian facilities, existing bicycle facilities, and traffic conditions within the study area.

Figure 2: Municipalities within Project Study Area



Population Density

The population within the study area is primarily concentrated within the municipal boundaries of the cities and towns along the corridor. As shown in Figure 3, the Downtown Longmont area has the highest population density within the study area. The rest of the population on the corridor is primarily concentrated around the south section of the study area where Broomfield and Lafayette are located, with a smaller concentration in Erie near the center of the study area. The unincorporated area between Erie and Longmont has the lowest population density within the study area.

Figure 3 also includes statistics on projected growth for each of the areas along the corridor. Erie is forecasted to have the highest percentage of growth, with its population expected to grow 213 percent between 2015 and 2045. The unincorporated area is also forecasted to have a high amount of population growth, with its population expected to grow 79 percent between 2015 and 2045.

Figure 3: Study Area Population Density

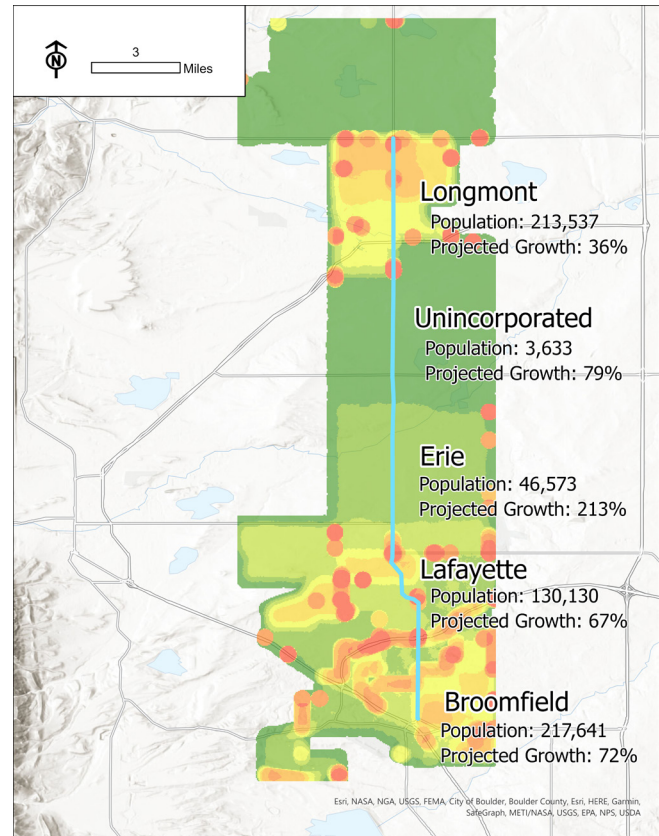
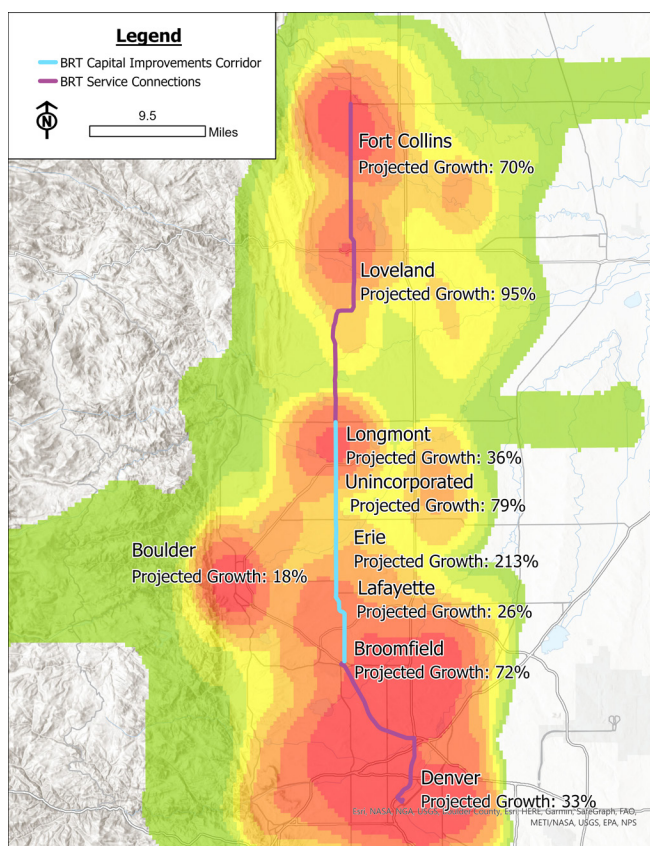


Figure 4: Regional Population Density



Projected growth rates are based on the 2015 and 2045 Statewide Model Traffic Analysis Zone land use data

Quick Facts about Population within the Study Area



147,897

people in study area
(Longmont to Broomfield)



59,399

households in study area
(Longmont to Broomfield)



Projected regional growth:
47%



Projected study area growth:
75%

As explained in Section 1, the US 287 BRT feasibility analysis includes service connections to Fort Collins and Denver. As a result, Figure 4 shows the population density for the larger region to demonstrate the potential demand for the service improvements. Figure 4 also includes statistics on the projected growth for the larger municipalities in the region.

Minority Population and Languages Spoken

Of the population within the study area, 24 percent of the population identifies as non-white. As shown in Figure 5, approximately 16 percent of the population within the study area identifies as Hispanic, making it the second most predominant race ethnicity within the study area after Caucasian.

Figure 5: Racial Breakdown of Study Area

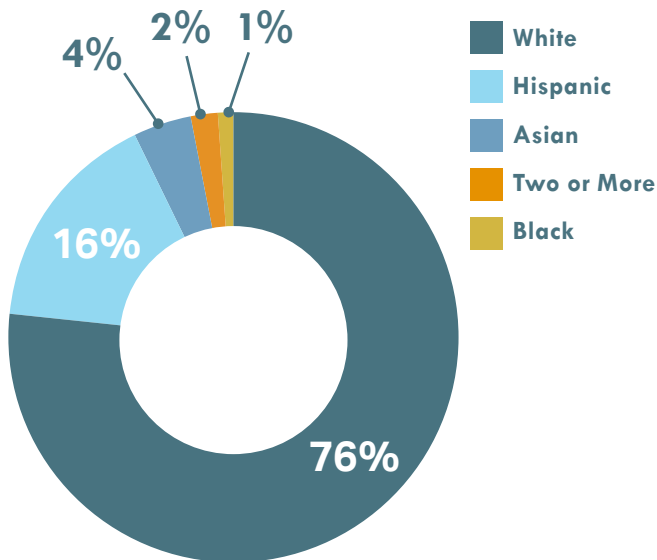
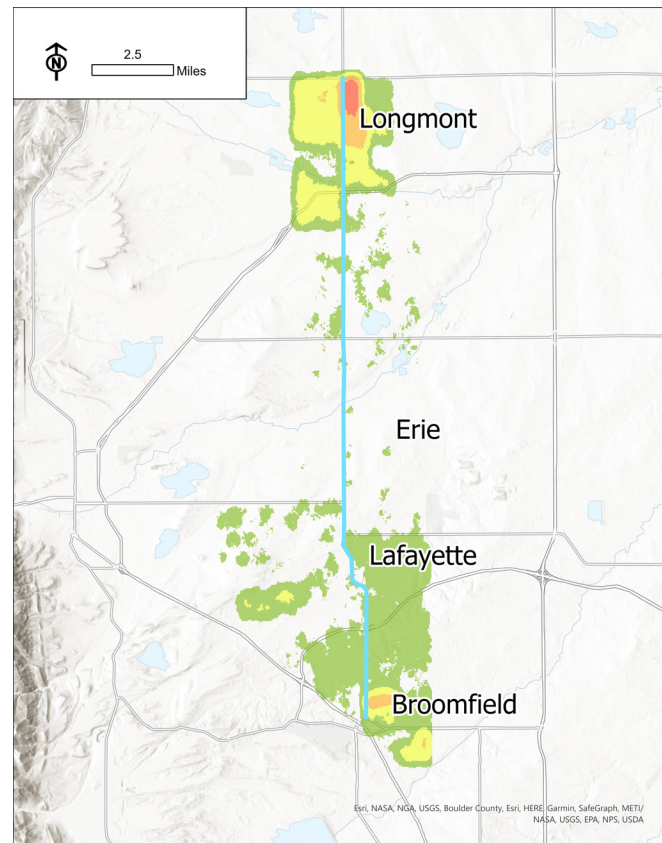


Figure 6: Concentrations of Populations that Speak English “Less Than Very Well” in the Study Area



In terms of English proficiency within the study area, approximately five percent of the population is categorized as speaking English “less than very well.” As shown in Figure 6, the majority of the population people that speaks English “less than very well” are concentrated in Longmont. Most households on the corridor primarily speak English; however, there is also a prevalent Spanish speaking community accounting for approximately ten percent, making Spanish the second most common language spoken within the study area after English.

Age

There is a diversity of age groups that live within the study area. Of the population in the study area, approximately 23 percent are in an age group that puts them at higher risk for having mobility limitations.

Aging populations are defined as populations that are 65 years old or older. Approximately 14 percent of the population in the study area are in the aging population age group. As shown in Figure 7, most of the population that is 65 or older is concentrated in Longmont and Broomfield. There are also several senior facilities that are located within the study area that are shown as red stars in Figure 7.

Approximately 9 percent of the population within the study area are enrolled in either high school or an undergraduate program. As shown in Figure 8, there are students in all four of the municipalities within the study area. There are also numerous high school (blue triangles) and colleges (purple stars) within the study area.

Additionally, the median age of the study area is 38.2. Figure 9 demonstrates the overall age group distribution within the study area.

Figure 7: Aging Populations within Study Area

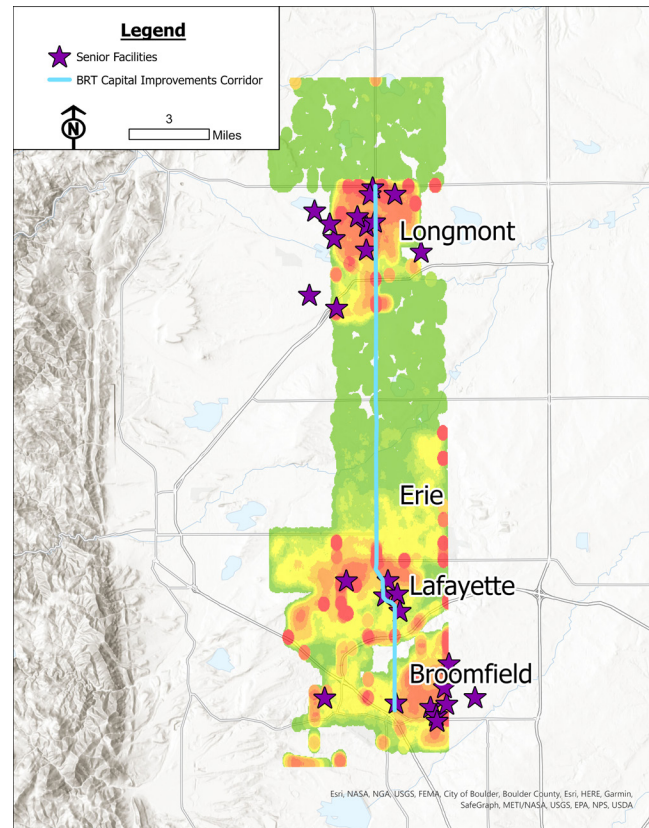


Figure 8: Populations Enrolled in High School or College Within Study Area

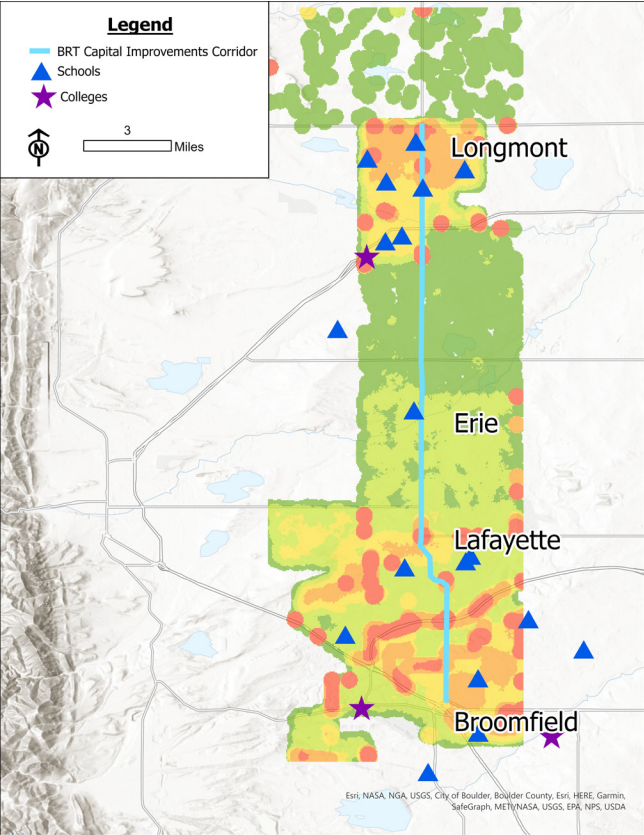
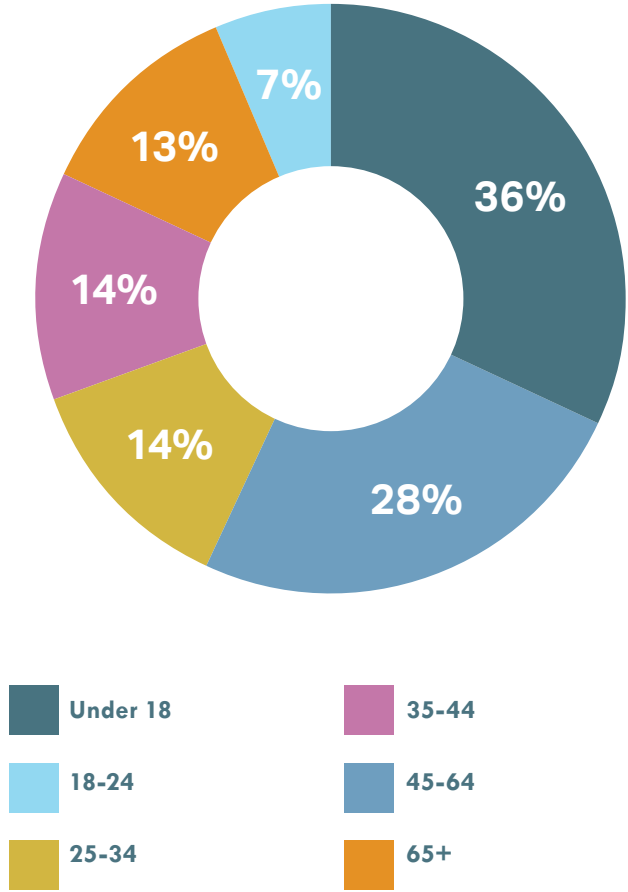


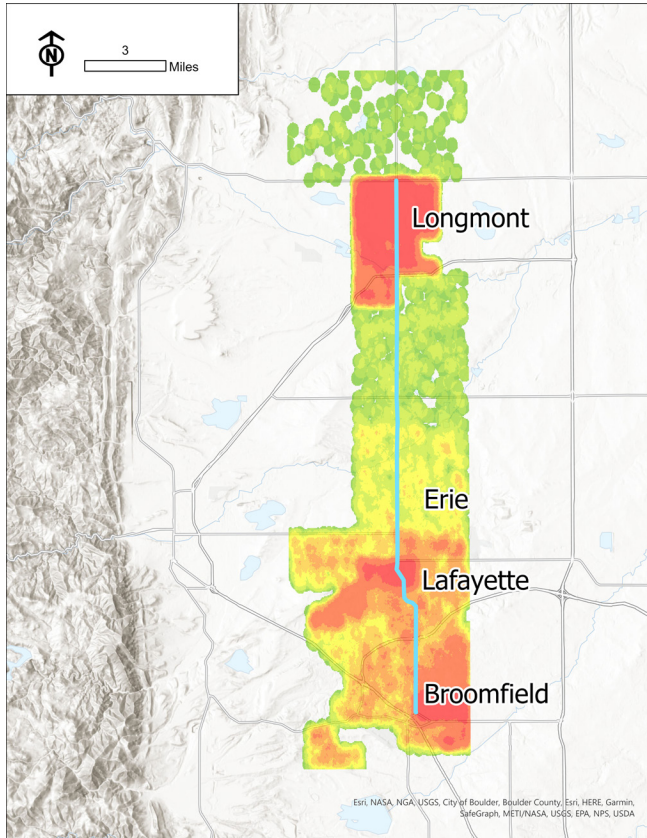
Figure 9: Age Group Distribution within Study Area



38.2
Median Age

32%
Population in a Mobility
Challenged Age Group

Figure 10: Concentrations of People with Disabilities within Study Area



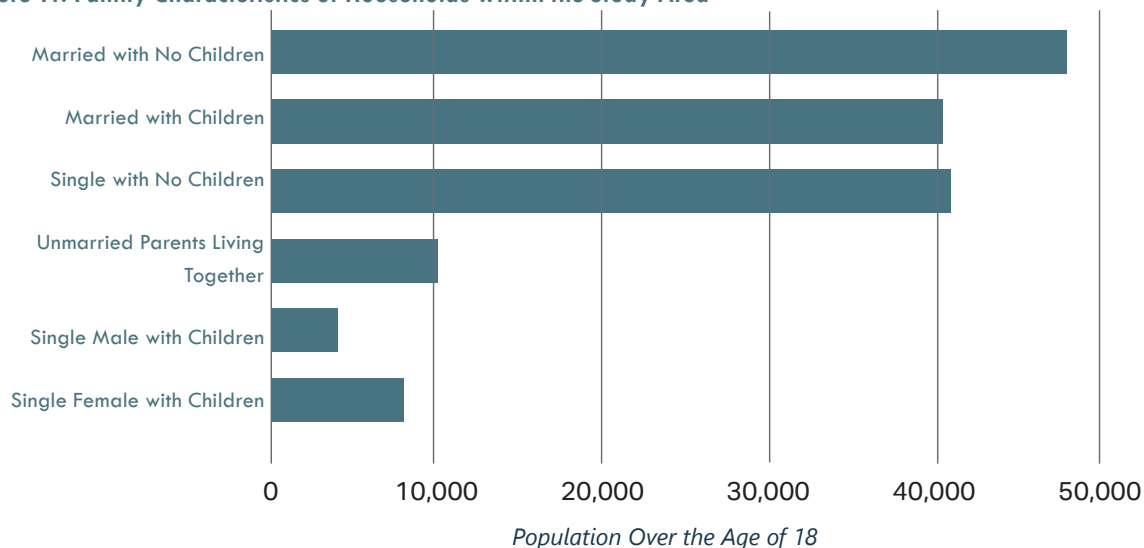
People with Disabilities

People with disabilities may have unique mobility needs that can benefit from high-quality public transit. Within the study area, there are a reported 14,800 people who have a documented disability, accounting for approximately 9.8 percent of the population. Most of the populations that have a disability are concentrated in Longmont, Lafayette, and Broomfield, as shown in Figure 10.

Single Parent Families

Of the households within the study area, approximately seven percent are single parent households. The single parent households are scattered throughout the corridor, with most of them being located within the incorporated areas on the corridor. The majority of the single parent households (approximately 70 percent) are single mothers. Figure 11 summarizes the family characteristics of households in the study area.

Figure 11: Family Characteristics of Households within the Study Area



Employment Density and Commuting Patterns

The jobs that are within the study area are primarily located within Longmont, Broomfield, and Lafayette. As shown in Figure 12, Longmont has the highest employment density near its downtown. Broomfield also has high densities of jobs on the west side of US 287.

As explained in Section 1, the US 287 BRT feasibility study includes service connections to Fort Collins and Denver. Figure 13 shows the employment density for the larger region to demonstrate the potential demand for the potential service improvements. Figure 13 also includes statistics on the projected growth for the larger municipalities in the region.

Based on an analysis of commuting patterns within the study area, most commuters who live in the study area tend to travel south, southwest, and southwest for work. This indicates that many people who live in the study area work in the Denver metropolitan area. Figure 14 demonstrates the direction workers travelled to get to their job from the study area. Figure 15 shows the employment centers people are traveling to within the region.

Figure 12: Concentrations of Jobs within Study Area

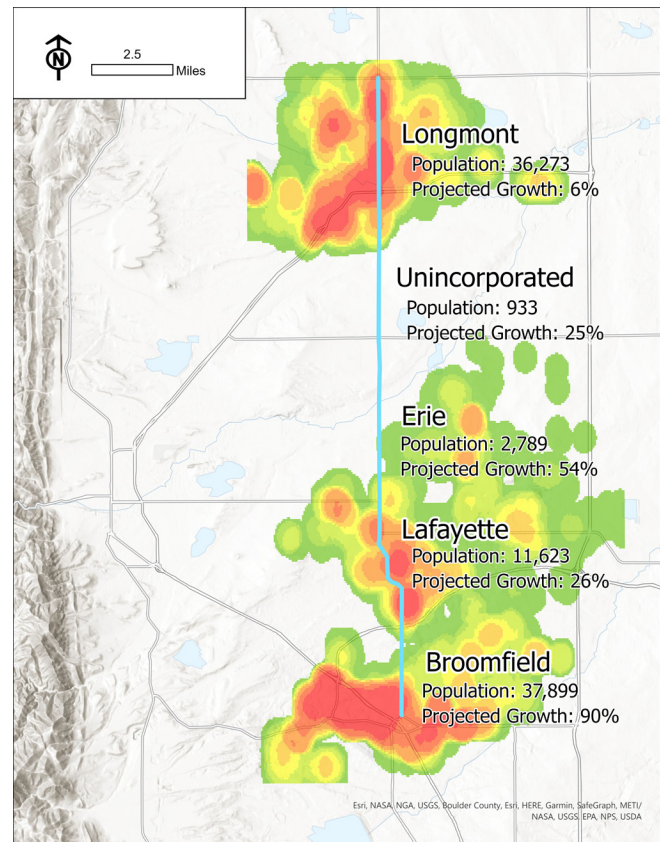
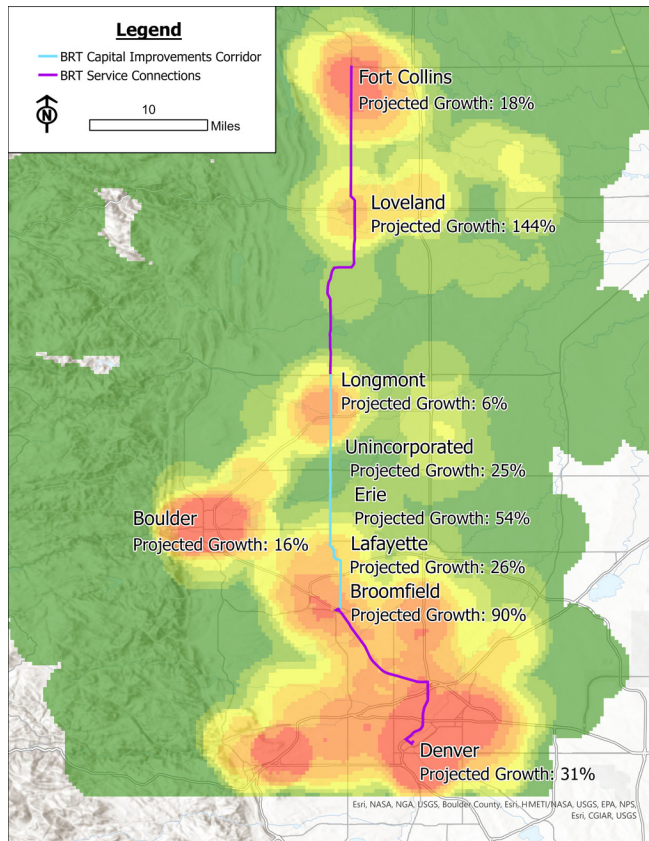


Figure 13: Concentrations of Jobs within Region



Projected growth rates are based on the 2015 and 2045 Statewide Model Traffic Analysis Zone land use data

Figure 14: Distance/Direction of Jobs for People who Live Within the Study Area

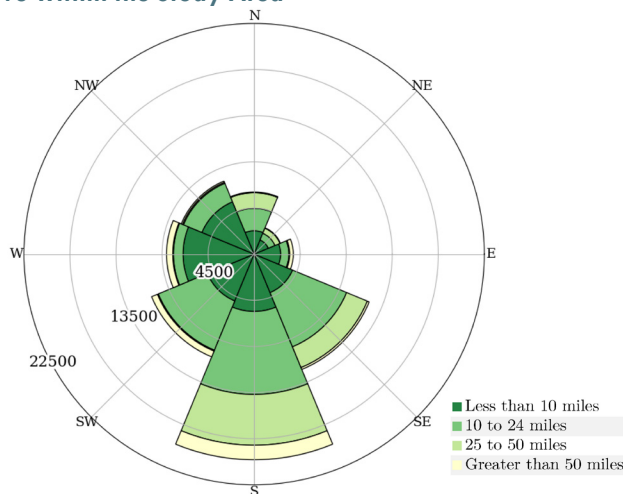
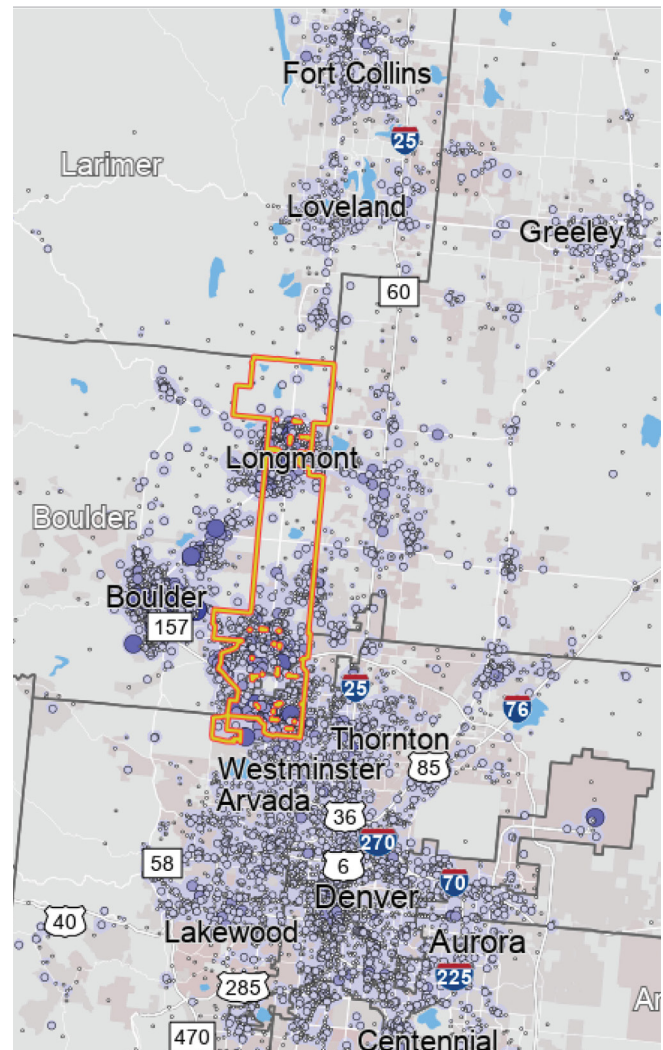


Figure 15: Concentrations of Jobs within Region



Job Density [Jobs/Sq. Mile]	Job Count [Jobs/Census Block]
5 - 210	1 - 3
211 - 826	4 - 43
827 - 1,852	44 - 214
1,853 - 3,290	215 - 676
3,291 - 5,138	677 - 1,649
	Selection Areas
	Analysis Selection

Income

The median household income for the study area is \$86,576. Of the municipalities within the study area, Erie has the highest median income of \$103,558. Lafayette had the lowest median income of \$62,985, as shown in Figure 16. While the median income of the corridor is above the state average, approximately 8.5 percent of the households within the study area are below the poverty line. Longmont has the highest concentration of populations below the poverty line of the municipalities within the study area.

Vehicle Ownership

Most households in the study area own two vehicles, with approximately 41 percent of households owning two vehicles. While most households own at least one vehicle, there are 2,858 households in the study area that do not own a vehicle. Longmont has the highest concentration of car free households, with 718 households that do not own a vehicle. Figure 17 summarizes the household vehicle ownership within the study area.

Figure 16: Median Income within Study Area

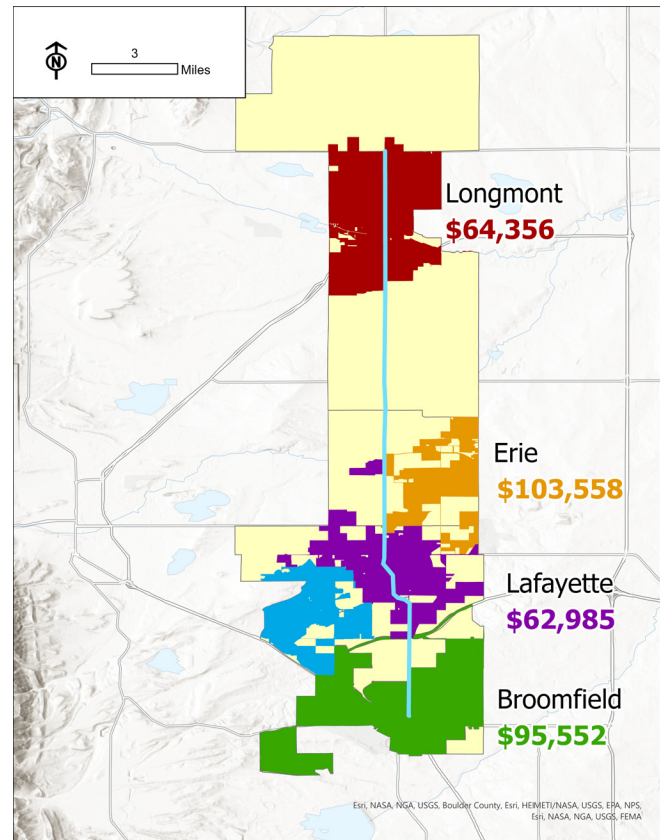
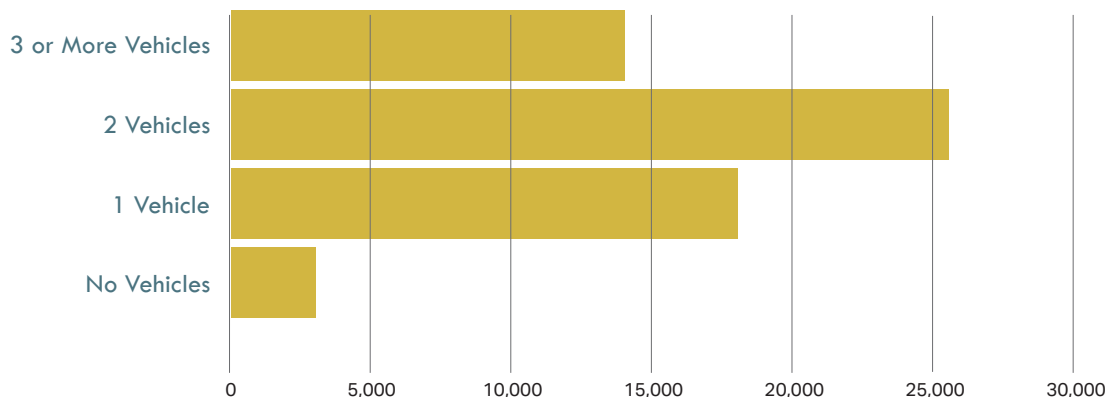


Figure 17: Household Vehicle Ownership within Study Area



Travel Patterns

Understanding travel patterns provides important insights about the existing transportation needs of the region. Boulder County worked with Teralytics data which uses anonymous information from cell phone towers to provide valuable information on where, when and why people are travelling. Teralytics provides a comprehensive data set that includes all trips within the region, regardless of mode. This gives a holistic view of the origin-destination patterns in the region and allowed Boulder County to identify the trip patterns of potential riders. The following sections summarize the key findings from the origin-destination analysis.

Regional Travel Patterns

As shown in Figure 18 and Table 4, there are thousands of people travelling each weekday both within the study area and to regional destinations. The most common type of travel was trips that both started and ended within the study area. This indicates that there is a high demand for trips between Broomfield, Lafayette, Erie, and Longmont. Additionally, there were a significant number of trips that started within the study area and ended at other destinations. As highlighted on Figure 18, there were more than 20,000 daily trips that started within the study area and ended in Fort Collins, Loveland, or Denver. These trips demonstrate that there is a need for north-south connectivity throughout the region.

Figure 18: Regional Travel from the Study Area

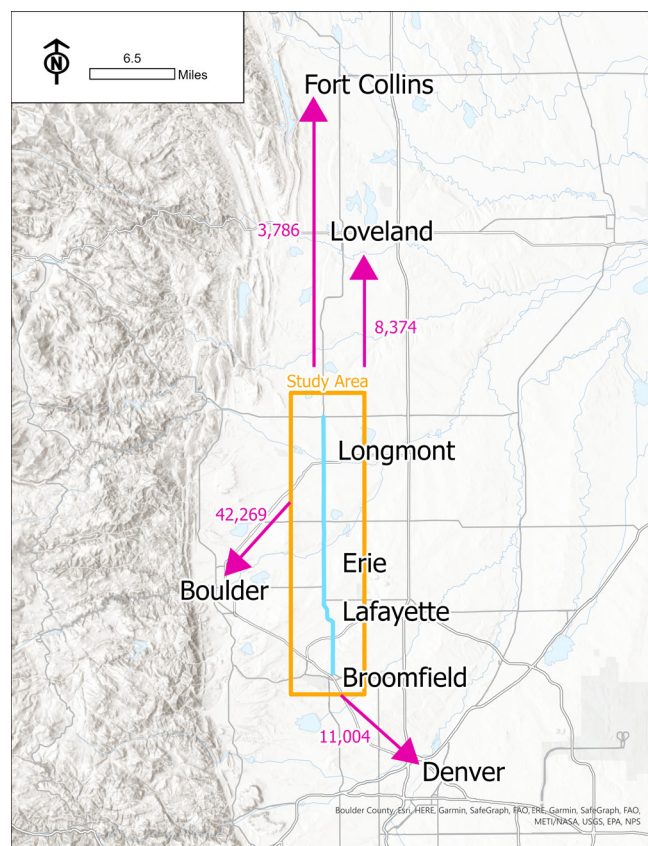


Table 4: Top Destinations from the Study Area

Rank	Destination	2019 Average Weekday Trips
1	On Corridor	133,895
2	Other Destinations	118,441
3	Boulder	42,269
4	Downtown Denver	11,004
5	Loveland	8,374
6	Fort Collins	3,786

Longmont Travel Patterns

On a typical weekday, there are nearly 120,000 trips that originate in Longmont. Of those trips, approximately 43,000 trips end at a location outside of Longmont. As shown in Figure 19, over 11,000 trips that originate in Longmont end in Erie, Lafayette, or Broomfield. An additional 10,000 trips that originate in Longmont end in Fort Collins, Loveland, or Denver. This indicates that there is significant demand on weekdays for north-south travel destinations.

The average trip length of trips originating in Longmont is 10.8 miles. This indicates that most destinations are not within walking distance from their origin. Of the weekday trips, 12 percent of trips were to a work destination, 35 percent of trips were to a home destination, and 53 percent of trips were to other destinations.

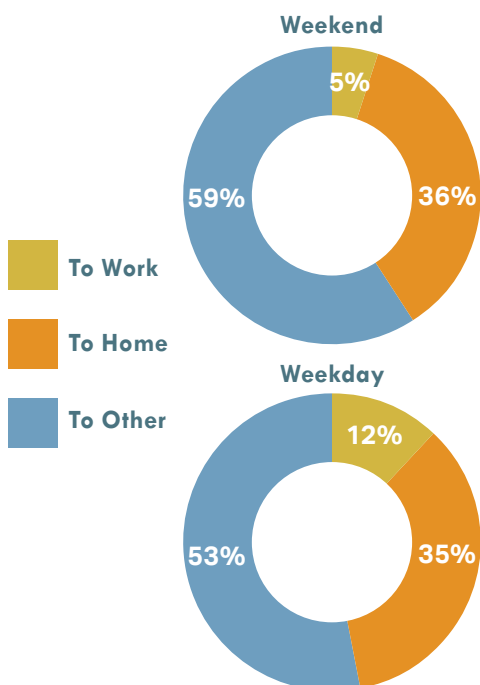
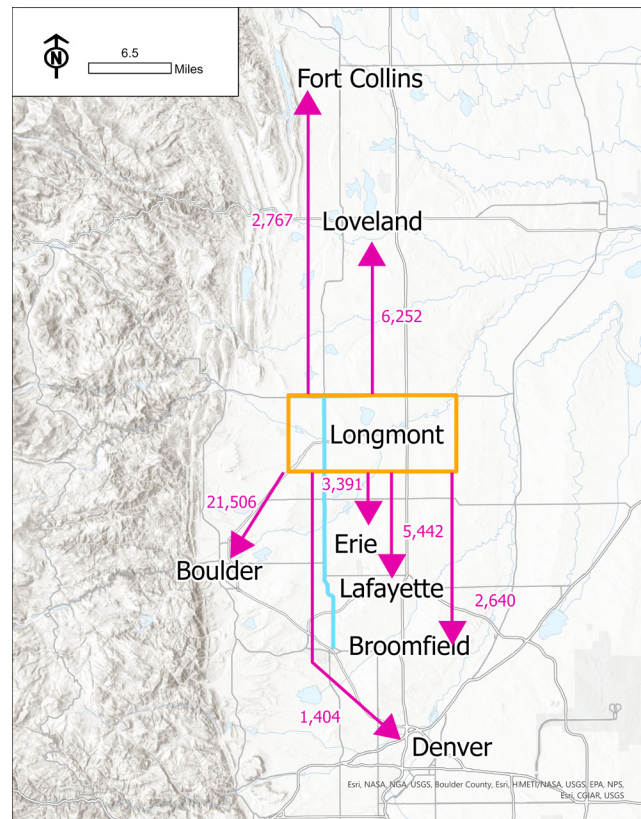


Figure 19: Regional Travel from Longmont



How far are people traveling?

10.8 miles

Average Trip Length

Potential Transit Trips

1,197

Potential Weekday Trips if 1% of trips were completed via transit

Erie Travel Patterns

On a typical weekday, there are nearly 26,000 trips that originate in Erie. Of those trips, approximately 14,000 trips end at a location outside of Erie. As shown in Figure 20, over 7,700 trips that originate in Erie end in Longmont, Lafayette, or Broomfield. An additional 1,700 trips that originate in Erie end in Fort Collins, Loveland, or Denver.

The average trip length of trips originating in Erie is 11 miles. This indicates that most destinations are not within walking distance from their origin. Of the weekday trips, 14 percent of trips were to a work destination, 25 percent of trips were to a home destination, and 61 percent of trips were to other destinations.

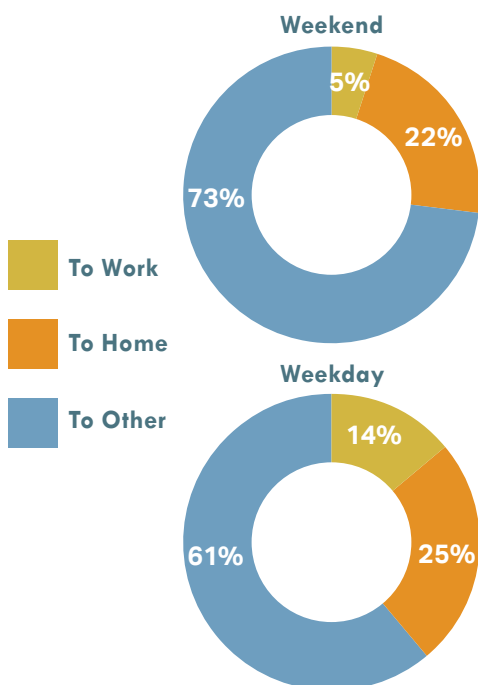
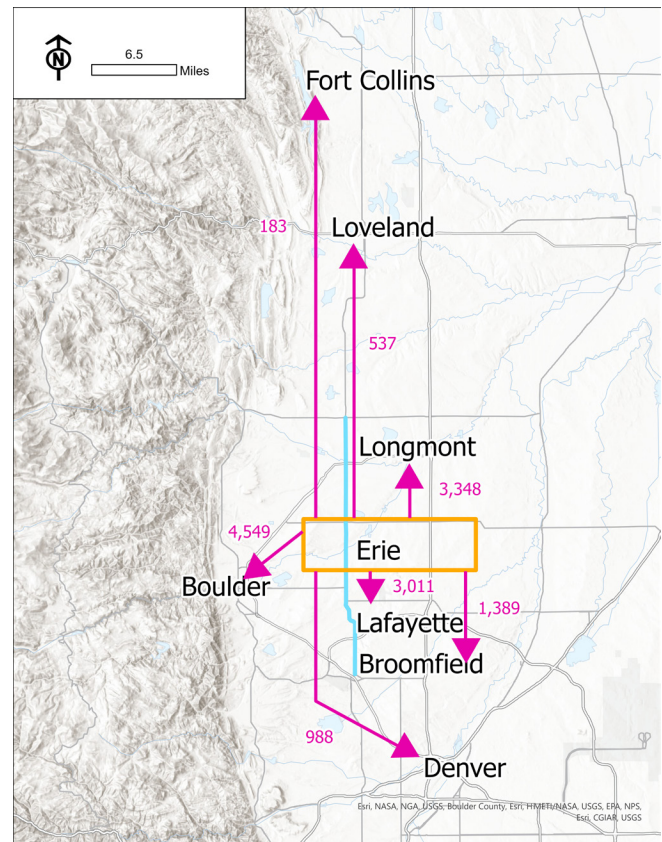


Figure 20: Regional Travel from Erie



How far are people traveling?

11.0 miles

Average Trip Length

Potential Transit Trips

261

Potential Weekday Trips if 1% of trips were completed via transit

Lafayette Travel Patterns

On a typical weekday, there are nearly 34,000 trips that originate in Lafayette. Of those trips, approximately 20,000 trips end at a location outside of Lafayette. As shown in Figure 21, over 11,000 trips that originate in Lafayette end in Erie, Longmont, or Broomfield. An additional 1,700 trips that originate in Lafayette end in Fort Collins, Loveland, or Denver.

The average trip length of trips originating in Lafayette is 9.8 miles. This indicates that most destinations are not within walking distance from their origin. Of the weekday trips, 11 percent of trips were to a work destination, 35 percent of trips were to a home destination, and 54 percent of trips were to other destinations.

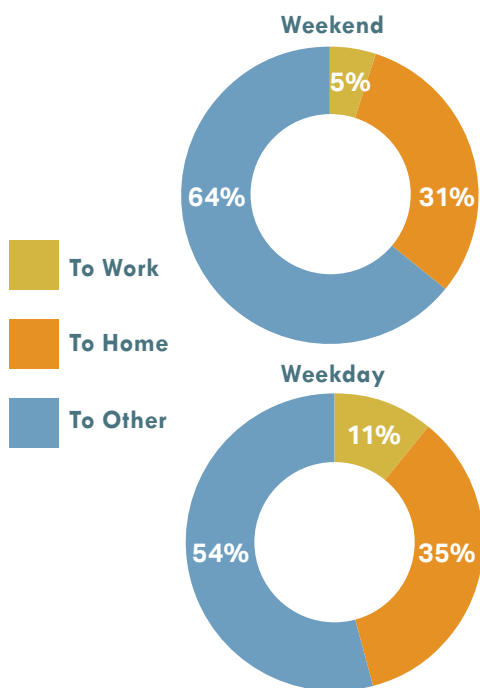
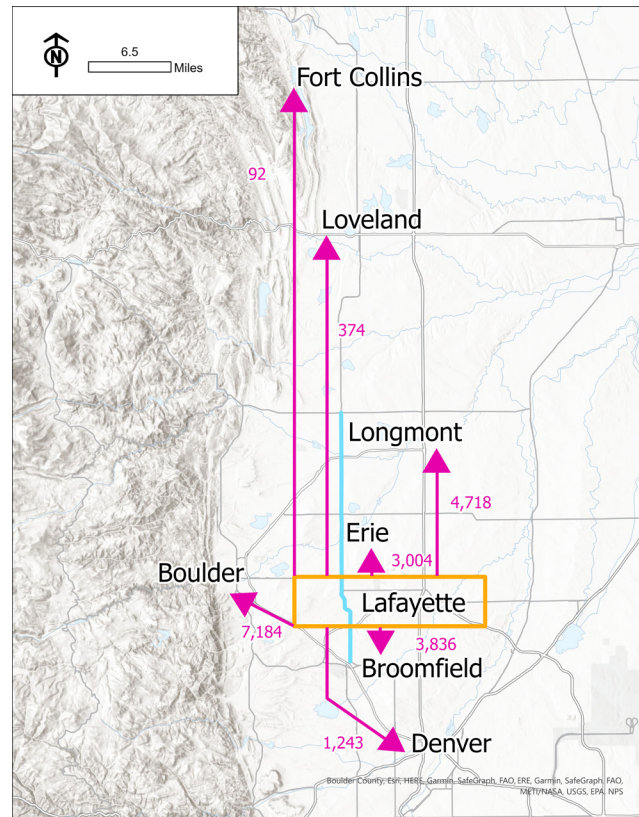


Figure 21: Regional Travel from Lafayette



How far are people traveling?

9.8 miles

Average Trip Length

Potential Transit Trips

344

Potential Weekday Trips if 1% of trips were completed via transit

Broomfield Travel Patterns

On a typical weekday, there are nearly 60,000 trips that originate in Broomfield. Of those trips, approximately 20,000 trips end at a location outside of Broomfield. As shown in Figure 22, nearly 7,000 trips that originate in Broomfield end in Erie, Longmont, or Lafayette. An additional 6,000 trips that originate in Broomfield end in Fort Collins, Loveland, or Denver.

The average trip length of trips originating in Broomfield is 8.7 miles. This indicates that most destinations are not within walking distance from their origin. Of the weekday trips, 15 percent of trips were to a work destination, 33 percent of trips were to a home destination, and 52 percent of trips were to other destinations.

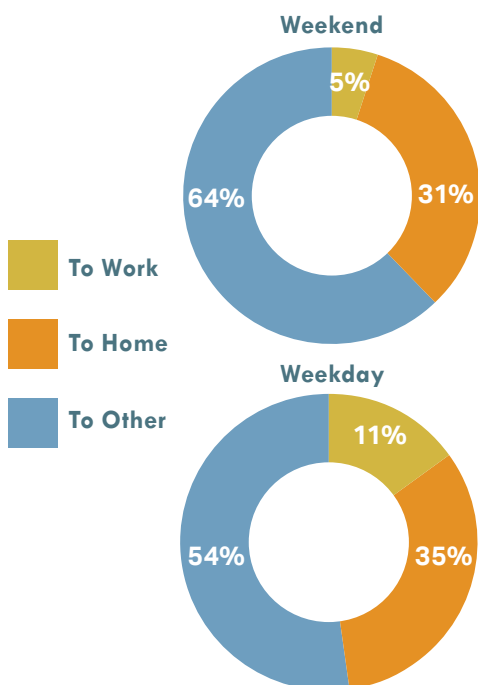
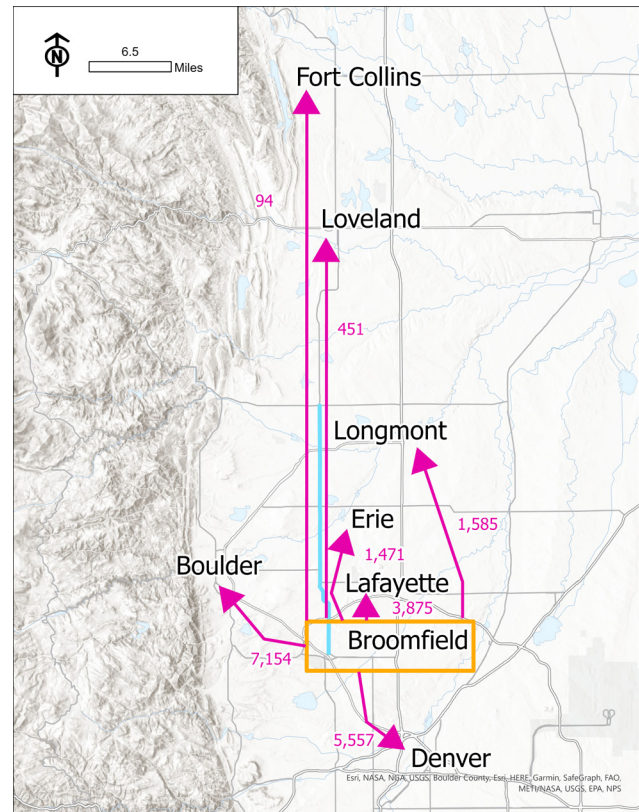


Figure 22: Regional Travel from Broomfield



How far are people traveling?

9.8 miles

Average Trip Length

Potential Transit Trips

344

Potential Weekday Trips if 1% of trips were completed via transit

Transit

There are several existing transit routes that serve the study area and provide a variety of services. Understanding the performance and operations of these existing routes is a critical step in the planning a successful BRT route on US 287 as several of these existing routes will be important transfer points for the BRT. The performance of the existing routes are a strong indicator of what is working well in the area as well as where they

may be areas to improve transit operations. Table 5 summarizes the existing transit routes in the study area and their relationship to the US 287 corridor as well as their average 2019 weekday ridership.

Table 5: Existing Transit Routes within Study Area

Route	Description	Service Type	Relationship to US 287 Corridor	Daily Weekday Ridership
128	Broomfield/ Wagon Road	Suburban Local	Transfer Opportunity	278
225	Boulder/ Lafayette via Baseline	Suburban Local	Transfer Opportunity	1,459
323	Skyline Crosstown	Suburban Local	Transfer Opportunity	423
324	Main Street	Suburban Local	Transfer Opportunity, aligned with US 287 for a portion of the route	1,216
326	Westside Crosstown	Suburban Local	Transfer Opportunity	355
327	Eastside Crosstown	Suburban Local	Transfer Opportunity	266
BOLT	Boulder/ Longmont	Regional	Transfer Opportunity, aligned with US 287 for a portion of the route	1,439
DASH	Boulder/ Lafayette via Louisville	Suburban Local	Transfer Opportunity	2,361
J	Longmont/East Boulder/CU	Suburban Local	Transfer Opportunity	254
JUMP	Boulder/Lafayette via Arapahoe	Suburban Local	Transfer Opportunity	1,802
LD	Longmont/Denver	Regional	Transfer Opportunity, aligned with US 287 for a portion of the route	945
LX	Longmont I-25 Express	Regional	Parallel to US 287	461
Flatiron Flyer	Denver/Boulder BRT (all route patterns)	Regional BRT	Transfer opportunity	14,428

In addition to the existing transit routes in the study area, there are also other planned BRT routes that could be critical transfer points in the future when they get implemented. The two proposed BRT routes that could connect to the US 287 BRT are the State Highway 7 BRT and the State Highway 119 BRT. Figure 23 shows where these planned routes would be located as well as the service routes of the existing transit services.

There are 75 existing bus stops located on US 287. Most of these bus stops are concentrated in the Longmont area, with 44 of the bus stops being located within the Longmont municipal boundary. The rest of the stops are scattered throughout the US 287 corridor with higher concentrations in Lafayette and Broomfield.

Quick Facts about Transit Service within the Study Area



9

Suburban Local Routes



3

Regional Routes



1

Regional BRT Route on US 36



Several BRT Routes under study including SH 7 and SH 119



25,686

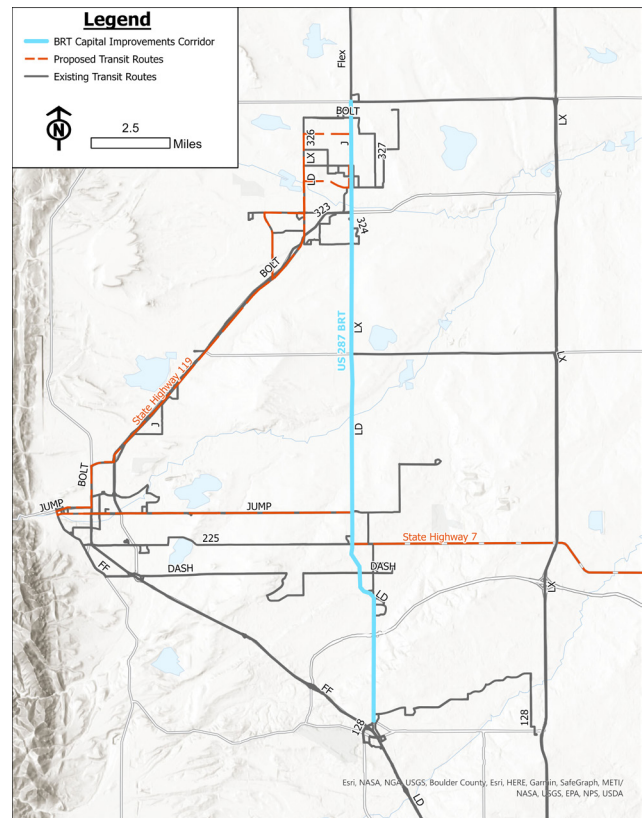
Existing transit riders who travel on US 287 or through a connecting US 287 bus stop on an average weekday



75

Existing bus stops on US 287

Figure 23: Existing and Planned Transit Routes within Study Area



In terms of ridership, all five of the highest performing stops are located in Longmont, as shown in Table 6 and Figure 24. While Longmont has the highest performing stops, Broomfield and Lafayette both have high performing stops that are within the top 10 high-performing stops on the corridor. These high-performing stops demonstrate that there is a considerable existing market for transit at these locations along the corridor.

Figure 24: 2019 Weekday Transit Ridership by Stop within Study Area

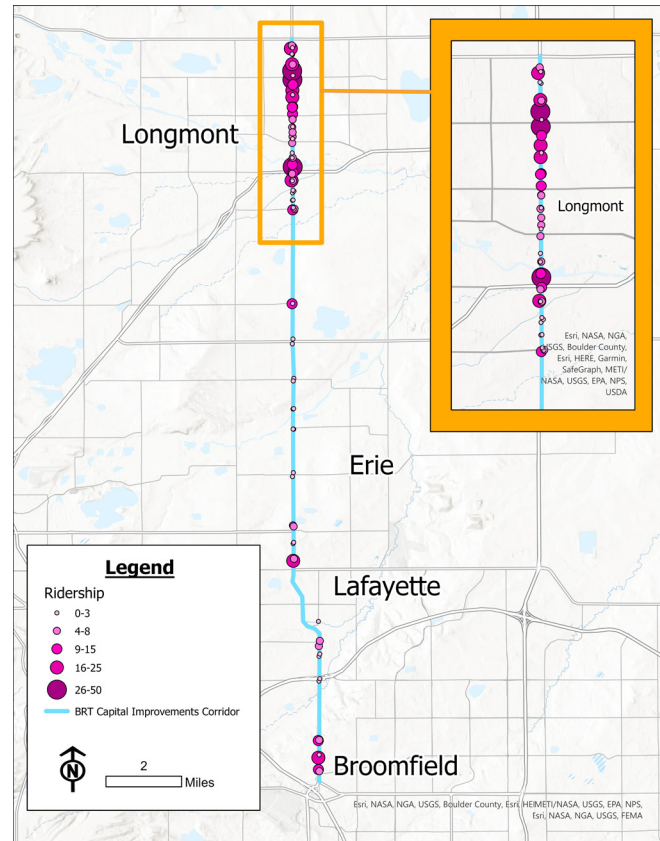


Table 6: 2019 Top 10 Highest Ridership Stop on US 287

Stop	Location	Service Type	2019 Weekday Ridership
Main St/17th Ave	Longmont	Local	50
S Main St/Delaware Ave	Longmont	Local	35
Main St/19th Ave	Longmont	Local	25
Main St/20th Ave	Longmont	Local	24
Longmont PnR	Longmont	Regional	21
Main St/15th Ave	Longmont	Local	19
US 287/W 10th Ave	Broomfield	Regional	18
23rd Ave/Main St	Longmont	Local	17
US 287/Diamond Cir	Lafayette	Regional	15
Main St/Mountain View Ave	Longmont	Local	15

Of the existing transit routes on the corridor, there are two routes that currently provide regional north-south connectivity between Denver and Longmont: the LD series and the LX. Since these two routes serve similar markets to the planned US 287 BRT, understanding the operational characteristics of these routes and their performance can highlight the existing market for regional service on US 287 as well as provide valuable insights on where there are currently reliability issues that can be addressed by infrastructure and technologies that will be evaluated at later stages of the feasibility study. The following sections analyze the operational characteristics and performance of the LD and LX routes.

LD and LX Operational Characteristics

The LD and LX both provide north-south regional connectivity between Denver and Longmont; however, there are distinct operational differences between the two routes. The LD runs along US 287 and provides transit services to Broomfield, Lafayette, and Erie in three different patterns. The LX, on the other hand, runs parallel to US 287 on the I-25 and only makes stops in Denver and Longmont, providing express service.

Existing Roadway Conditions

US 287 is a north-south highway that extends from Montana to Texas and serves as a major arterial route through the Front Range of Colorado, linking the communities of Longmont, Boulder County, Erie, Lafayette, and Broomfield through the 20-mile corridor study area. The

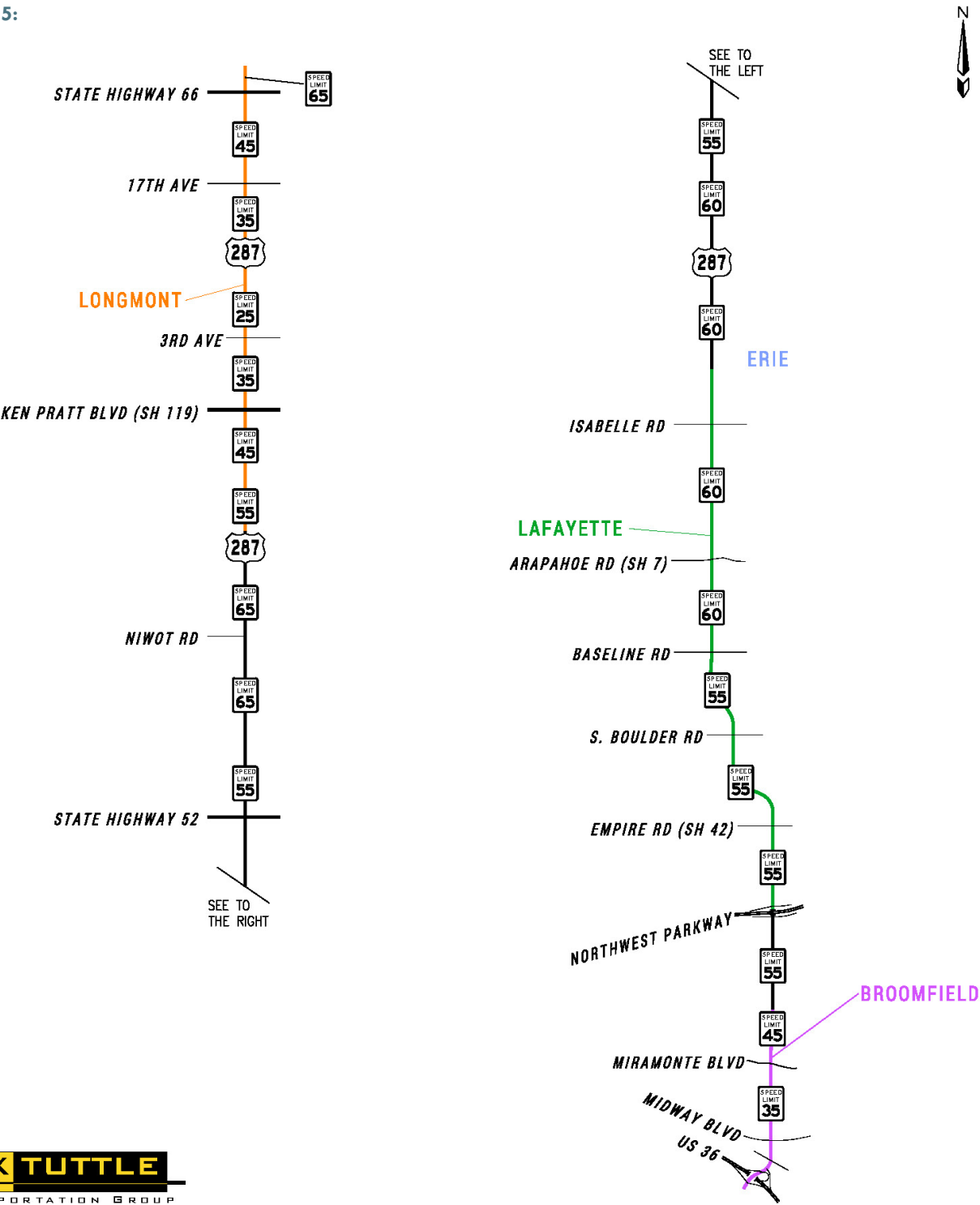
Colorado Department of Transportation (CDOT) categorizes US 287 as a Rural Highway (R-A), Non-Rural Highway (NR-A), and Non-Rural Arterial Roadway (NR-B) at various segments within the project corridor. The R-A category is largely characterized by a priority on regional access with higher speeds and more limited direct access, with the NR-B section (downtown Longmont) more applicable to roadway segments with developed sections that allows more direct access to occur, with the NR-A category falling between these two in terms of throughput vs. access.

US 287 is predominantly a four-lane roadway (two through lanes in each direction) along the project corridor, with some short six-lane segments within the City of Longmont. Left-turn and right-turn deceleration lanes are provided at major intersections and accesses throughout the corridor. There are 38 signalized intersections within the corridor and one (1) signalized at-grade rail crossing (located just north of Broomfield):

- 20 signalized intersections located within the City of Longmont
- 6 signalized intersections in unincorporated Boulder County, including the signalized rail-road crossing
- 9 signalized intersections in the City of Lafayette
- 4 signalized intersections in the City & County of Broomfield

The posted speed limit ranges from 25 miles per hour (mph) within downtown Longmont to 65 mph along more rural segments within unincorporated Boulder County. The existing speed limits are summarized on Figure 25.

Figure 25:



Existing Traffic Volumes

Daily vehicular roadway volumes and peak hour intersection turning movement volumes were compiled from available data sources and/or collected specifically for this project. The data includes both pre-COVID-19 and COVID-19-impacted Average Annual Daily Traffic (AADT) data from the CDOT Transportation Data Management System (TDMS) website, historic counts (2017 to 2019) from other projects along the corridor, and data made available by local agencies along the corridor. New counts were collected at several roadway segments and intersections along the corridor in November 2020 to compare to locations where pre-COVID-19 data was also available, to assess the impact that the COVID 19 pandemic has on traffic patterns and volumes within the study area.

Based on the CDOT TDMS data, daily traffic volumes range from 25,000 vpd in parts of unincorporated Boulder County and at the north end near State Highway 66 to nearly 48,000 vehicles per day (vpd) at the far south end of the corridor just north of US 36. The corridor services between 2.4% and 5.4% heavy trucks (as a percentage of the total daily traffic volume), with the higher truck percentages at the southern end of the corridor.

Comparisons of CDOT 2019 AADT volumes to November 2020 daily roadway counts at two locations (just north of SH 52 and just north of South Boulder Road) showed a 19% to 26% reduction in daily volume due to COVID-19 impacts and seasonal variation. However, a comparison of CDOT peak hour volumes at the same locations showed a reduction of 23% to 39% in peak hour volumes at South Boulder Road and a 42% to 43% reduction at SH 52, with the highest reductions in the AM peak hour. This is indicative of typical commuting peak hour commuting patterns being altered by the closure of many schools and businesses at the time of the November 2020 counts.

In order to provide a conservative estimate of “existing” traffic conditions in the corridor, and since the major of traffic data compiled was prior to the COVID-19 pandemic, pre-COVID-19 traffic data was utilized for this report (or new data was factored up to represent pre-COVID-19 conditions). The traffic data is summarized on Figure 26. This figure also shows the existing intersection lane geometry at ten of the 38 signalized intersections along the corridor.

CDOT data projects traffic growth along the corridor at between 0.7% and 1.8% annually. In comparison, the Denver Regional Council of Governments (DRCOG) regional travel model forecasts between 0.2% and 1.0% annual growth in daily traffic volumes along the corridor, depending upon location.

Existing Operational Assessment

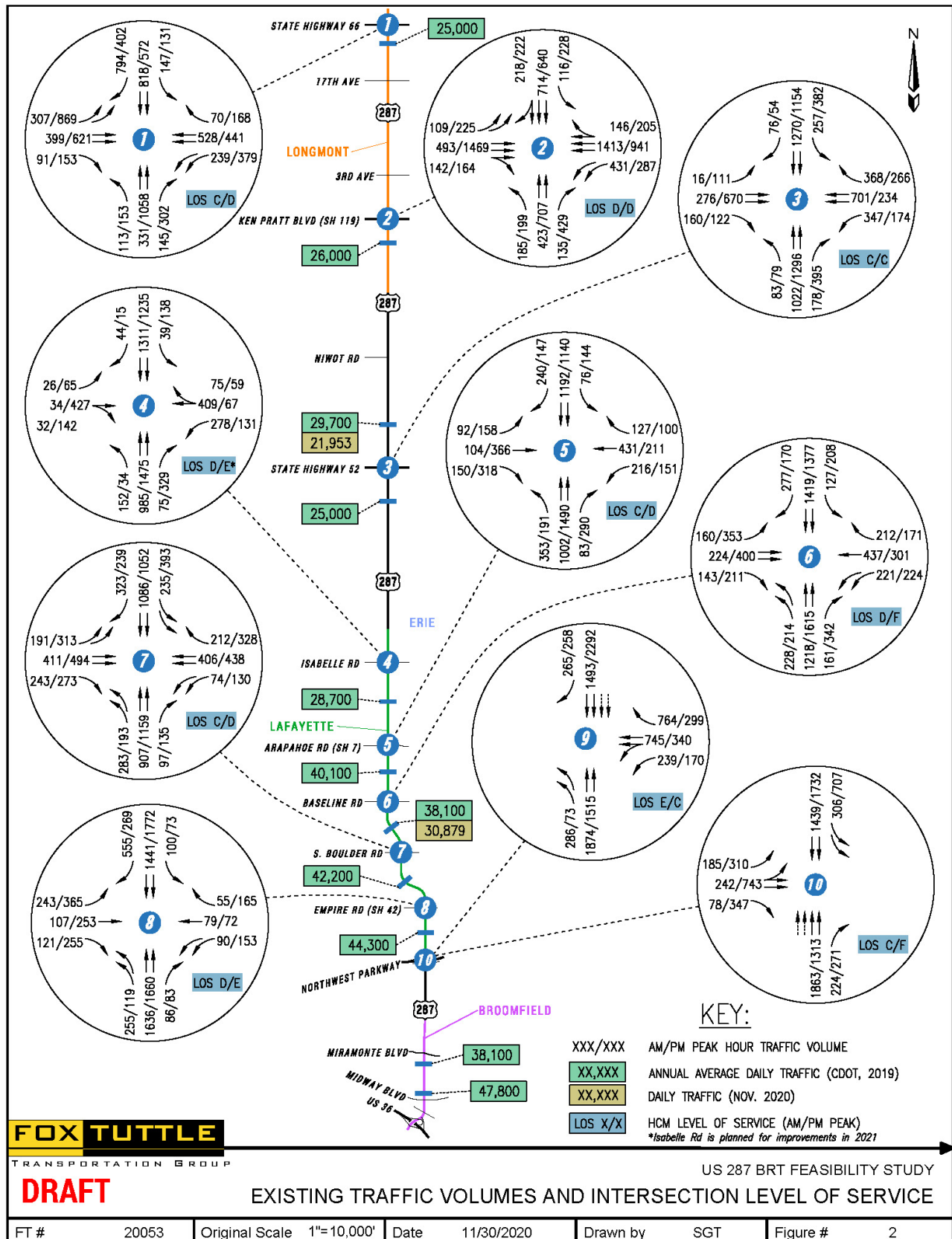
In determining the operational characteristics of a roadway segment or intersection, “Levels of Service” (LOS) A through F are applied, with LOS A indicating very good operations and LOS F indicating congested operations. Criteria contained in the Highway Capacity Manual (HCM) was applied to the existing intersection volumes to identify areas in the corridor that may be operating at or near theoretical capacity. The intersection level of service worksheets are attached in the Appendix, for reference.

Overall AM and PM peak hour intersection LOS are summarized on Figure 26 for each of the ten intersections analyzed for this study. As shown, all intersections are operating at LOS D or better overall in the AM and PM peak hours, with the following exceptions:

US 287 & Isabelle Road is calculated to operate at LOS E in the PM peak hour with existing volumes. However, a multimodal improvement project is currently under way that will provide additional vehicular lanes on the eastbound and westbound approaches, bike lanes on Isabelle Road, traffic signal improvements, and pedestrian crossing improvements.

- US 287 & Baseline Road is calculated to operate at LOS F in the PM peak hour with existing volumes.
- US 287 & SH 42 is calculated to operate at LOS E in the PM peak hour with existing volumes.
- US 287 & Northwest Parkway/Dillon Road (North Ramps) is calculated to operate at LOS E in the AM peak hour with existing volumes. This intersection experiences a heavy westbound directional volume in the morning peak hour.
- US 287 & Northwest Parkway/Dillon Road (South Ramps) is calculated to operate at LOS F in the PM peak hour with existing volumes. This intersection experiences a heavy eastbound directional volume in the evening peak hour.

Figure 26:



Character Zones

The US 287 project corridor connects Broomfield and Longmont and in doing so, it crosses through urban, suburban and rural areas within Boulder County and City and County of Broomfield. One-size fits all recommendations are not appropriate for a corridor this long and diverse. Therefore, BRT recommendations will need to be tailored to the surrounding areas to make sure they are appropriate. Character Zones were developed based on the existing roadway layout, existing excess right-of-way and land use typologies. Existing Roadway Layouts were defined by the infrastructure elements that are currently within the roadway such as center medians, parking, shoulders and sidewalks. Existing right-of-way characteristics are defined as the amount of available space within the roadway

corridor that is currently owned by the County and does not have existing infrastructure or other features within it. Lastly, Land Use characteristics are defined by the surrounding areas and whether those are predominantly rural (agricultural/open space); suburban (single-family homes and shopping centers); and urban (town centers and multifamily housing).

Boulder County has combined the different elements across the main categories to develop the 5 different Character Zones as seen in Table 7. The development of Character Zones enables Boulder County to make transportation service and infrastructure recommendations that best fit that area of the corridor.

Table 7: Character Zone Elements

Existing Roadway Layout	Right-of-Way	Land Use
TYPE 1: Town Streets	Narrow, Moderate	Urban
Physical median, on-street parking, and sidewalks		
TYPE 2: Suburban Streets	Moderate, Wide	Suburban
Physical median and sidewalks		
TYPE 3: Rural Highway	Moderate, Wide	Rural
Two-way turn lane and shoulder		
TYPE 4: Suburban Highway	Wide	Suburban
Physical median and shoulder		
TYPE 5: Suburban Arterial	Narrow, Moderate	Suburban
Two-way turn lane and sidewalks		

Figure 27 demonstrates the segments of the corridor that fall into each of the existing roadway layout categories that are defined in Table 7. While the 9.6-mile rural segment of the corridor has a consistent roadway layout, the areas that are located within the cities on the corridor have more variation in their roadway layouts.

Figure 27:

- 1** Physical Median, Sidewalks; 1.4 Miles
- 2** Two-Way Turn Lane, Sidewalks; 3.5 Miles
- 3** Physical Median, Sidewalks, On-Street Parking; 0.8 Miles
- 4** Two-Way Turn Lane, Shoulder; 9.6 Miles
- 5** Physical Median, Shoulder; 4.6 Miles

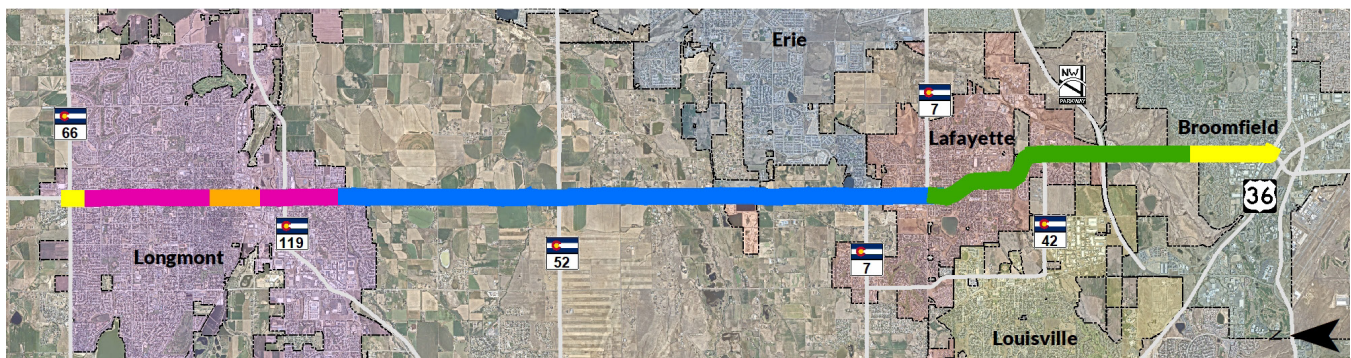


Figure 28:

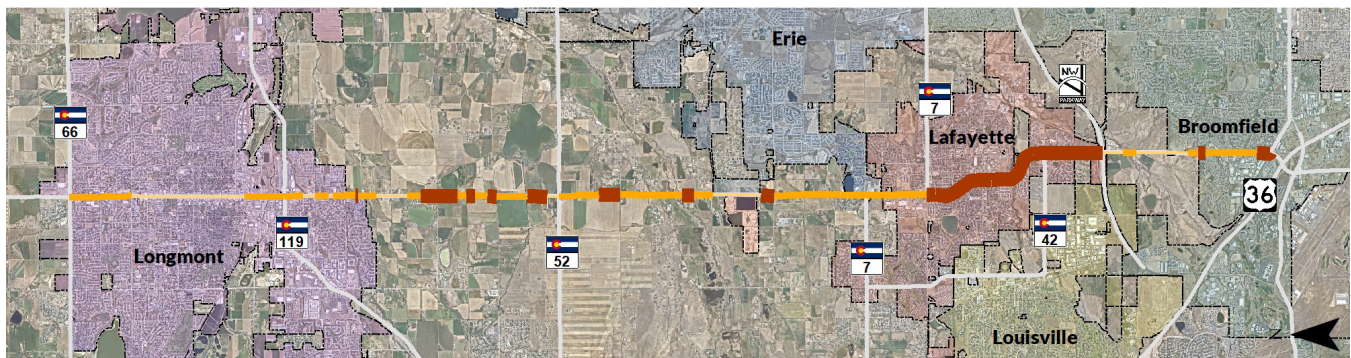


Figure 28 shows the right-of-way availability throughout the corridor estimated using GIS parcel data. Most of the corridor has moderate to wide right-of-way which could create opportunities for infrastructure improvements as part of the US 287 BRT project. Segments of the corridor that are in more urban contexts have narrower right-of-way and may be more limited in

the improvements that could fit in the existing right-of-way.

- 60'-100'
- 101'-175'
- >175'

Figure 29 demonstrates the variety of land use patterns along the US 287 corridor. While most of the corridor has rural or suburban land use patterns, there are segments in Longmont, Lafayette, and Broomfield that are urban.

Figure 29:



NEXT STEPS

US 287 is a diverse corridor that serves a variety of people from different backgrounds, land use patterns, and roadway conditions. As Boulder County and the City and County of Broomfield continue to assess the feasibility of implementing BRT on the US 287 corridor, the existing conditions will be used to inform decisions throughout the project. To advance the study, the project team will use the information from the existing conditions report to define route and station alternatives that will be further evaluated and vetted with stakeholders and members of the public. The project team will also examine ways to make the stations more intuitive, comfortable, interesting and have a greater sense of place. The additional analysis and feedback will result in a preferred alternative for the US 287 BRT that will advance to future stages of planning and design.



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