Erie Microtransit Service Plan

Prepared for:
Town of Erie, CO

June 13, 2024

FEHR✦PEERS

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Chapter 1 – Introduction

This report details the Town of Erie's plan for an effective, innovative, and customer-focused transit solution for implementation and deployment within the Town boundaries. The project's goal is to provide an enhanced, flexible, convenient transportation solution for connections that may include first/final mile, community destinations, or specialty transportation needs. The purpose is to solve unmet transportation needs, and not to duplicate any existing transportation services. In particular, the service will improve transportation for marginalized population groups and those with less access to reliable transportation, including older adults, youth, individuals with limited English proficiency, individuals with a disability, and families with low incomes. The result of the project will be a service plan and microtransit procurement development for contracted service operations.

Project Approach

The project approach is described in **Figure 1**, with each step relating back to the project's core goals.

Figure 1: Project Approach

- Understand the community
- Define travel demand & location
- Review community input
- Identify who would use & how
- Define service and implementation

Report Contents

The report includes the following major sections:

- Background and Context
- Existing Transit Services
- Demographic Analysis
- Travel Patterns and Demand
- Community Input
- Transit Need & Travel Market Identification
- Recommended Microtransit Zone
- Implementation Plan

Chapter 2 – Background & Context

What is Microtransit?

Microtransit is an on-demand public transit service that matches and combines trip requests in real-time, similar to Uber or Lyft. Additional attributes of microtransit include:

- It typically operates in a smaller geographic area without a specific route.
- It picks up and drops off its passengers within a block of their origins and destinations.
- Smaller vehicles are used, with at least one vehicle able to accommodate wheelchairs.
- Riders are picked up in 30 minutes or less from when a trip is requested.
- Trip requests may serve one individual or can be shared among multiple passengers who request a ride along a similar route at the same time.
- Trips are requested via a smartphone application or through a call-in option.

Some of the advantages of microtransit over fixed-route transit include:

- Allows for a high degree of flexibility and adaptability in how the service is defined and operated.
- More effectively serve travel markets with lower population density, where origins and destinations are more dispersed.
- Can be more convenient to users than a low-frequency fixed route service by providing door-to-door service with pick-up in under 30 minutes.
- Smaller vehicles allow for more flexibility in locations served, are more fuel efficient, and make it easier to recruit and train drivers.

Microtransit in Erie

A primary goal of this project is to close the transit service gap within the Town of Erie. Erie is a community of over 30,000 and as the fastest growing community in Boulder County is expected to add another 10,000 residents in the next decade. Additionally, the Town has limited transit service today. Less than half the Town (the portion within Boulder County) is included within the Regional Transportation District (RTD). Even within that portion, the only route that penetrates the Town is the JUMP, which connects to Boulder and operates every 30 minutes during peak periods, hourly in the evening, with no midday service, and hourly on Saturdays with no Sunday service. Limited additional service is provided on the edge of Erie, including additional frequency of the JUMP, the LD Route along US 287 between Longmont and Broomfield and the recently launched North Broomfield FlexRide that serves the very

southeastern corner of Erie. Additional service along CO 7 is planned in 2026 between Boulder and Broomfield.

The 2018 Erie Transportation Master Plan identified the need to provide flexible transit solutions in places where RTD has been unable to provide service. Some of the core goals of this project identified in that plan and by the Town include:

- Fill the missing transit gap within Erie.
- Connect Erie residents to the existing adjacent RTD transit network (including Lafayette and Louisville).
- Provide a transit connection to future BRT starter service along CO 7.
- Connecting Erie residents, in particular those that have no means of transportation, to services via transit (destinations in town, medical facilities, education, employment, shopping, etc.).
- Improve transportation for marginalized population groups and those with less access to reliable transportation, including older adults, youth, individuals with limited English proficiency, individuals with a disability, and families with low incomes.
- Reduce the need to rely on driving to get around Erie and to/from Erie.

The Town of Erie was awarded DRCOG TIP funding in the amount of $1,200,000 to partially fund microtransit services in Erie over a two-year period to fill the transportation gap identified. Additional funds will be provided by the Town and potentially other sources.

Chapter 3 – Existing Transit Services

Routes and Coverages

The western portion of Erie, west of County Line Road, is within Boulder County and is included in the Regional Transportation District, RTD, which provides transit services to the Denver Region. This portion of the town is currently served by the JUMP route that directly connects Erie to Boulder via Arapahoe Road.

Three other transit services operate adjacent to the Town boundary:

- RTD Route LD – The LD3 operates from Longmont to Broomfield along US 287 on the West edge of Erie and the LD1 operates the same general route along US 287 with service continuing into Union Station in Denver.

- Ride Free Lafayette - On-demand service in Lafayette managed by Boulder County just south of the southwest corner of Erie.

- RTD Broomfield North Flexride, - On-demand service roughly between 144th Avenue and CO 7 between I-25 and Countyline Road. A small portion of the FlexRide service area operates in the southeast corner of Erie.

Additionally, RTD Route 225 and 228 serve Lafayette, adjacent to Erie. A map of the existing transit service in and around Erie is provided in **Figure 2.** The service operating characteristics of existing transit in Erie (specifically span and frequency) are detailed in **Table 1**.

Existing Transit

Figure 2: Existing Transits around Erie

Legend:
- RideFree Lafayette
- North Broomfield FlexRide
- RTD Service Area
- RTD Bus Stop
- 225
- 228
- JUMP
- LD
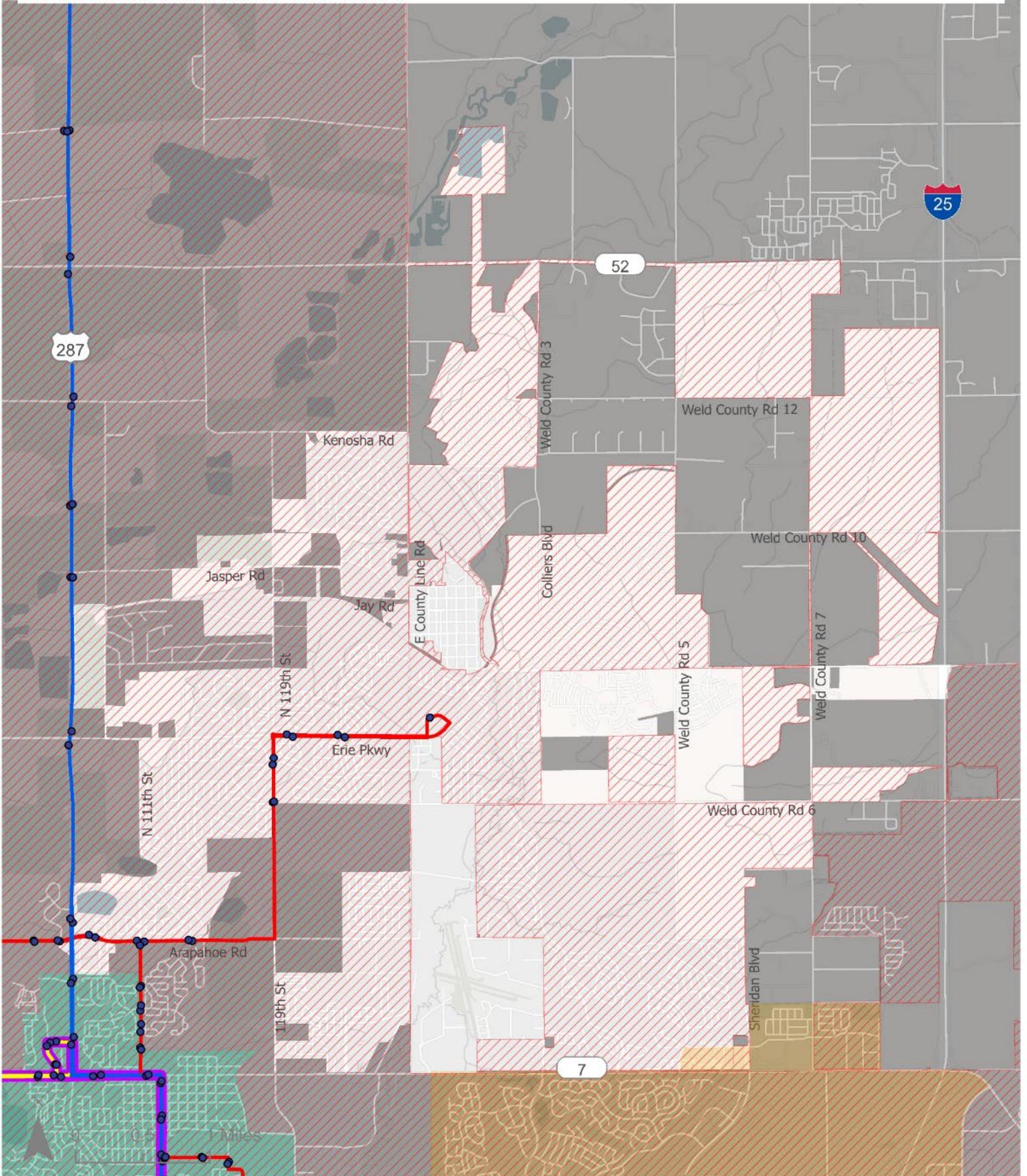
Table 1: Existing Transit Operating Characteristics

Service	Direction	Operation Day	Operation Time	Frequency
JUMP (Erie Community Center runs only)	Eastbound	Monday-Friday	7 AM - 9 AM 3:30 PM - 7 PM	30 mins 30 mins
		Saturday	9 AM - 10 PM	1 hour
	Westbound	Monday-Friday	6 AM - 9 AM 4 PM – 6:30 PM 8:30 PM – 9:30 PM	30 mins 30 mins 1 hour
		Saturday	8:30 AM - 9:30 PM	1 hour
LD1 & LD3	Southbound	Monday-Friday	6 AM - 7 AM 7 AM – 8 AM 8 AM – 10 AM 10 AM – 2 PM 2 PM – 10 PM	30 mins 1 hour 2 hours 1 hour 2 hours
		Saturday	10 AM - 10 PM	2 hours
	Northbound	Monday-Friday	7 AM - 9 AM 9 AM - 5 PM 5 PM - 6 PM 6 PM - 11 PM	2 hours 1 hour 30 mins 2 hours
		Saturday	11 AM - 11 PM	2 hours
Ride Free Lafayette	On-demand, within the service area	Daily	7 AM - 8 PM	By reservation or on-demand
North Broomfield Flexride	On-demand, within the service area	Monday-Friday	9 AM - 4 PM	By reservation or on-demand if available

Source: RTD Services, Ride Free Lafayette

Frequency and Span

Table 2 illustrates the frequency of existing fixed-route transit service within and adjacent to Erie. During the peak periods, the JUMP (segment east of 111th Street along Arapahoe Road) and 225 (along Baseline Road) operate every 15 minutes. Midday most service operates hourly except the 225.

- **JUMP** - The RTD JUMP Route operates every 30 minutes to the Erie Community Center only in the morning and afternoon peak periods during weekdays and hourly all day on Saturdays. More frequent service (every 15 minutes) is provided west of 111th Street during weekday peak periods and every 30 minutes on Saturday. On Sunday there is no service to Erie Community Center and service west of 111th Street operates hourly.

- **LD** - The LD Route operates every 30 minutes for one hour in the peak direction (southbound in the morning peak and northbound in the afternoon peak) and operates every hour midday on weekdays. Otherwise, it operates every two hours, including in the off-peak direction, in the

evening, and on Saturday. There is no service on Sunday. Two peak direction runs operate to Denver Union Station. All other runs terminate at the US 36 & Broomfield Station.

- **Ride Free Lafayette** – The Ride Free Lafayette operates from 7 AM to 8 PM daily. Rides can be reserved in advance, on-demand, or riders can walk on if they see the bus.

- **North Broomfield Flexride** – The North Broomfield Flexride operates from 9 AM to 4 PM on weekdays. Rides can be reserved in advance or on-demand if the service is not already booked by a conflicting trip.

Table 2: Frequency of RTD Bus Routes in and Near Erie

Route	Destination	Weekday Peak	Weekday Midday	Saturday	Sunday
JUMP (Erie runs)	Erie - Boulder	30	-	60	-
JUMP (w of 111th)	Lafayette – Boulder	15	60	30	60
225	Lafayette - Boulder	15	30	30	30
228	Lafayette – Louisville - Broomfield	-	60	60	60
LD1 & LD3	Longmont - Broomfield	30-120	60	120	-

Source: RTD Services, Ride Free Lafayette

Ridership

The average daily boardings and alightings of existing fixed-route transit services at bus stops around Erie from the winter and spring of 2023 are shown in **Table 3** and mapped in **Figure 3**.

In general, the weekday ridership within Erie boundaries is higher than Saturday ridership. Erie Community Center has the highest boardings with an average of 25 passengers per weekday and 19 passengers per Saturday. Arapahoe Rd/Stonehenge Dr at the Southwest corner of Erie (west of US 287) served by the eastbound JUMP is the stop with the most alightings, with an average of 17 per weekday.

Table 3. Major Ridership Stops around Erie

Operation Day	Transit Stop	Transit Route	Direction	Average Daily Boardings	Average Daily Alightings
Weekdays	Erie Community Center	JUMP	Westbound	25	0
Saturday				19	0
Weekdays	Arapahoe Rd/US 287	JUMP	Westbound	11	3
Saturday				6	3
Weekdays	Arapahoe Rd/N 111th St	JUMP	Westbound	6	4
Saturday				2	1
Weekdays	Arapahoe Rd/Stonehenge Dr	JUMP	Eastbound	4	17
Saturday				2	7
Weekdays	Erie Pkwy/Meller St	JUMP	Westbound	3	0
Saturday				2	0

Source: RTD

Transit Ridership

Figure 3: Transit Ridership

Route
- 225
- 228
- JUMP
- LD

Weekday Ridership
- 0-5 Passenger
- 6-25 Passenger
- 26-50 Passenger

52

287

25

Weld County Rd 3

Weld County Rd 12

Kenosha Rd

Jasper Rd

Weld County Rd 10

E County Line Rd

Colliers Blvd

Jay Rd

Weld County Rd 7

N 119th St

Weld County Rd 5

Erie Pkwy

N 111th St

Weld County Rd 6

Arapahoe Rd

119th St

Sheridan Blvd

7

0   0.5   1 Miles
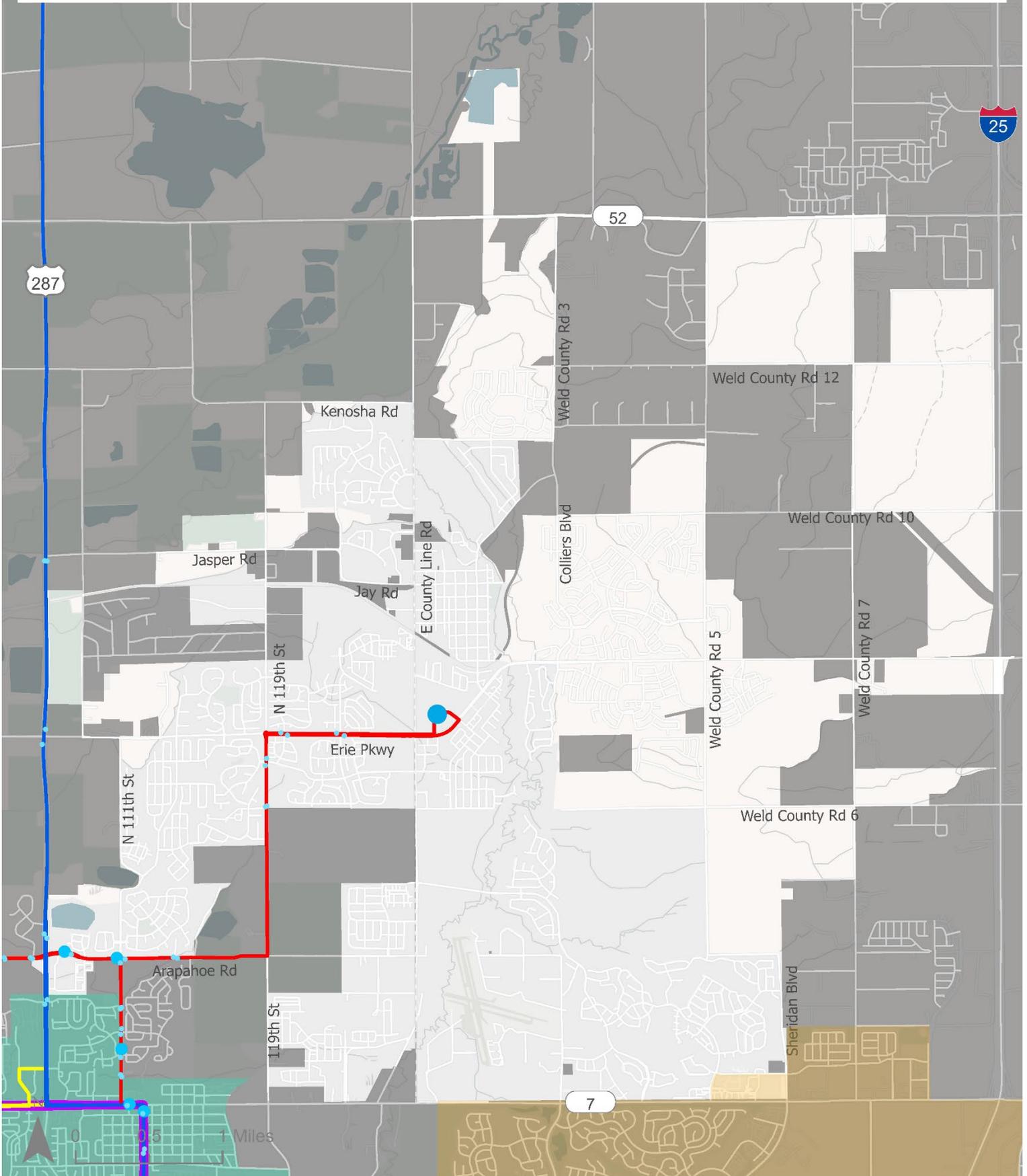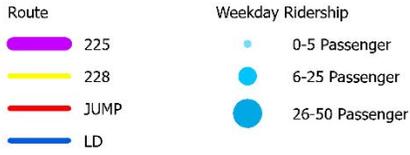
Chapter 4 – Demographic Analysis

Demographics

The Town of Erie is located in Boulder County and Weld County and as of the 2020 Census had 30,000 residents. **Table 4** summarizes the demographic characteristics of the Town's population in comparison to Boulder and Weld Counties. There are fewer Hispanic/Latino residents in Erie (9%) compared to Boulder County (14%) and Weld County (30%). The median household income in Erie is $140,000 which is higher than Boulder County ($90,000), Weld County ($85,000), and Colorado ($80,000).

Table 4. Demographic Comparison of Erie, Boulder County, and Weld County

American Community Survey Data 5-Year Estimates (2021)		Erie[1]	Boulder County[2]	Weld County[2]
Population	Number of Residents	29,367	330,758	328,981
	Population Density (residents/square mile)	1,726	455.3	82.6
Race and Ethnicity	White alone (%)	82%	77%	63%
	Hispanic or Latino (%)	9%	14%	30%
	Black or African American (%)	0%	<1%	1%
	American Indian and Alaska Native (%)	<1%	<1%	<1%
	Asian (%)	5 %	5%	2%
	Native Hawaiian and Other Pacific Islander (%)	<1%	<1%	<1%
	Two or More Races (%)	5%	7%	4%
Income	Median Household Income ($)	$140,409	$90,168	$85,290
	Percent Below Poverty Line	4%	11%	10%

[1]Source: American Community Survey, 5-Year Estimates (2021)
[2]Source: Decennial Census (2020)

Age Group

Figure 4: Erie Age Distribution
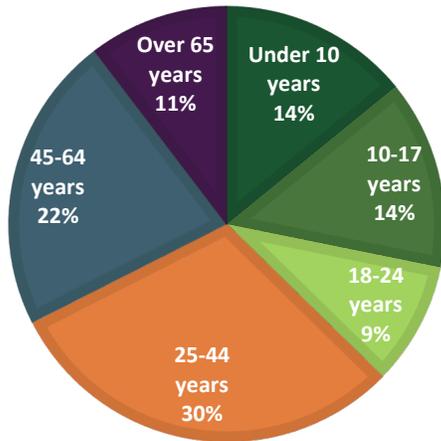
Figure 4 shows that people aged 25-44 years old account for approximately 30% of the population. Youth (0-17 years old) also make up a significant portion of the population (28%), and 22% of the population is aged 45-64.

Source: American Community Survey, 5-Year Estimates (2021)

The age groups that typically generate the highest demand for microtransit services (when not considering other factors, such as income or access to a vehicle) are teenagers and older adults.

Youth Population

Figure 5 shows the distribution of the youth population in Erie (aged 10-17). This data is based on Census Tracts, which include areas both in and out of Erie, thus some of the data is representative of demographic characteristics of the portion of the census blocks outside of Erie. With this caveat in mind, the locations in Erie with a disproportionally higher concentration of youth (ages 10-17) appear to be west of County Line Road between Erie Parkway and Arapahoe Road and in the Vista Ridge neighborhood in southeast Erie (13% - 16%).

Older Adult Population

Figure 6 shows the distribution of the older adults in Erie (aged 65+). This data shows that the older adult population in Erie appears to be relatively distributed evenly across the Town (10% - 13%) with slightly higher concentration in the southwest area and far north of Erie (16% - 19%).

Young Residents of Erie

Young Residents (Age 10-17 Years)

- <10%
- 10%-13%
- 13%-16%

52

Weld County Rd 3

Weld County Rd 12

Kenosha Rd

Weld County Rd 10

Jasper Rd

E County Line Rd

Colliers Blvd

Jay Rd

Weld County Rd 5

Weld County Rd 7

N 119th St

Erie Pkwy

N 111th St

Weld County Rd 6

Arapahoe Rd

Sheridan Blvd

119th St

7

287

25

0   0.5   1 Miles

Source: American Community Survey, 5-Year Estimates (2021)
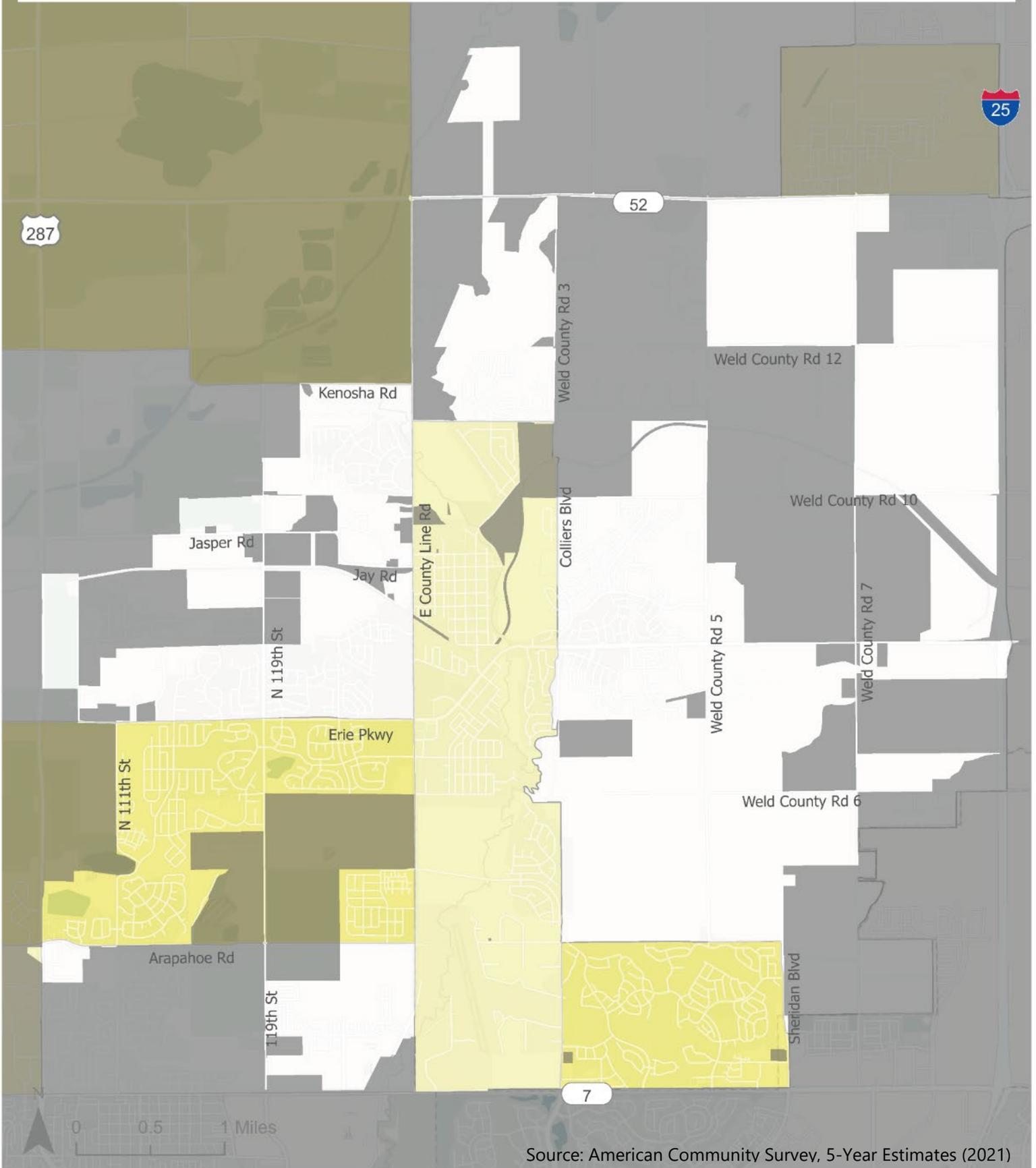
Older Residents of Erie

Figure 6: Older Residents of Erie (Age 65+ Years)

Older Residents (Age 65+ Years)

- <10%
- 10%-13%
- 13%-16%
- 16%-19%
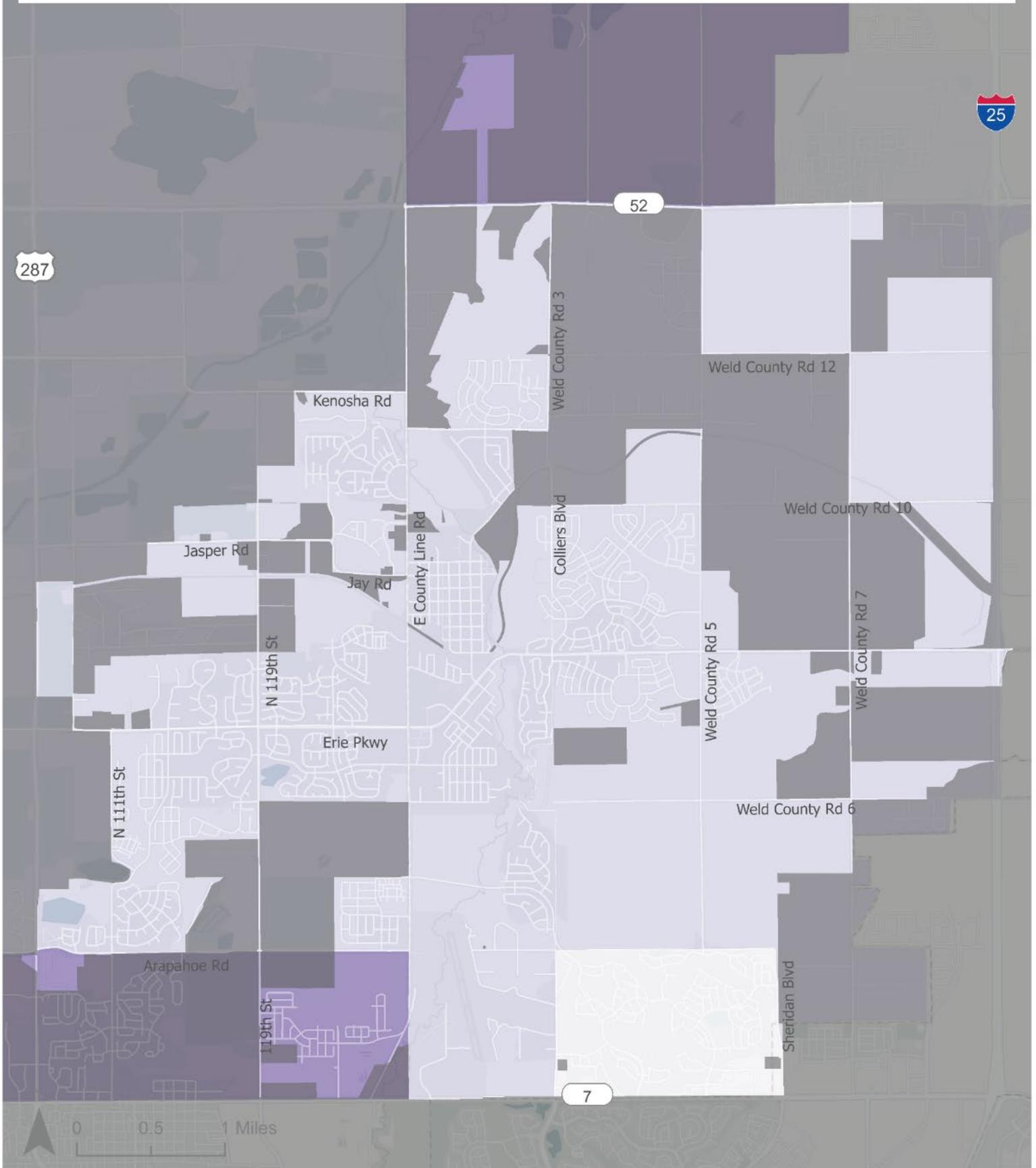
Income

Transportation is the second highest household expense[1]after housing and income is an important determinant when evaluating transit demand.

Residents Living in Poverty

Four percent of the population in Erie is below the poverty line. **Figure 7** displays the percentage of residents in each census tract in Erie who live under the poverty line. This data shows that the west side of Erie (west of Colliers Blvd) likely has a slightly higher percentage of residents living under the poverty line (4% - 6%) compared to the east side of Erie (<2%), and greater concentration appears in the southwest area and far north of Erie (6% - 8%). It should be noted that because the data is based on census tracts this data includes areas both within and outside of Erie and the exact concentrations of the census tracts just within Erie are not represented.

Residents of Low and Moderate Income

The U.S. Department of Housing and Urban Development defines low-income populations as those earning 50 percent or less of the Area Median Income (AMI), and moderate-income populations as those earning between 50 percent and 80 percent of the AMI. Although some people with low and moderate incomes earn more than those living under the poverty line, they are still vulnerable to the burden of transportation costs.

Figure 8 displays the percentage of residents in each census tract in Erie who are considered low and moderate-income. This data shows that low- and moderate-income households are fairly evenly distributed across Erie and generally represent about 10% - 20% of the population. The highest concentration also appears in the southwest area and far north of Erie (>30%), and the lowest proportion is the southwest corner of Erie (<10%).

Whether people are living with low and moderate-income, or they are living under the poverty line, transportation is a burdensome cost. Improving transit access can significantly improve the quality of life for these residents.

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[1] Housing and Transportation Affordability Index

Residents Living Under the Poverty Line

Figure 7: Residents Living Under the Poverty Line

Below Poverty Rate
- <2%
- 2%-4%
- 4%-6%
- 6%-8%

287

25

52

Kenosha Rd

Weld County Rd 3

Weld County Rd 12

Weld County Rd 10

Jasper Rd

E County Line Rd

Colliers Blvd

Jay Rd

N 119th St

Weld County Rd 5

Weld County Rd 7

Erie Pkwy

N 111th St

Weld County Rd 6

Arapahoe Rd

119th St

Sheridan Blvd

7

0   0.5   1 Miles
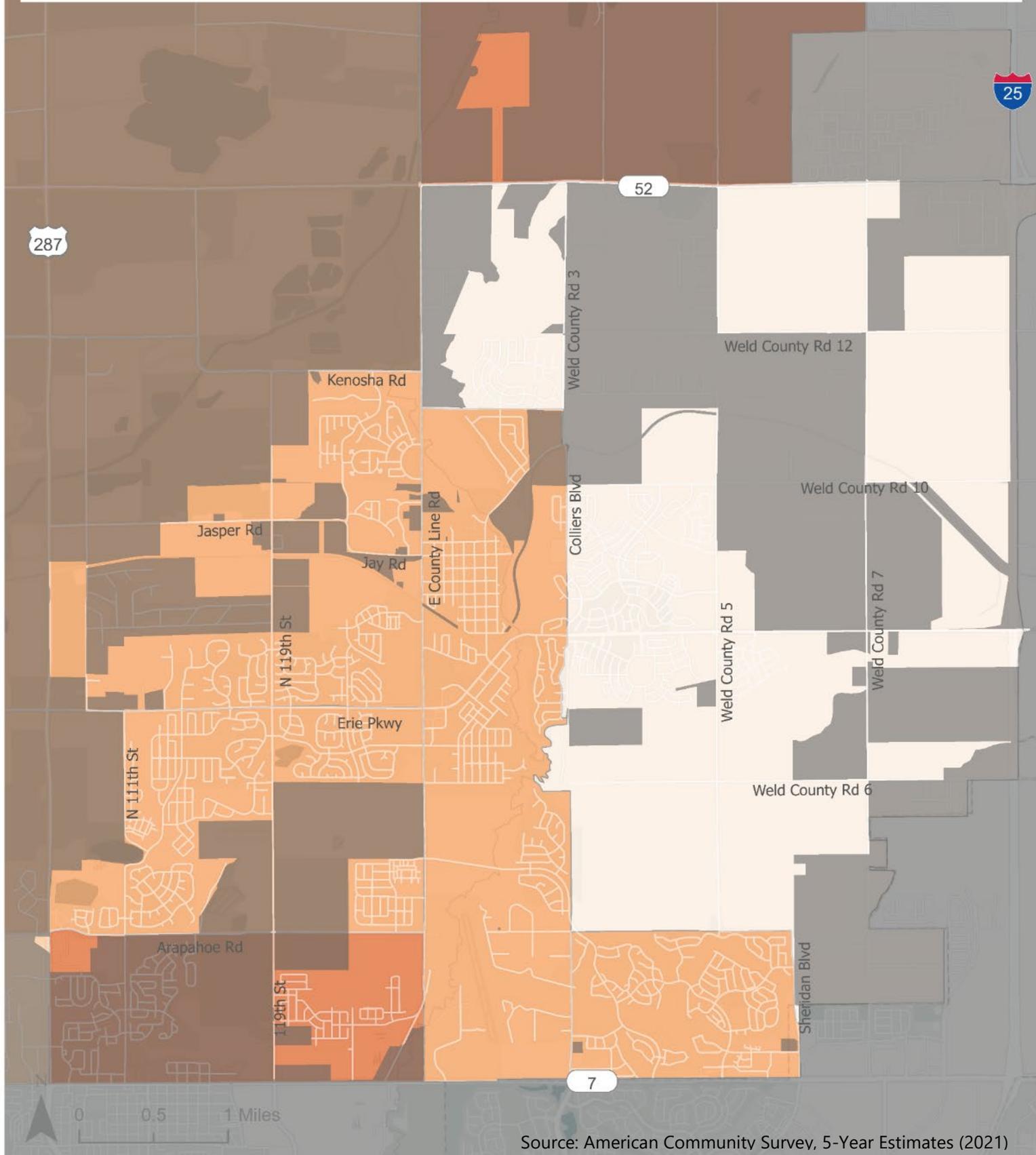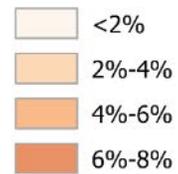
Source: American Community Survey, 5-Year Estimates (2021)

Low and Moderate Income

Low and Moderate Income
- <10%
- 10% - 20%
- 20% - 30%
- >30%

287

25

52

Weld County Rd 3

Weld County Rd 12

Kenosha Rd

Weld County Rd 10

Colliers Blvd

E County Line Rd

Jasper Rd

Jay Rd

Weld County Rd 7

N 119th St

Weld County Rd 5

Erie Pkwy

N 111th St

Weld County Rd 6

Arapahoe Rd

119th St

Sheridan Blvd

7

0   0.5   1 Miles

Source: DOLA HUD Low and Moderate Income Data (ACS 2011-2015)
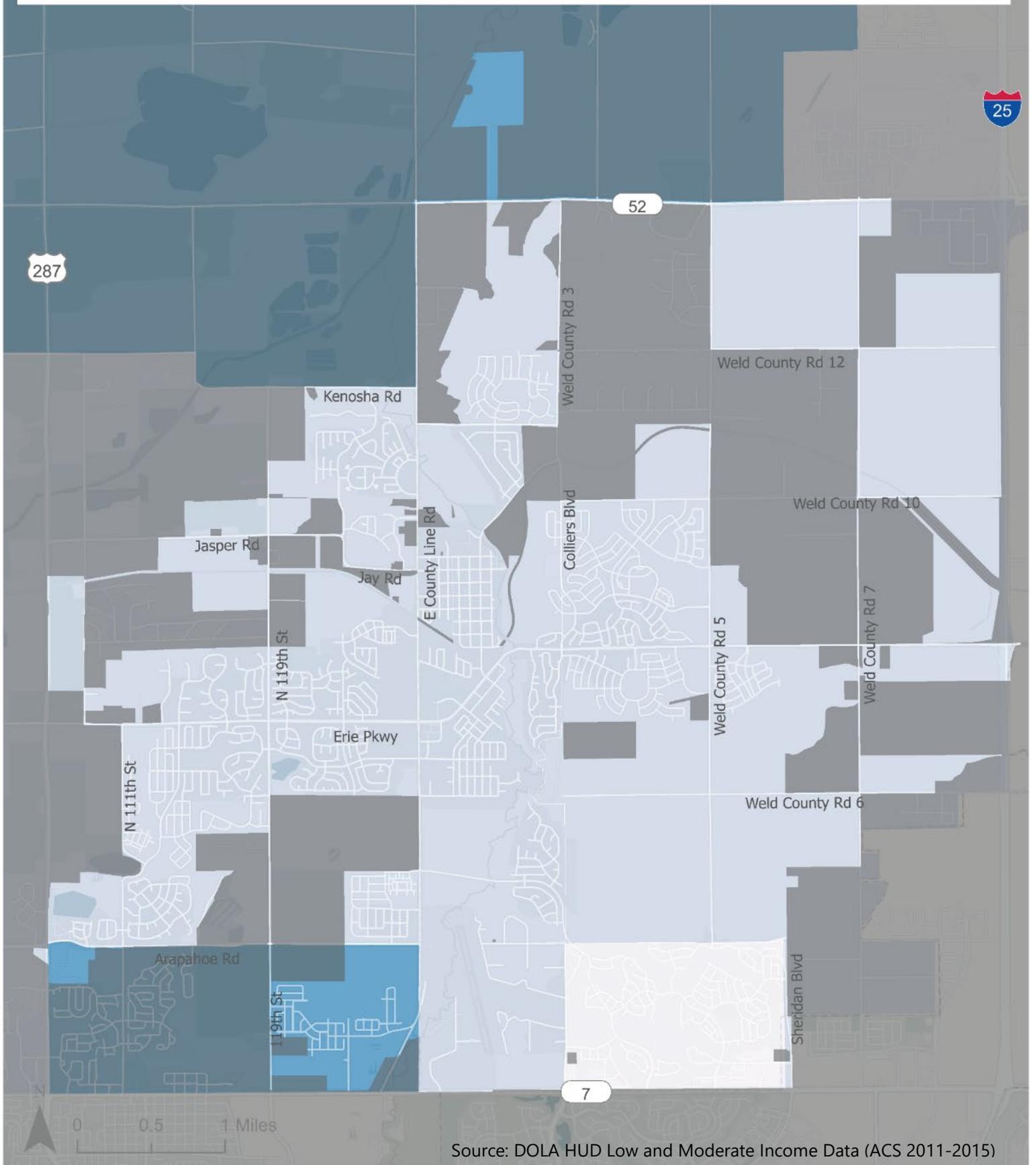
Vehicle Availability

More than half (52%) of Erie households have two vehicles, 29% have more than two vehicles, and 17% have one vehicle. The data shows that only 2% of Erie households don't have private vehicles.

Figure 9: Household Vehicle Availability
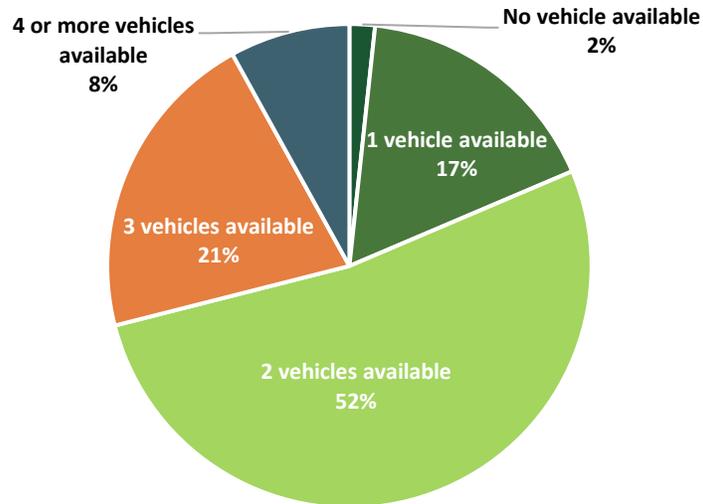
Source: American Community Survey, 5-Year Estimates (2020)

Commute Mode Split

Based on the most recent American Community Survey data from the U.S. Census between 2018 and 2022 most Erie residents, approximately 63%, drove alone to work. Seven percent carpooled to work and two percent used public transportation. About one percent walked, one percent used other modes, and less than one percent biked. Additionally, 27% of Erie's population worked from home (**Figure 10**). It should be noted that this data includes an average of both pre-pandemic and post-pandemic data.

Figure 10: Erie Commute Mode Split
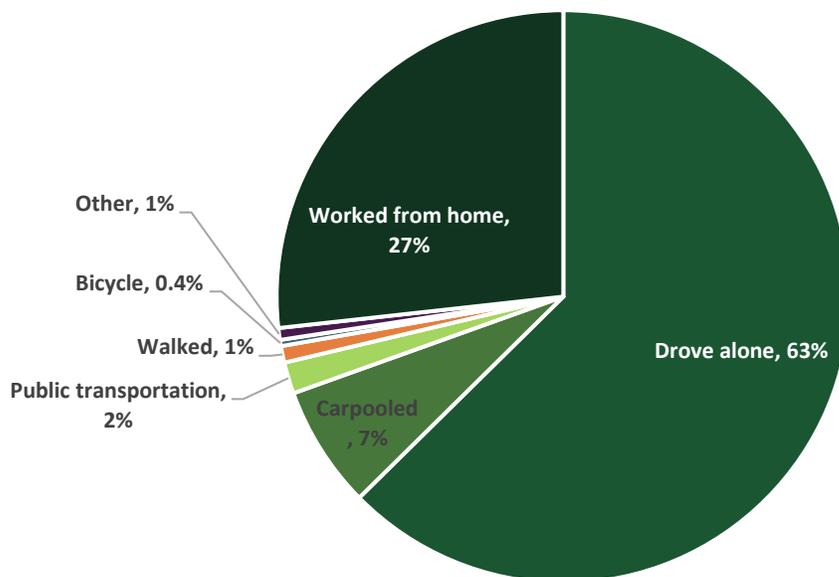
Source: American Community Survey, 5-Year Estimates (2022)

Chapter 5 – Travel Patterns & Demand

LEHD Commute Flows

The Longitudinal Employer-Household Dynamics (LEHD) from the U.S. Census collects survey data on travel and commute patterns. **Figure 11** shows that 95% of employed Erie residents worked outside of Erie in 2020. Additionally, about 80% of the 2,700 people who work in Erie commute from outside of Erie.

Commute-in/Commute-out Chart

Figure 11: Inflow/Outflow Jobs

2,744 - Employed in Selection Area, Live Outside
13,293 - Live in Selection Area, Employed Outside
644 - Employed and Live in Selection Area
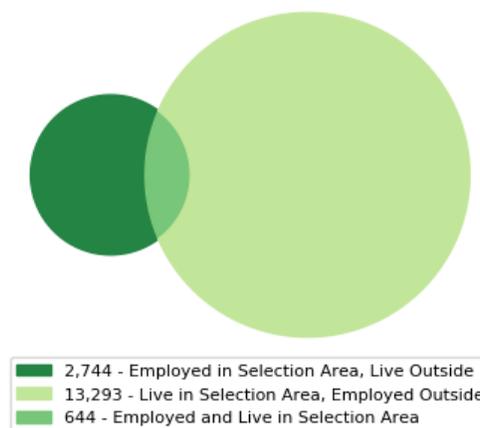
Source: LEHD (2020)

Table 5. Erie Residents Inflow/Outflow Jobs

Category	2020	
	Count	Share
Living in the Selection Area	13,937	100%
Living in the Selection Area but Employed Outside	13,293	95%
Living and Employed in the Selection Area	644	5%
Employed in the Selection Area	3,388	100%
Employed in the Selection Area but Living Outside	2,744	81%
Employed and Living in the Selection Area	644	19%

Source: LEHD (2020)

About 40% of Erie residents who work outside Erie work less than 10 miles from Erie, mostly in Boulder and Longmont. Another 39% work in the Denver area which is approximately within 10-24 miles from Erie, and about 15% work 25-50 miles from Erie, mostly in Aurora. About five percent of commuters' workplaces are greater than 50 miles from Erie.

Table 6. Erie Residents Work Distance

Category	2020	
	Count	Share
Total All Jobs	13,937	100%
Less than 10 miles	5,632	40%
10-24 miles	5,424	39%
25-50 miles	2,144	15%
Greater than 50 miles	737	5%
Total All Jobs	13,937	100%

Source: LEHD (2020)

Figure 12 shows the top cities where Erie residents work, based on 2021 census data. About 30% of residents work in Denver or Boulder proper.

Figure 12: Where Erie Residents Work
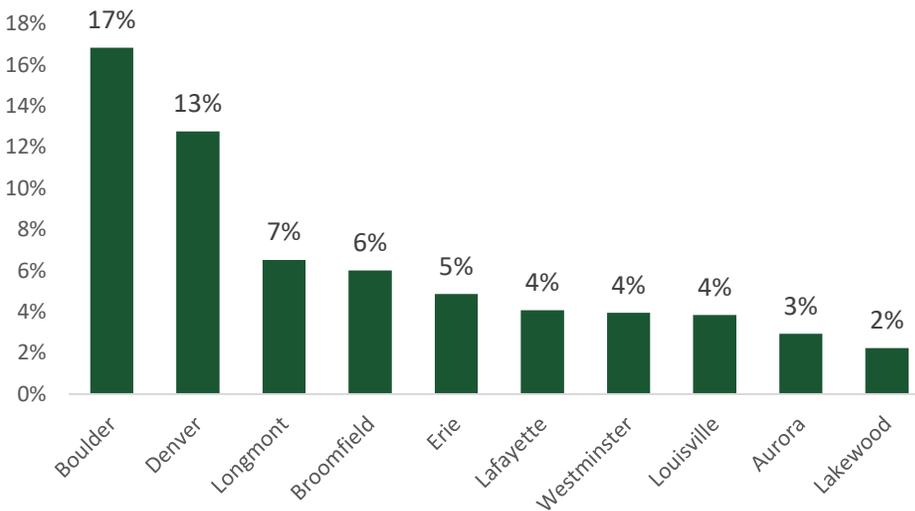
Source: LEHD (2021).

Figure 13: Where Erie Residents Work
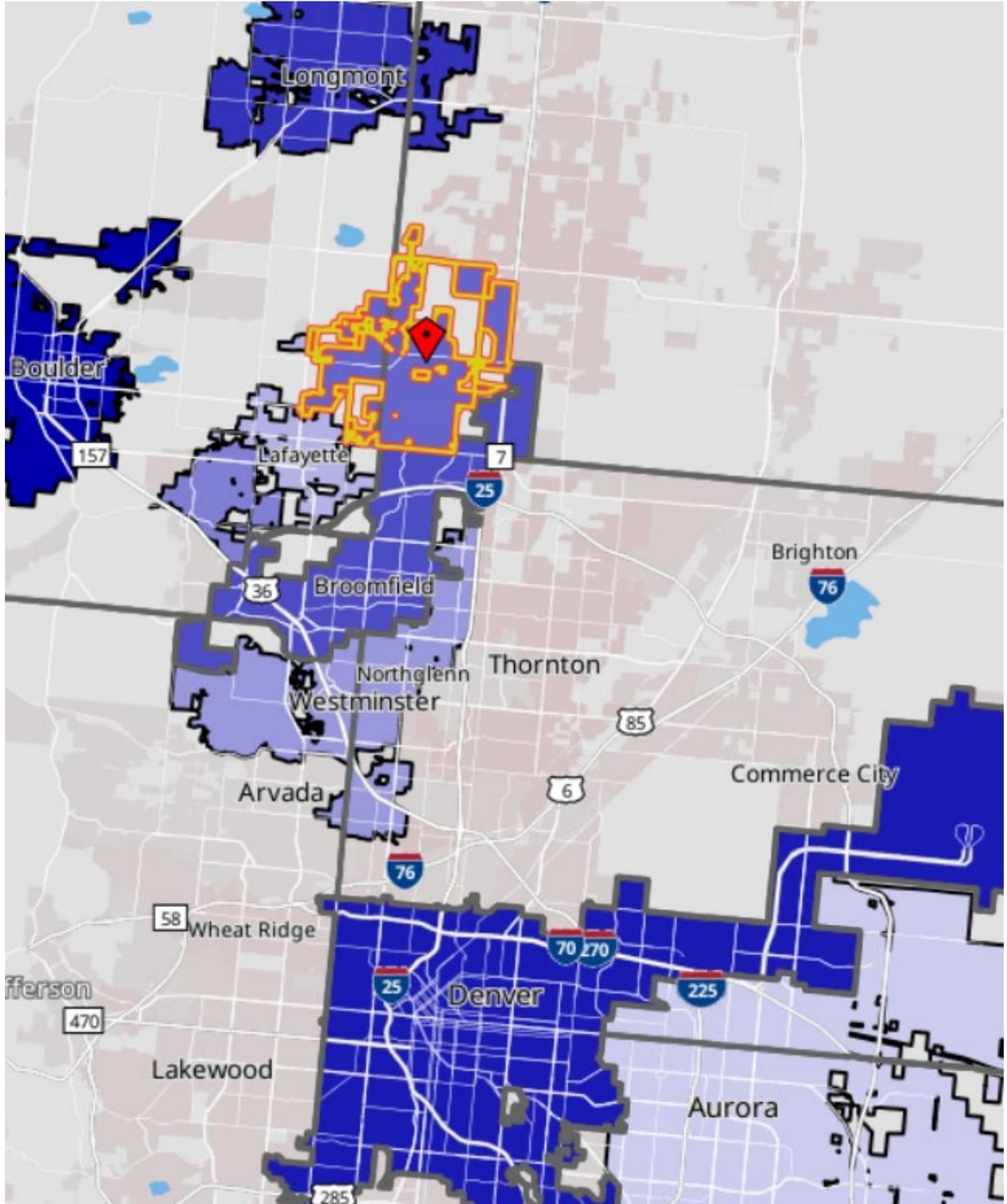
Source: LEHD (2020)

Table 7 shows that almost 50% of Erie workers live less than 10 miles away. A good share of these workers live in Longmont and Thornton. Another 32% live within 10-24 miles, mostly in Denver, and less than 20% live greater than 25 miles.

Table 7: Erie Workers Home Distance

Category	2020	
	Count	**Share**
Total All Jobs	3,388	100%
Less than 10 miles	1,656	49%
10-24 miles	1,087	32%
25-50 miles	476	14%
Greater than 50 miles	169	5%
Total All Jobs	3,388	100%

Source: LEHD (2020)

Figure 14: Where Erie Workers Live
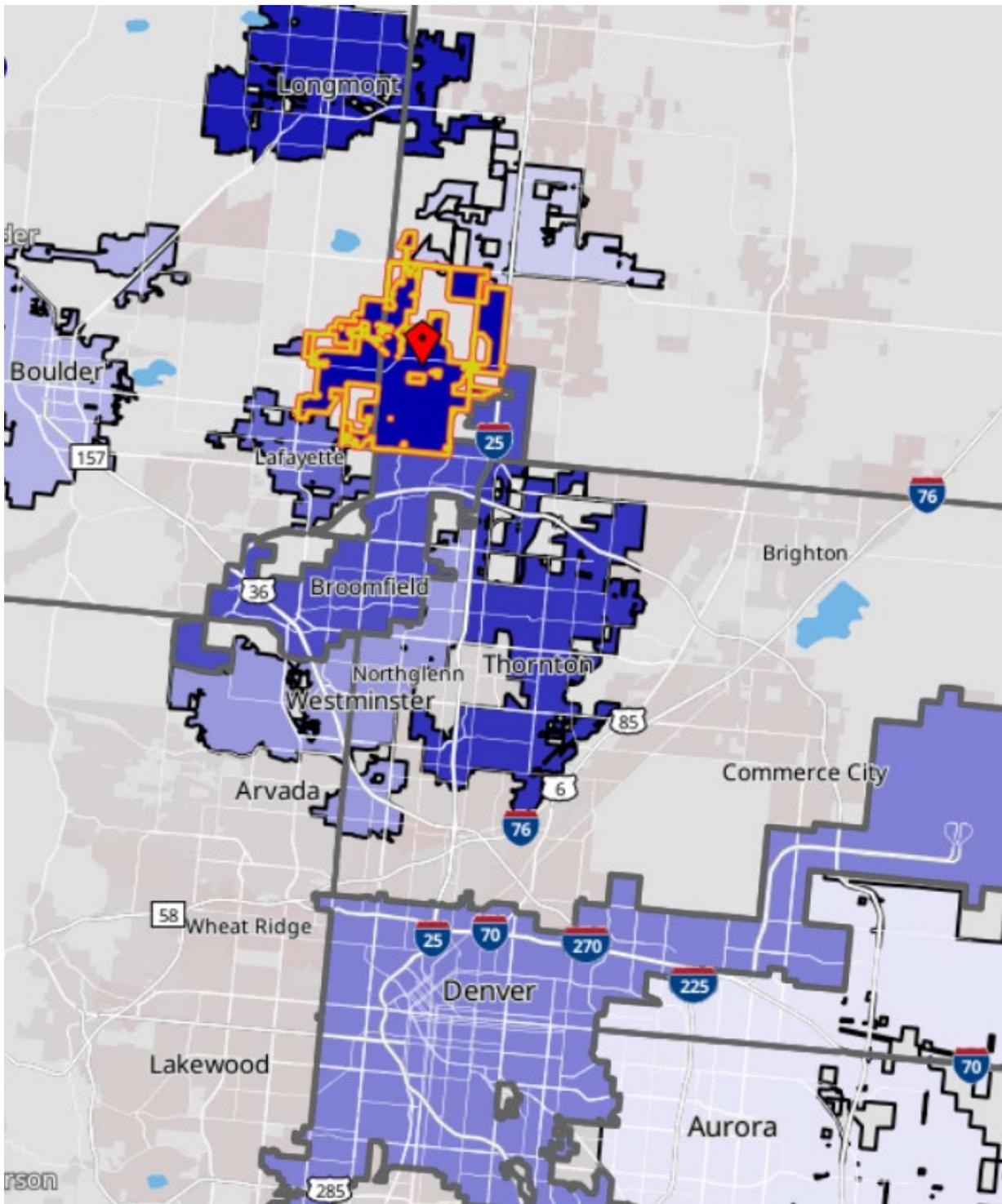
Source: LEHD (2020)

Local & Regional Destinations

Figure 15 shows a map of the following key destinations in and near Erie:

- Important Public Facilities
- Middle & High Schools
- Grocery Stores
- Medical Facilities/Clinics

This map shows that the key destinations within Erie are concentrated around four general locations:

- **The Erie Community Center (central Erie) –** This area includes a mix of commercial and medical clinics, and a K-8 school, in addition to the main recreation center and community gathering place in town with many programed events.
- **Old Town Erie (north/central Erie)** – This area includes numerous small businesses and shops in historic Erie as well as Town Hall and Erie Middle School.
- **Arapahoe Road Commercial Area (southwest Erie)** - This area includes a Safeway supermarket, Lowe's improvement store, restaurants, a medical clinic, and several other businesses.
- **Vista Village Commercial Area (southeast Erie)** - The commercial area in the southwest corner of Erie along CO 7 includes a King Soopers supermarket, restaurants, banks, other businesses, and adjacent medical clinics in Broomfield.

Additionally, the commercial area along US 287 between Arapahoe Road and Baseline Road in Lafayette includes numerous commercial destinations, including Walmart, a King Soopers supermarket, a foodbank, and other services that are important local destinations for many Erie residents.

Key Destinations in Erie

Figure 15. Key Destinations in Erie

Schools

Public Facilities

Grocery Stores

Medical Facilities
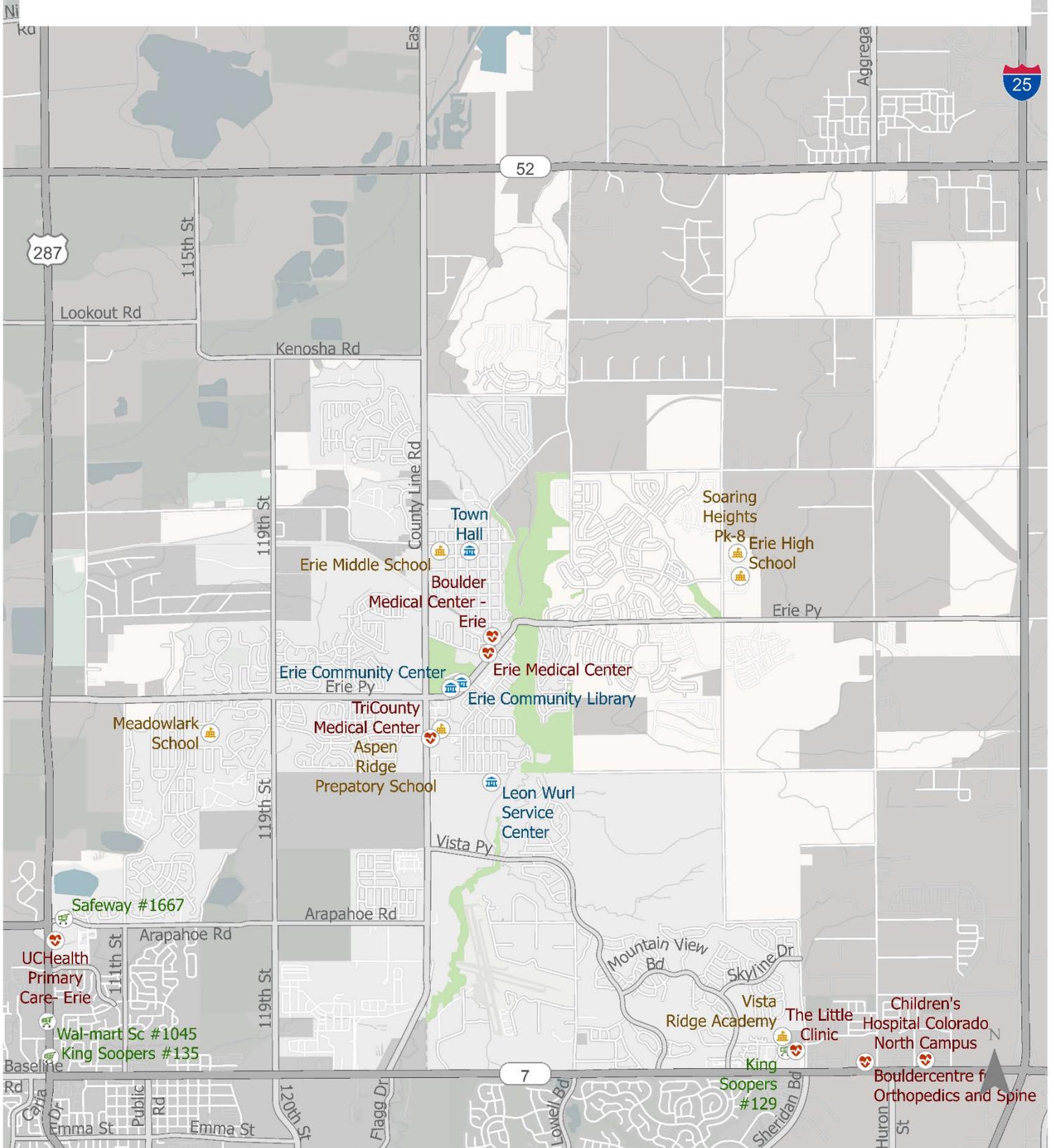
StreetLight Data Analysis

Origin-destination trip data for Erie and the surrounding area were collected using StreetLight Data. StreetLight Data is an on-demand mobility analytics platform and a "Big Data" provider that compiles origin-destination trip data from global positioning system (GPS) tracking technology provided through location-based services (LBS) data or connected vehicle data (CVD). CVD was collected for this analysis, which is data collected from vehicles equipped with advanced communication technology. The period for the vehicle trips was March 2023 through May 2023, and to capture peak flows and analysis at various times of the day and days of the week, data was collected for a typical weekday (Tuesday – Thursday), a typical weekend (Saturday – Sunday) on an hourly basis.

Zones

Transportation zones are the building blocks for running analyses on the StreetLight platform. Zones can be used to analyze traffic that stops and starts within an area. To capture all the critical origin and destination spots in and around Erie, 16 zones were developed for this analysis. The zones developed for this analysis were based on the land use patterns, including separate zones for major commercial areas and recreational facilities, separate zones for the major transit stations and Park-n-Rides, and separate zones for residential zones separated by major roads. **Figure 16** shows a map of the zones analyzed and **Table 8** shows the zone descriptions, with numbers corresponding to the map. To understand certain questions of the analysis, specifically regional trips to or from Erie, an additional analysis with pre-set Traffic Analysis Zones (TAZs) geographies was run.

Figure 16: StreetLight Analysis Zones
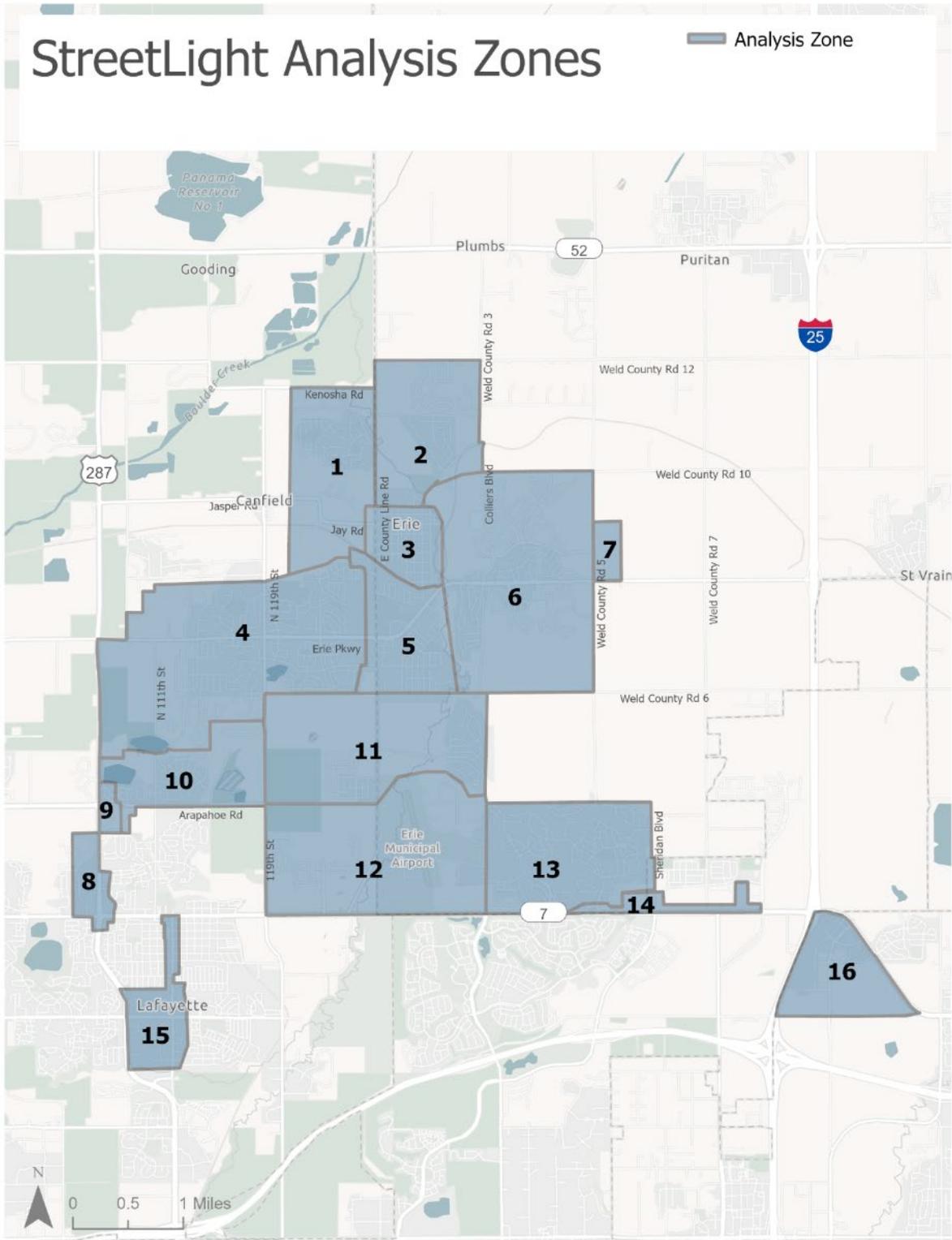
Table 8: StreetLight Analysis Zone Descriptions

Zone Name	Zone Number
Kenosha Farms/Erie Village/Lost Creek Farm	1
Northridge/Morgan Hill	2
Old Town Erie	3
Canyon Creek/Flatiron Meadows/W Erie Pkwy	4
Erie Community Park/Erie Commons	5
Grandview/Erie Highlands/Colliers Hill	6
Erie HS/Soaring Heights	7
Walmart/King Soopers/Hwy 287 Commercial	8
Safeway/Lowes/Hwy 287 and Arapahoe Commercial	9
Arapahoe Ridge/Nine Mile	10
Compass/Vista Pointe	11
Erie Airport/Parkdale	12
Vista Ridge	13
Baseline Rd Commercial and Children's Hospital	14
Lafayette Downtown/Commercial	15
Larkridge Commercial	16

Analysis Goals

To best inform the study of the existing travel patterns and potential transit demand, the Streetlight analysis aimed to answer the following questions:

1. Where are Erie residents traveling within the region?

2. Where are the top trip pairings in and around Erie?

3. What are the top destinations in and around Erie?

4. What are the top destinations in and around Erie from select zones in Erie?

    a. Vista Ridge

    b. Arapahoe Ridge/Nine Mile

    c. Old Town Erie

To understand where people are traveling outside of Erie, an origin-destination analysis with pre-set geographies was run. This is an analysis type where the origins are set as the custom zones within Erie, and the destinations are set as U.S Census Traffic Analysis Zone (TAZ) boundaries. **Figure 17** displays the average daily distribution of destinations from Erie on all days of the week at all hours between March and May 2023. Out of all trips destined to areas outside of Erie, the largest portion of trips are traveling to the three TAZs: the Larkridge shopping center in Thornton, the commercial area and Children's Hospital surrounding Baseline Road, and the commercial areas in Lafayette and surrounding the intersection of Baseline Road (CO 7) and US 287. Identifying where trips are already being taken outside of Erie's boundaries can help understand potential areas to which the potential Erie microtransit service could provide rides, or at least provide connections to regional transit headed in those directions.

Figure 17: Regional Destinations, All Day
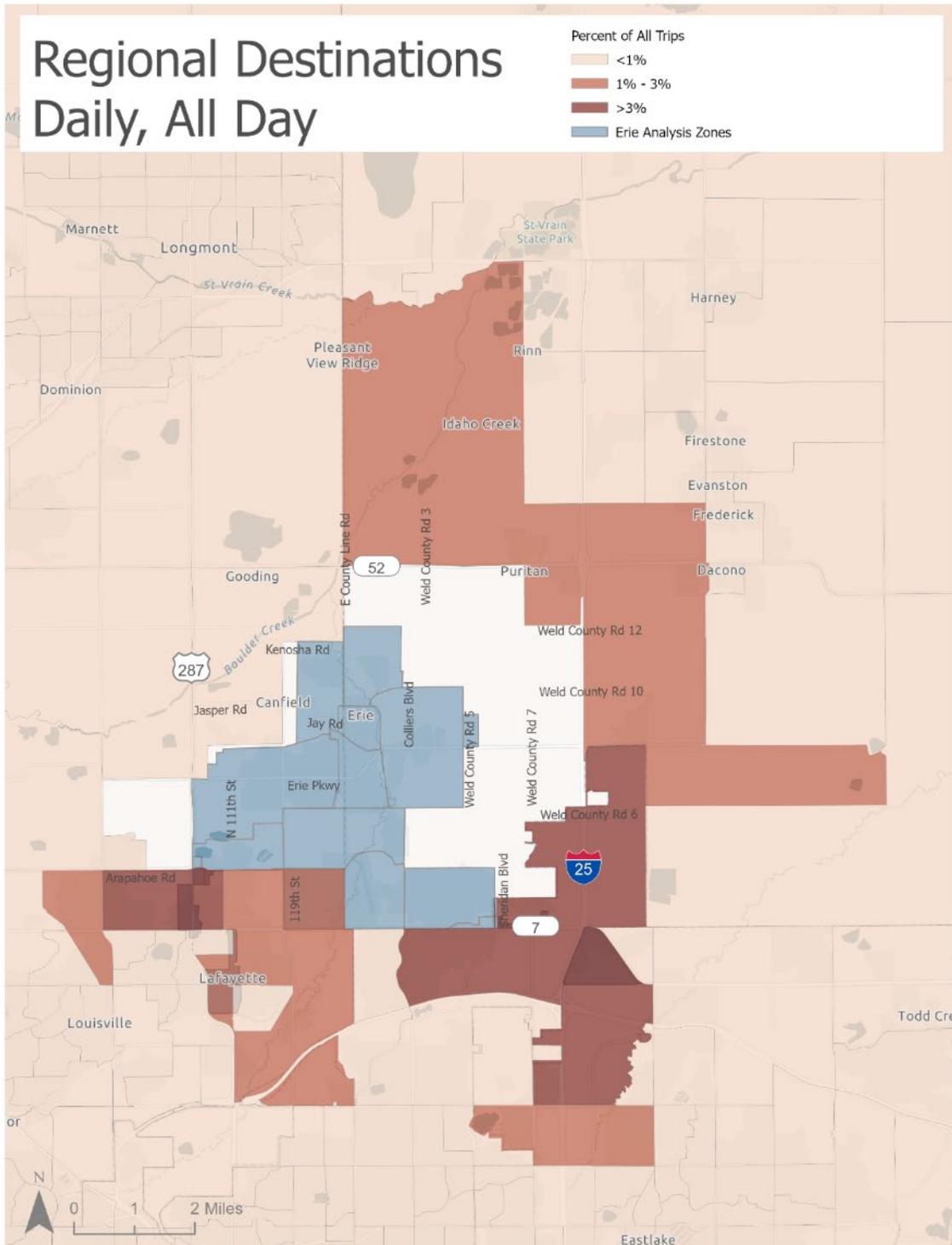
Source: StreetLight Data, Fehr & Peers

Top Trip Pairs within Erie

Figure 18 displays the top trip pairings within Erie and select areas near Erie. The trip pairs with the largest share of trips are between the Grandview/Erie Highland/Colliers Hill analysis zone and the Erie Community Park/Erie Commons analysis zone (2,964 daily trips), as well as between the Vista Ridge analysis zone and the Baseline Rd Commercial and Childrens Hospital analysis zone (2,781 daily trips). Both trip pairs are between analysis zones that are respectively adjacent to one another, which means that the top trip pairs are between origins and destinations that are near one another. The map displays trip pairs for all days, and when comparing weekday trips to weekend trips, there are not many differences in the patterns; the most notable pattern in the distinction between day types is that trips to/from commercial centers are more prevalent trip pairs on the weekends than on weekdays. Moreover, for all travel within Erie on all days and all hours of the study period, 66% of the trips have a travel time of zero to ten minutes, and 32% of the trips have a travel time of ten to twenty minutes. In addition, 78% of trips have a trip length of less than five miles, with 38% of the trips making a journey of less than two miles.

Figure 18: Top Trip Pairs within Erie (Daily Trips)
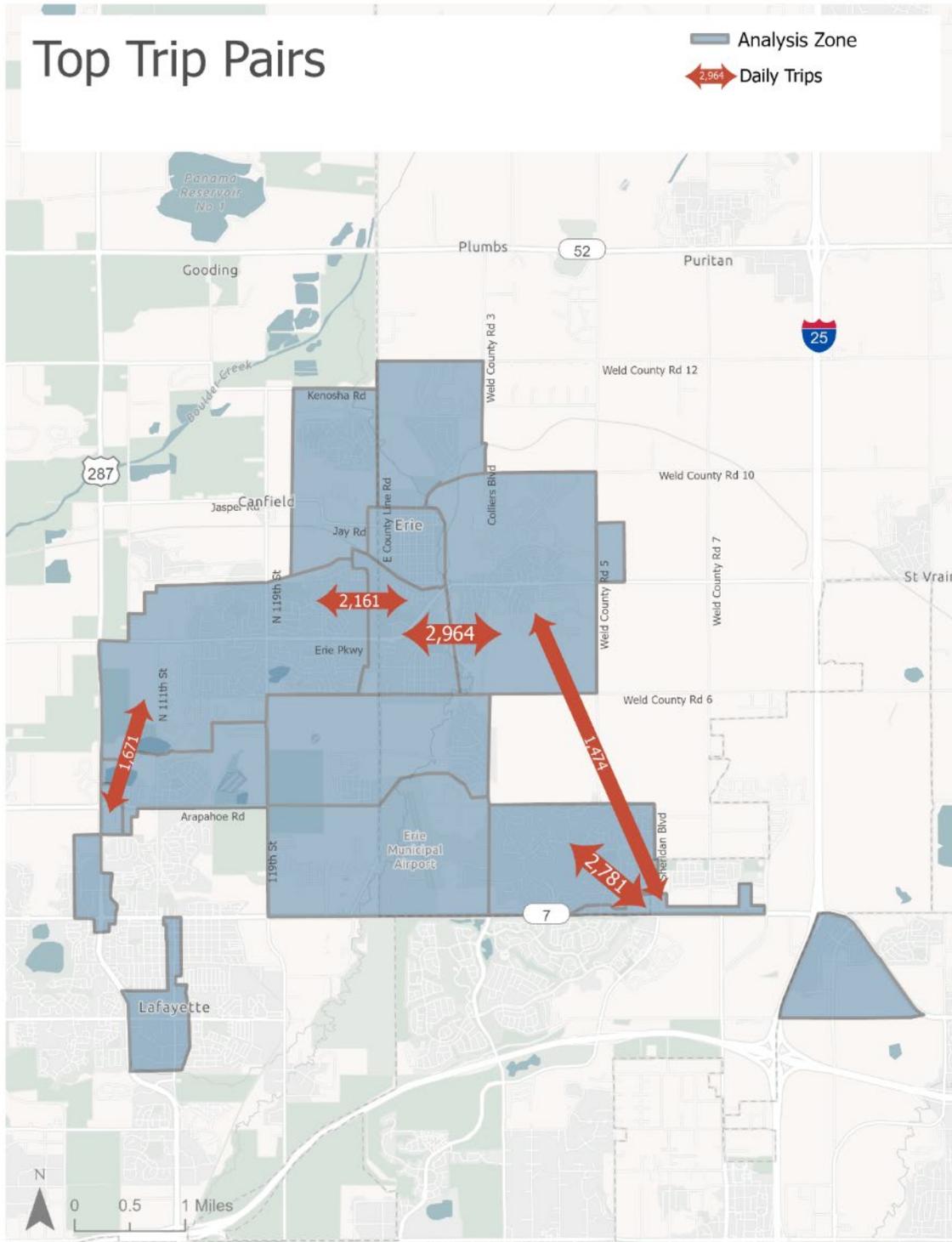
Source: StreetLight Data, Fehr & Peers

Top Destinations within Erie

The top destinations within and around Erie for trips that begin in and around Erie on an average day during the study period are displayed in **Figure 19**. These are locations where the greatest portion of vehicle trips end. The top five destinations in and around Erie include the Erie Community Park/Erie Commons zone, the Grandview/Erie Highlands/Colliers Hill zone, the Canyon Creek/Erie Highlands/W Erie Pkwy zone, Vista Ridge, and Baseline Road Commercial/Children's Hospital. Geographically, these top destinations are mostly located along Erie Parkway, and in the Southeast portion of Erie.

Figure 19: What are the top destinations in and around Erie? (March-May 2023, Daily, All Day)
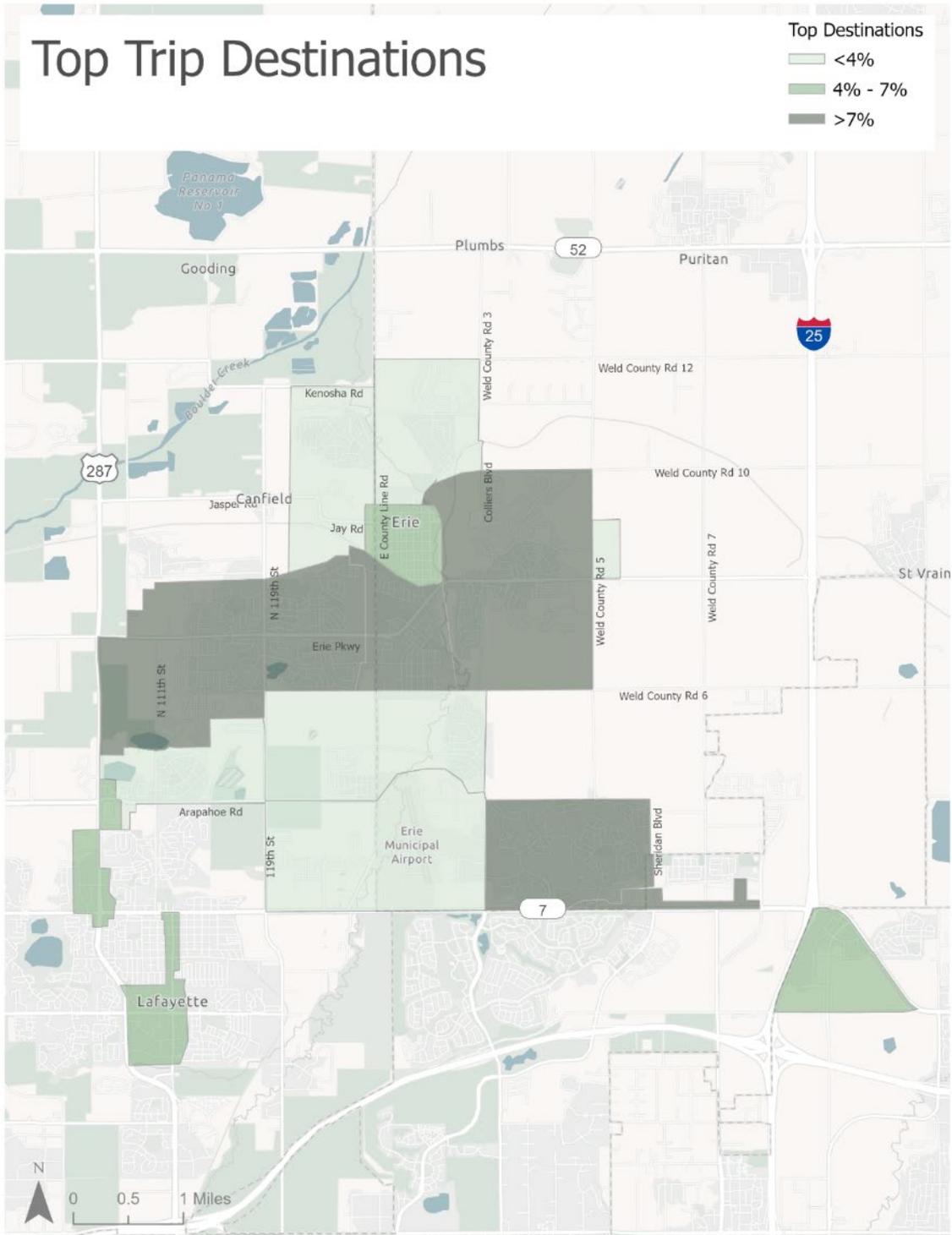
Source: StreetLight Data, Fehr & Peers

Travel patterns vary slightly depending on the day of the week, as seen in **Figure 20**. Although the top three destinations for trips within Erie are the same as in the previous figure, the portion of trips to these destinations is smaller on weekends than on weekdays. However, a larger portion of trips are destined for commercial destinations on weekends, which is consistent with the top trip pairings previously discussed. The commercial zones to which a noticeably higher portion of trips are destined on the weekends than on weekdays include the following: Baseline Rd Commercial and Children Hospital; Larkridge Commercial; Safeway/Lowes/Hwy 287 and Arapahoe Commercial. Further, the analysis distinguished that the largest portion of trips to commercial destinations on weekdays happens during the middle of the day (10 AM to 3 PM), while residential destinations are more prominent during the evening hours.

Figure 20: What are the top destinations in and around Erie? (March-May 2023)
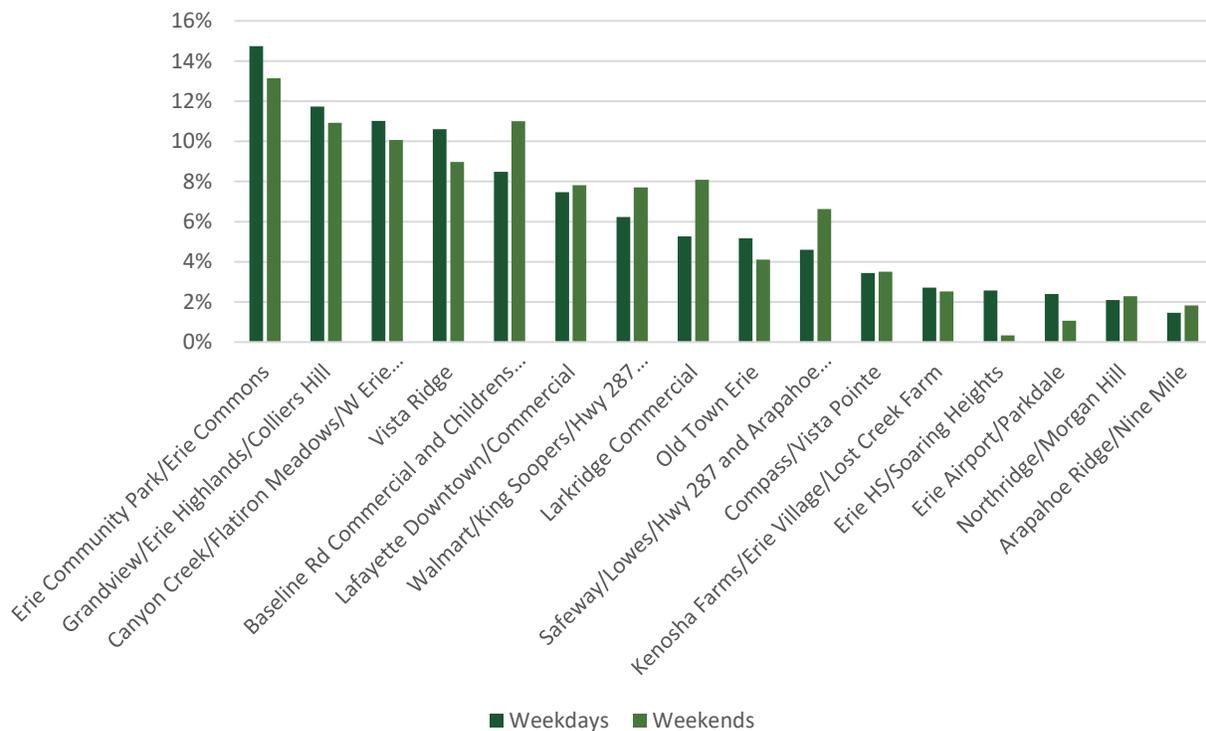
Source: StreetLight Data, Fehr & Peers

Top Destination within Erie from Select Zones

Understanding the destinations of trips from a given neighborhood in Erie can help identify potential travel markets and transit demand. For this analysis, three representative areas of Erie were selected to understand common destinations from these neighborhoods, including Vista Ridge, Arapahoe Ridge/Nine Mile, and Old Town Erie.

Vista Ridge

Figure 21 displays the top local destinations within and around Erie (thus, excluding regional destinations) for trips originating from the Vista Ridge zone. The map displays the trip patterns that makeup 3% or more of all daily trips originating in Vista Ridge. The top destination is internal, within the Vista Ridge Zone. The zone does include an elementary school, a community center, and a golf course. The next most common destination is the commercial zone directly near Vista Ridge, the Baseline Rd Commercial and Children Hospital zone. The next largest portion of trips are to the Erie Community Park and Larkridge Commercial area.

On weekends the largest portion of trips from Vista Ridge (35%) are headed to the nearby Baseline Rd Commercial and Children's Hospital zone. Similar to the Town-wide travel patterns, the portion of trips headed to other commercial areas in general is higher on weekends than on weekdays.

Figure 21: What are the top destinations from Vista Ridge? (March-May 2023, Daily, All Day)
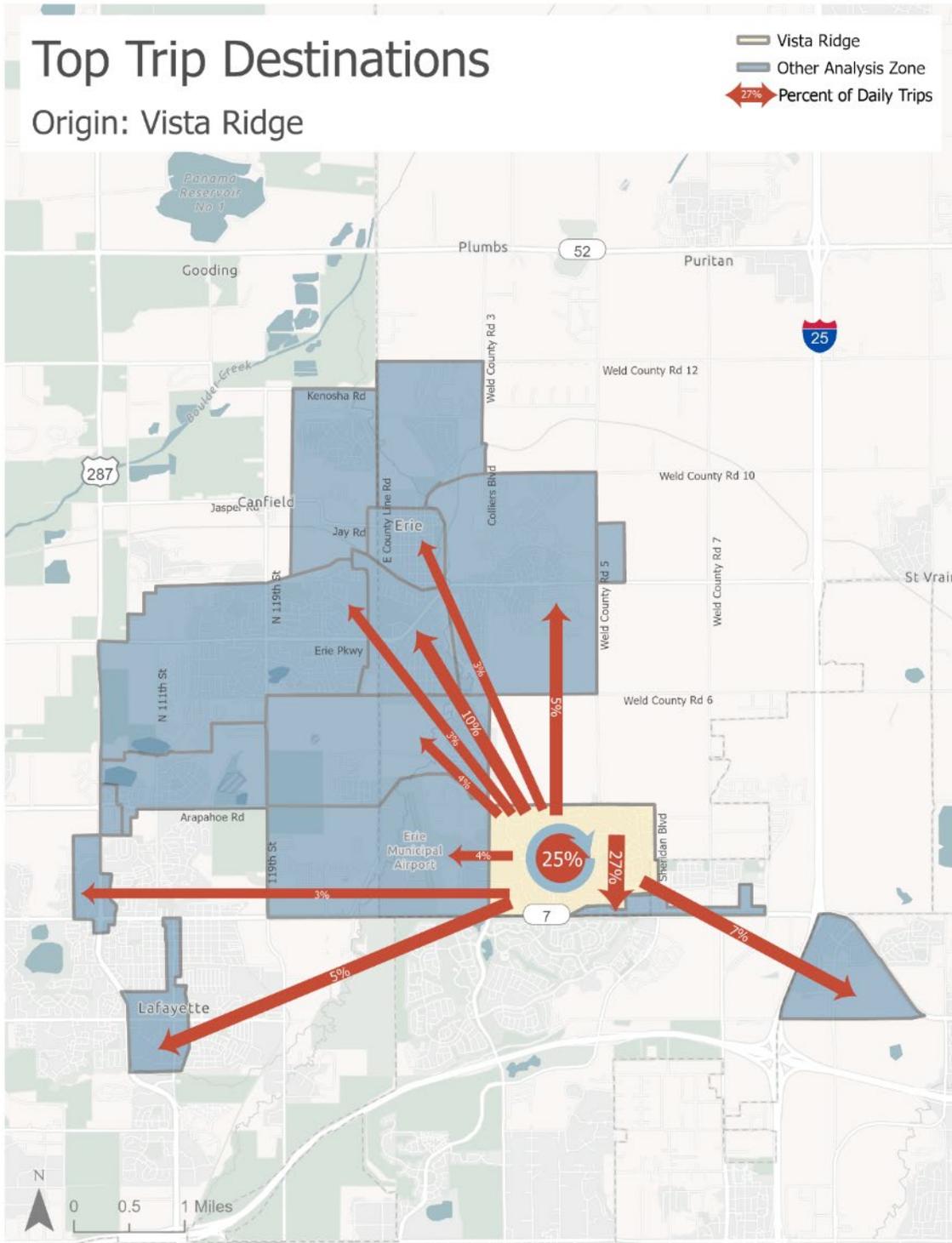
Source: StreetLight Data, Fehr & Peers

Figure 22 displays the top local destinations for trips originating from the Arapahoe Ridge/Nine Mile zone, displaying trip patterns that makeup 3% or more of all daily trips originating from that zone. The largest portion of local trips from this origin travel to the Walmart/King Soopers/Hwy 287 and Arapahoe Commercial zone (24%), followed by trips to the Lafayette Downtown/Commercial zone (18%). The third top destination is the Safeway/Hwy 287 and Arapahoe Zone zone, which has a large portion of trips on weekends. The Erie Community Park/Erie Commons zone and Canyon Creek/Flatiron Meadows/W Erie Pkwy zone are also common destinations.

Figure 22: What are the top destinations from Arapahoe Ridge/Nine Mile? (March-May 2023, Daily, All Day)
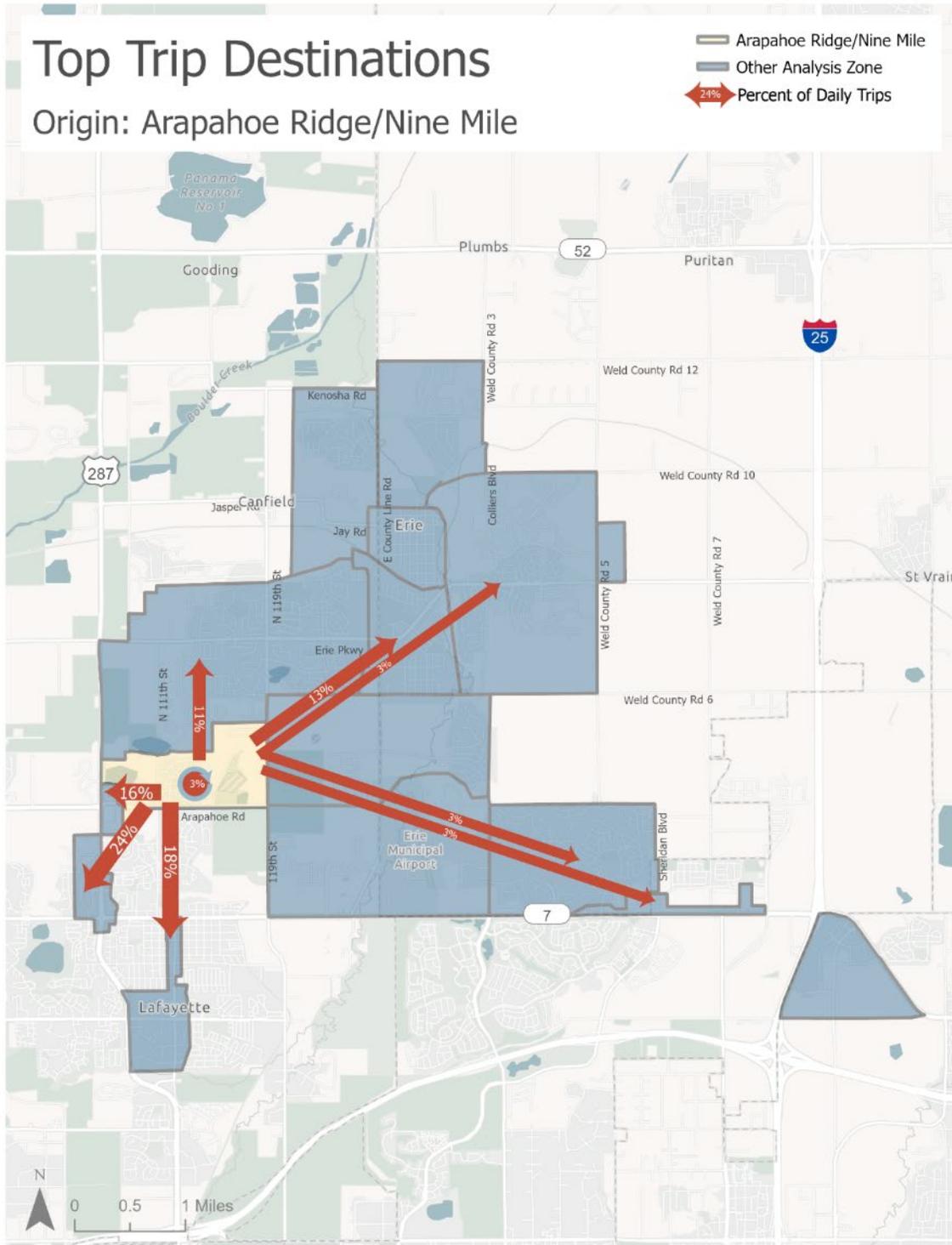
Source: StreetLight Data, Fehr & Peers

Old Town Erie

Figure 23 displays the top local destinations for trips originating from Old Town Erie, which include the Erie Community Park/Erie Commons zone (23%) and the Grandview/Erie Highlands/Colliers Hill zone (22%), followed by the Canyon Creek/Flatiron Meadows/W Erie Pkwy zone (14%). For trips originating from the Old Town Erie zone, the pattern between the weekdays and the weekends is similar, without any notable differences in travel patterns.

Figure 23: What are the top destinations from Old Town Erie? (March-May 2023, Daily, All Day)
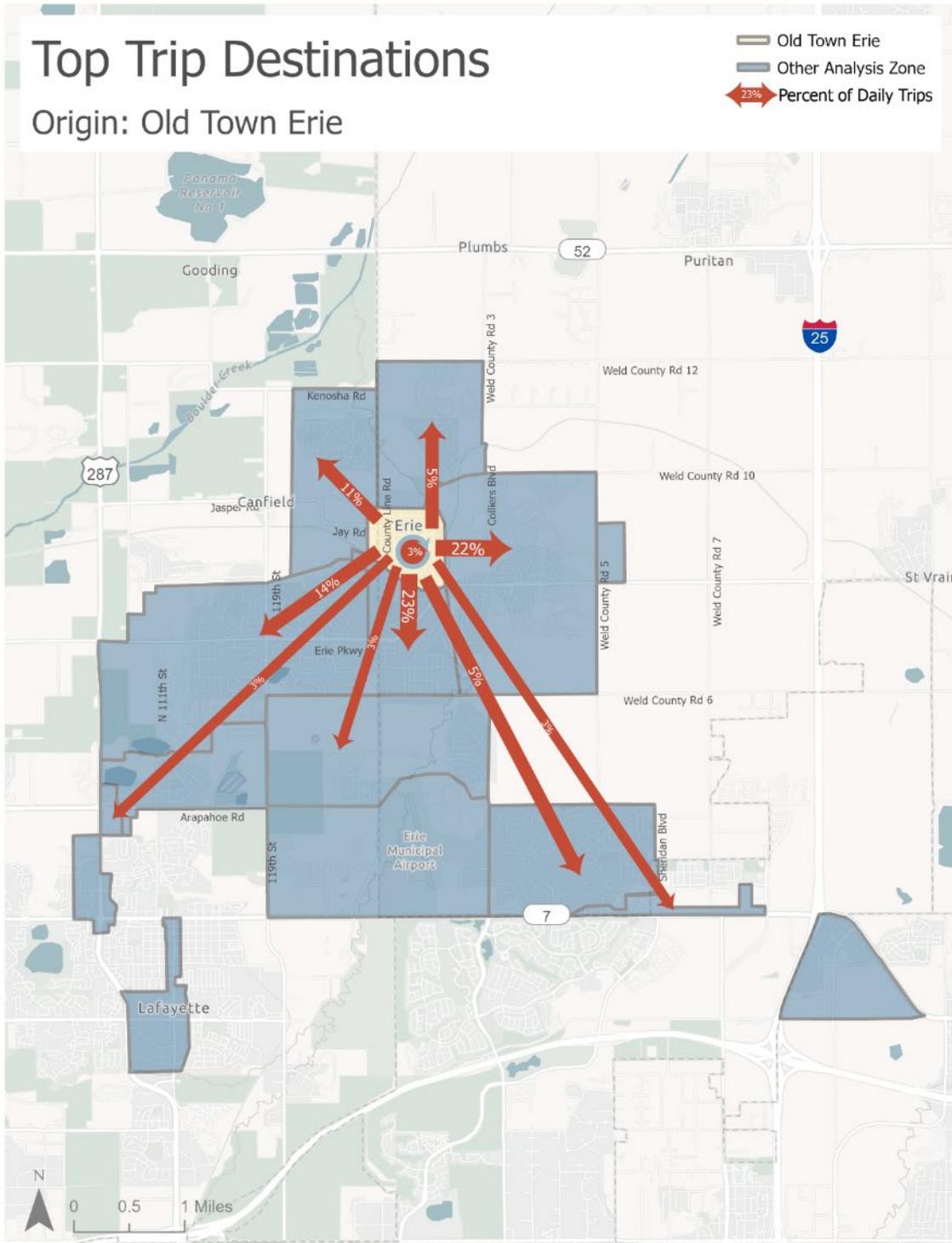
Source: StreetLight Data, Fehr & Peers

Key Takeaways

The key takeaways for the travel pattern analysis can be summarized by the following:

- 95% of employed Erie residents work outside of Erie, nearly a third of which work in Denver and Boulder.

- 81% of people who work in Erie commute from outside of Town, and about 50% of those commuters live within 10 miles of Erie, mostly in Thornton and Longmont

- Out of all trips originating in Erie and destined to areas outside of Erie, the largest portion of trips are traveling to the Larkridge shopping center in Thornton, the Vista Ridge commercial area and Children's Hospital surrounding Baseline Road, and the commercial area around US 287 and Baseline Road in Lafayette.

- The top trip pairs within Erie are between nearby areas; in fact, most trips travel for less than twenty minutes and travel less than five miles.

- The top three destinations in and around Erie are mostly located along Erie Parkway, and in the Southeast portion of Erie, including the Erie Community Park/Erie Commons zone, the Grandview/Erie Highlands/Colliers Hill zone, and the Canyon Creek/Erie Highlands/W Erie Pkwy zone.

- For trips originating in the Vista Ridge neighborhood, the top destinations include destinations within the Vista Ridge neighborhood and the nearby commercial area on CO 7..

- For trips originating in the Arapahoe Ridge and Nine Mile neighborhoods, the top destinations are the commercial areas along US 287 and in downtown Lafayette.

- For trips originating in Old Town Erie, the neighborhoods along Erie parkway are the top destinations.

- The commercial areas around Erie, including along US 287 in Lafayette, CO 7 in Broomfield, and downtown Lafayette are all important destinations for people in Erie, but there does not appear to be one location that is more prevalent than the other.

6. Community Input

Community Survey

An online community survey in both English and Spanish was open from October to December 2023, and received 35 responses, all were taken in English. The following sections summarize the survey responses.

General Demographic Questions

Most respondents (97%) live in Erie neighborhoods, but only 11% work in Erie. Half (51%) of the respondents were 65 years of age or older, which is five times the percent of the Town population of that age group. 25% of respondents were 45-64 years of age, and the rest, 23%, were 35-44 years of age. It should be noted that the young adult and adolescent groups, which accounts for 23% of the population, did not complete the survey, including no one under the age of 35.

Figure 24: Age of Survey Respondents Compared to Population
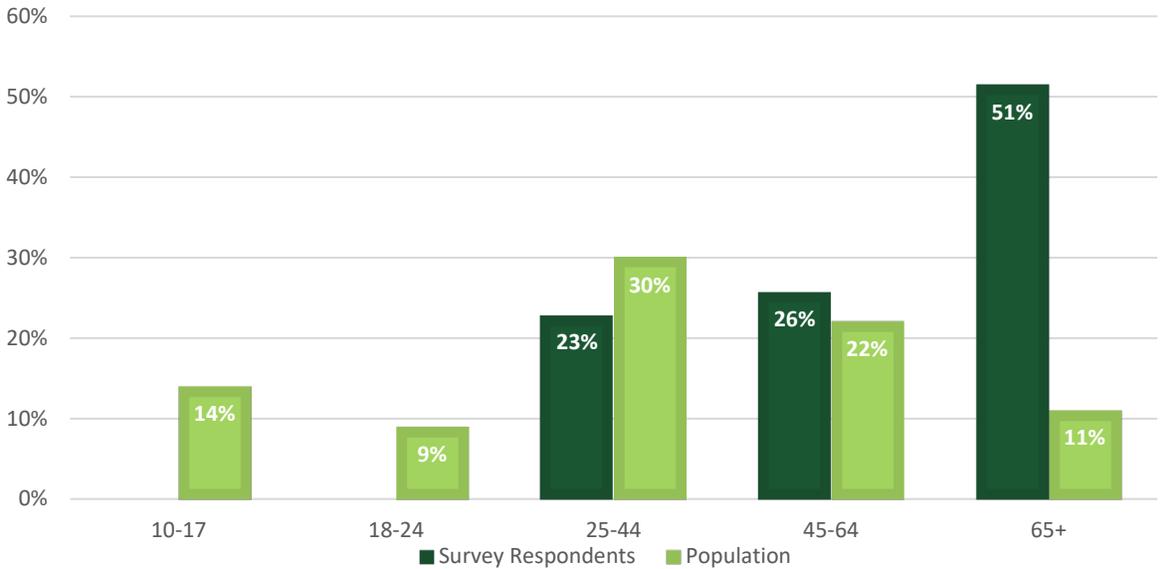
Source: Erie Community Survey and American Community Survey, 5-Year Estimates (2021)

About 19% of the respondents indicated that their annual household income is less than $50,000, and 50% have an income over $100,000 annually. In general, survey respondents disproportionately represented households with middle-incomes compared to the population of Erie in which over 50% of households have incomes over $150,000 annually.

Figure 25: Annual Income of Survey Respondents Compared to Population

Source: Erie Community Survey and American Community Survey, 5-Year Estimates (2022)

Travel Behavior Questions

More than 90% of the respondents have consistent and regular access to a vehicle, and 63% indicated they do not use public transportation to get around. Out of the 37% who use public transportation services, Local Taxi, Uber, and Lyft are the most popular services (37%), followed by RTD route JUMP (22%), and RTD Flatiron Flyer (17%).

Figure 26: Survey Respondents Use of Existing Transportation Services (of the 37% that use transit/transportation services)

What transportation services do you typically use?
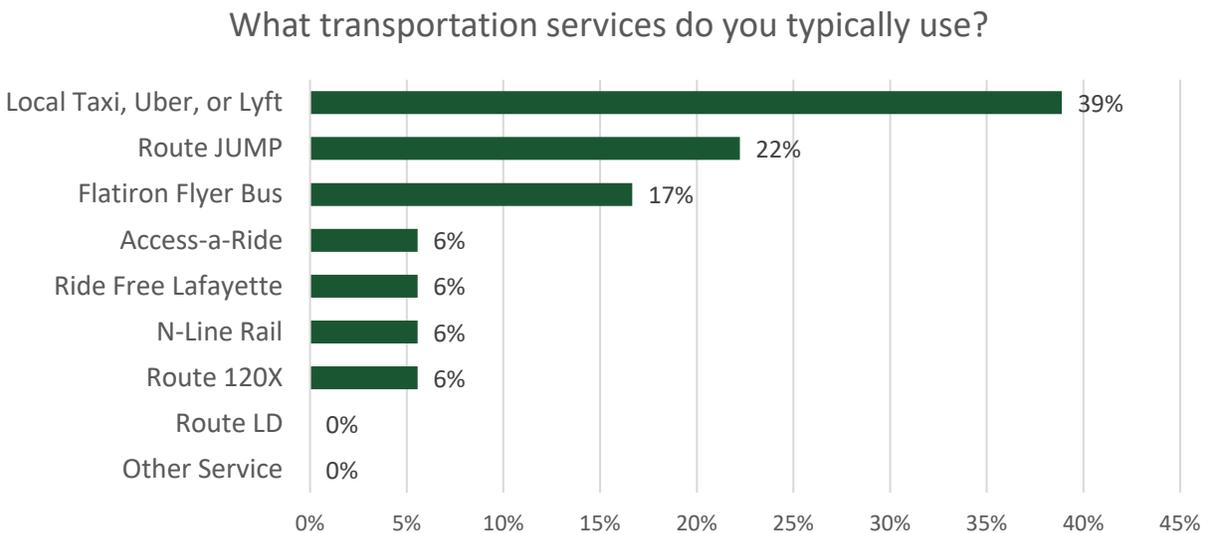
Weekday mornings and weekday evenings were the most popular time to ride transit as shown in **Figure 27**.

Figure 27: Survey Respondents' Existing Transit Use by Time

What times do you typically ride transit?
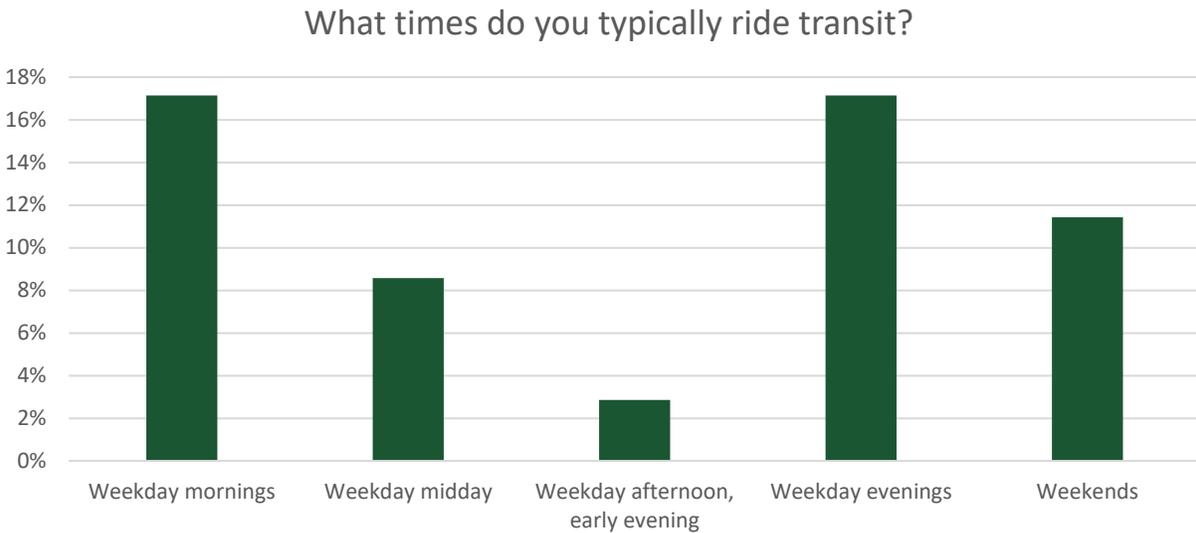
Household Members in Need of Mobility Options Identified in the Survey

Twenty one percent of respondents indicated they have a personal mobility challenge that impacts their ability to get around and 38% of respondents indicated they have household members in need of mobility options. Ten percent provided comments that they would like microtransit to serve their adolescent household members.

Questions Regarding Potential Microtransit Service

In the survey, respondents were asked to provide the most important characteristics they are considering when riding a new on-demand microtransit service (**Figure 28**). Out of six features proposed in the survey, the most desired one was the ability to make trip requests using a smartphone, computer, or tablet at the time it is needed. Most respondents also showed interest in weekday service during the day and sought consistent, professional drivers.

Figure 28: Most Important Service Characteristics Identified by Survey Respondents

When considering whether you would ride a new on-demand microtransit service, what characteristics would be most important to you?

Characteristic	Percent
Ability to make a trip request exactly when I need it using a smartphone, computer, or tablet	83%
Weekday service during the day (6AM-8PM)	77%
Consistent, professional drivers	71%
Weekend service during the day	49%
Early/late service (before 6AM and/or after 8PM)	43%
Ability to bring my bike on the vehicle	23%

When asked whether and how often they would use a microtransit service, 9% indicated they would use it every day, 37% indicated 1-4 times a week, and 40% indicated 1-4 times a month (**Figure 29**).

Figure 29: Potential Frequency of New Microtransit Service Usage

If a new on-demand microtransit service had many of the characteristics most important to you or someone in your family and went where you (or someone in your family) need(s) to when needed, would...

- Never 3%
- Rarely 11%
- Yes, everyday 9%
- Yes, 1-4 times per month 40%
- Yes, 1-4 times per week 37%
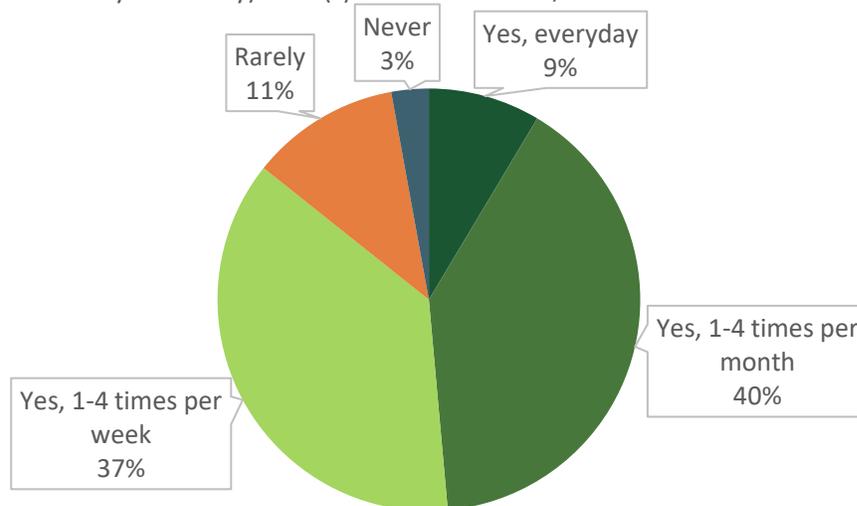
Survey respondents were also asked to indicate their trip purposes when using the proposed service (**Figure 30**). Both public service facilities such as Erie Community Center and the grocery stores near Erie are the most popular destinations with 77% votes. There is also a high interest in going to medical services (54%) and connecting to the RTD bus (51%).

Figure 30: Trip Purposes Identified by Survey Respondents

How might you or your family use a new on-demand microtransit service that connects any two points within Erie and perhaps nearby areas? (select all that apply)

Trip Purpose	Percent
To get to/from public services such as the community center, library, school, or governmental services	77%
To get to/from grocery stores or shopping centers within or near Erie	77%
To get to/from medical services/appointments or clinics	54%
To get to/from a bus (RTD routes LD or JUMP) to travel to destinations outside of the Erie area (to Boulder, Broomfield, Longmont, Denver, etc.)	51%
To get to/from senior center or other senior services	43%
To get to/from afterschool activities	20%
To get to/from work within Erie	3%
Other	0%

Intercept Events

Three intercept events were held to promote the study in Erie Community Center during the week of November 13, 2023:

- Active Adults Coffee, Erie Community Center, November 14, 8 AM - 10 AM
- Erie Community Center, Front Lobby, November 15, 4 PM – 6PM
- Active Adults Weekly Lunch, Erie Community Center, November 16, 11 AM – 1 PM

Two of the events focused on older adults, and one was intended to solicit input from younger residents of Erie after school.

Common themes gathered from these intercept events include:

- Most participants own at least one car in their household and indicated they prefer to drive to where they need to go.
- Some participants indicated they know someone in their community who needs mobility options.
- Many participants were interested in service to Denver International Airport.

Additionally, the participants at the intercept event were also asked to provide input on where they live and where they regularly travel to, within or near Erie boundaries. These comments were then combined with the survey results to generate maps of desired pick-up locations (**Figure 31**) and drop-off locations (**Figure 32**).

Figure 31 shows that pick-up locations are scattered across most of the Town with only the southeast portion of Erie showing a lower concentration than most of the rest of the Town. **Figure 32** shows a higher concentration of drop-off demand at handful of locations in and near Erie, including the Erie Community Center area, the commercial area around Safeway, Old Town, and Vista Ridge commercial area/King Soopers. **Table 9** shows the top six most desired destinations.

Table 9: Top Destinations Identified by Survey Respondents

Location	Respondents
Erie Community Center, Park, & Library	49
Safeway/ Nine Mile Commercial/ UC Health	25
Old Town	18
Vista Ridge Commercial & King Soopers	15
Walmart	6
Boulder Medical Center - Erie	6

Figure 31: Desired Pick-up Locations by Survey Respondents and Intercept Event Participants
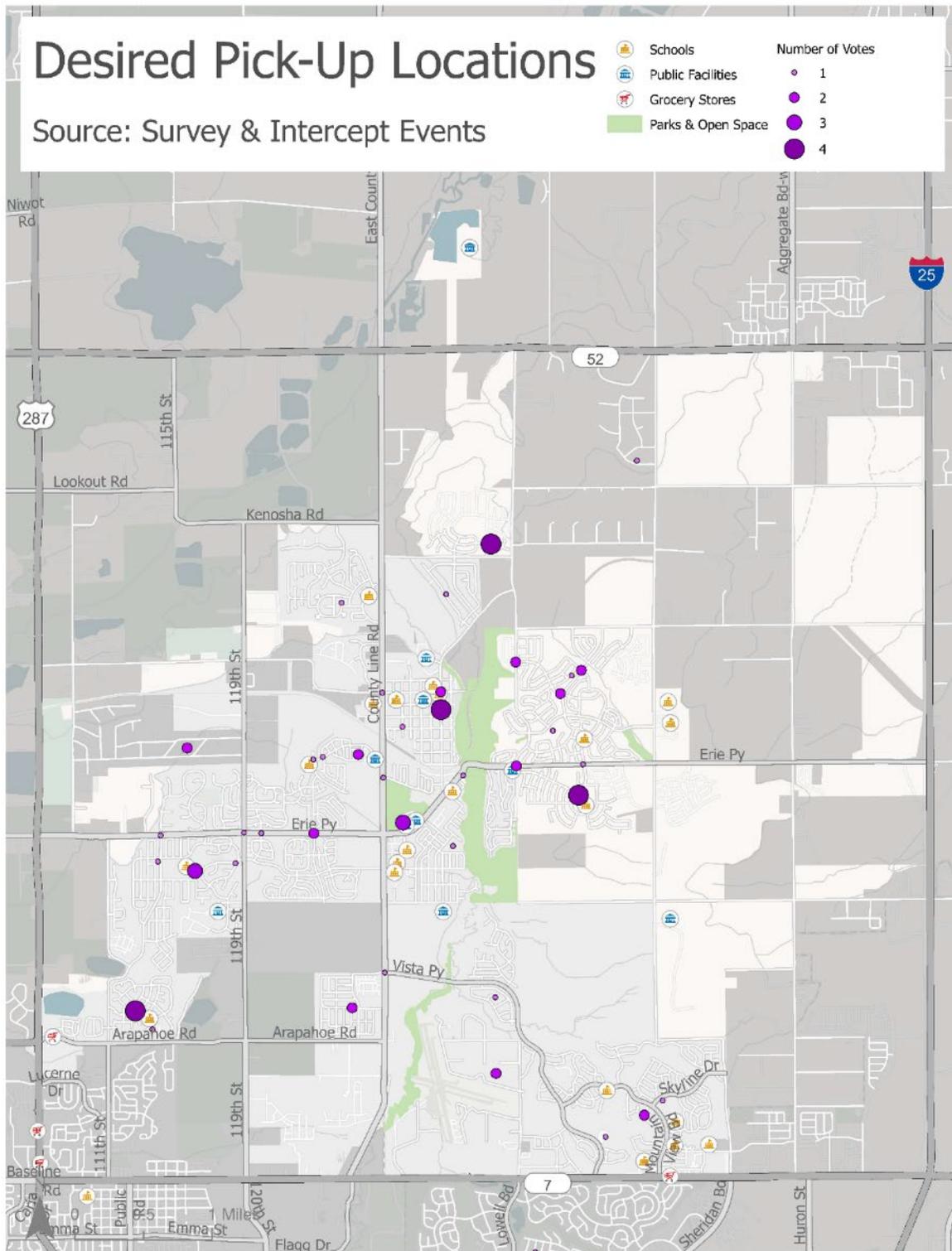
Figure 32: Desired Drop-off Locations by Survey Respondents and Intercept Event Participants
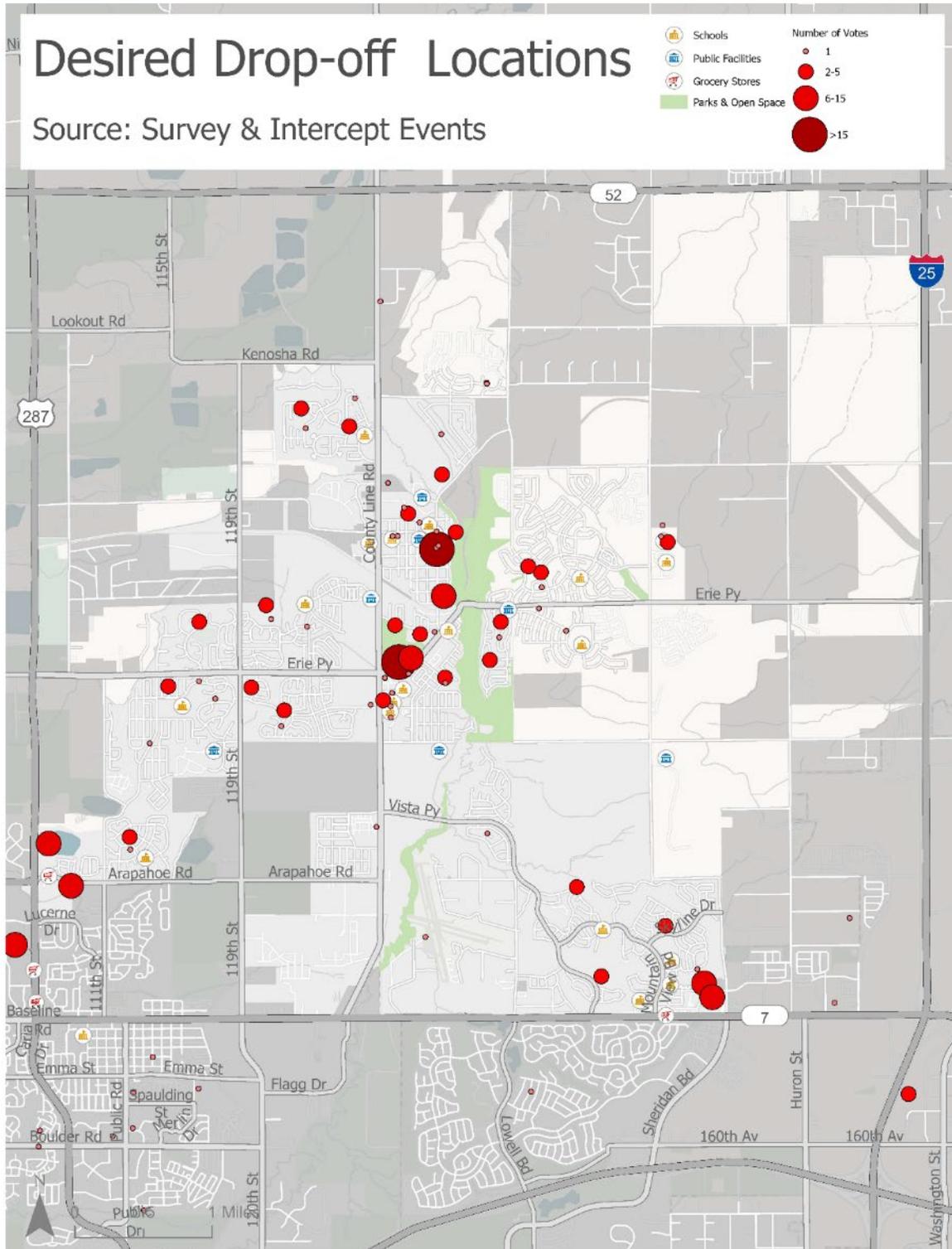
Focus Group

A focus group was held on January 8, 2024, attended by four Erie residents to solicit input on transportation needs and opportunities within or near Erie. The survey results and the initial maps of desired pick-up and drop-off locations were presented to the group. Comments received through the focus group meeting included:

- Connecting proposed service with RTD routes, especially route JUMP.
- Potentially expand the service further to RTD Park-n-Rides for those who need to travel regionally.
- Service to medical center outside of Erie for families with kids and senior adults.
- There is a need to identify safe drop-off locations for commercial areas around US 287. The road has a high-speed limit while lacking pedestrian facilities.
- It is crucial to make the service very accessible and convenient to use, but most importantly to reach those who need it.

7. Transit Needs & Travel Market Identification

The existing conditions analysis demonstrated that most of Erie for most of the day does not have convenient access to public transit service. The travel pattern analysis, demographic analysis, and input received from the community all showed demand for better transit service in Erie, particularly among demographic groups that have limited access to a private vehicle. This chapter of the report identifies the top transit travel markets within Erie and trip purposes that are important to consider when designing a new on-demand service.

Identification of Potential Traveler Markets

Primary traveler markets (groups with common demographic characteristics) are important to identify to inform the service alternatives, final service plan, and associated marketing strategies. Through our analysis, community survey, and focus group we have identified the following traveler markets.

Individuals and Families with Lower Incomes

Census data showed that about 2% of households in Erie are below the poverty line and about 10% of Erie residents have low incomes as defined by the U.S. Department of Housing and Urban Development. A low-cost, reliable on-demand service that connects low-income families and individuals with shopping options, local services, and jobs could be an important mobility option for these riders.

People with Limited Access to a Vehicle

About 19% percent of households in Erie have one or fewer vehicles, including 2% with no vehicle. In households with one vehicle there are often members of the household that have limited mobility options if one person in the household needs the vehicle. By expanding transit options and connections, a new on-demand shuttle could improve mobility for those who would otherwise have a difficult time accessing the places that they need to go.

Older Adults

People aged 65 and over make up 11% of the Erie's population. Older adults may be more interested in a new service that picks and drops off closer to where they need to go, but they may also be hesitant to change their travel behavior as this service will require education and public outreach.

Young Users and After School Trips

About 14% of Erie residents are between 10 and 17 years old. Many of these riders do not have a driver's license or access to a vehicle and may be a market for increased ridership, but often need transportation from school to a job or afterschool activity and then home. These young users may be more open to app-based on-demand services than other user groups. Erie High School, Erie Middle School, Aspen Ridge Prep School, and Erie Community Center are likely to be common origins and destinations for this user group. Based on peer communities and the demographic make-up of Erie this is likely to be a high user group of an on-demand transit service within the Town.

People with Limited Mobility or Mobility Assistant Devices

About 3% of Erie residents have a disability, and those community members often have mobility needs. Over 20% of survey respondents indicated a personal mobility challenge. There is an opportunity to provide a more convenient option using an on-demand solution, especially for those residents who do not meet eligibility requirements for paratransit but may not be able to use existing bus services easily.

Transit Commuters

95% of employed Erie residents work outside of Erie, many in Boulder and Denver. Additionally, over 80% of employees who work in Erie commute from outside of the city. Given most Erie residents do not have convenient access to an RTD route and many people travel to Boulder, a potential travel market will be connecting residents (and visitors) to one of RTD's fixed-route services, in particular the JUMP, LD, and 225.

Top Target Trip Purposes

Of the potential likely travel markets identified, the top target markets for a new community transit solution are:

1. People who need to travel to grocery stores, especially for populations with limited or no access to personal vehicles. 77% of survey respondents said they would use the service for this purpose. Desired destinations include the Safeway, Walmart, King Soopers, and Sister Carmen Food Bank on US 287 as well as King Soopers on CO 7 & Sheridan Parkway.
2. People who need to travel within Erie, particularly to the Community Center and Old Town, but currently experience challenges doing so because of mobility challenges or limited access to a personal vehicle. 77% of survey respondents said they would use the service for this purpose and the Community Center was listed by far as the top destination by the community.
3. People who want to get to medical appointments. 51% of survey respondents said they would use the service for this purpose. There are several medical clinics or dentist offices near the Community Center, in the Nine Mile commercial area at Arapahoe Road and US 287, and adjacent the Vista Ridge commercial development along CO 7..

4. Youth to/from between school and after-school activities or jobs. This is one of the top travel markets in the afternoon for the current Denver Connector service and given the high percentage of the youth population in Erie it is also likely to be a high-demand travel purpose in Erie. A highly anticipated destination is between the high school or middle school and the Community Center.
5. People connecting to RTD. While likely a smaller travel market than the top four, given that most of Erie is not well connected to RTD a new community transit service should be planned to allow folks in Erie to more conveniently connect into the RTD network bridging the first/final mile gap for longer regional trips to Boulder, Denver, Lafayette, and other communities.

8. Alternatives Analysis

Identification of Key Service Characteristics

Potential service alternatives were informed by community input, destinations, travel patterns, and travel markets. The community identified the following desirable attributes of a community transit service:

- Ability to make a trip request exactly when I need it using a smartphone, computer, or tablet.
- Weekday service during the day (6 AM-8 PM).
- Consistent, professional drivers.
- Weekend service during the day.
- There is a need to travel outside of Erie to access commercial and medical services.

Key Destinations Identified by the Community

- Public facilities:
  - Erie Community Center
  - Erie Community Library
  - Old Town / Erie Downtown
- Middle and high schools:
  - Erie Middle School
  - Erie High School
  - Vista Ridge Academy
- Grocery stores or shopping centers near Erie:
  - Nine Mile Commercial Center
  - Groceries Stores around US-287 (King Soopers, Safeway, and Walmart)
  - King Soopers on CO-7
- Medical services/appointments or clinics
  - Boulder Medical Center - Erie
  - UC Health – Erie
  - Children's Hospital Colorado North Campus
  - Good Samaritans Medical Center
- Connection to RTD bus:
  - Bus routes on Baseline Rd and Arapahoe Road
  - Lafayette PnR

Service Alternatives Description

Three service areas were analyzed as potential alternatives for a started on-demand microtransit service in Erie.

1. **Alternative I: Erie and US 287 Commercial Area** - **Figure 33** displays the map of Service Alternative I. This alternative provides for an on-demand microtransit service from any pick-up point to any drop-off point within the zone that covers most of the developed portion of the town, commercial nodes along US 287 in Lafayette, and Children's Hospital Colorado North Campus on CO 7 in Broomfield. Connections to RTD bus stops on Arapahoe Road, Baseline Road, and US-287 would also be provided.
2. **Alternatives II: Alternative I + Lafayette Park-n-Ride** - **Figure 34** displays the map of Alternative II that provides on-demand microtransit service within the same area at Alternative I plus the Lafayette Park-n-Ride to provide connections to regional transit service.
3. **Alternatives III: Alternative II + Good Samaritan Medical Center** - **Figure 35** displays the map of Alternative III that provides on-demand microtransit service within the same area at Alternative II, plus the Good Samaritan Medical Center in south Lafayette which would provide a convenient connection to an important regional hospital.

Alternatives Analysis

Service Characteristics

Table 10 summarizes the differences between the three alternatives in several different metrics, including zone area, average trip distance, average trip time, and estimated vehicles required to serve the area meeting the trip response time goals. Average trip distance and time were based on a sampling of potential trips with each zone. Estimated vehicles are based on fulfilling those trips given with the 30-minute response time desired.

Table 10: Service Characteristics of Alternatives

Service Characteristic	Alternative I	Alternative II	Alternative III
Zone Size (sq. mi.)	16.9	16.9	17
Average Trip Mileage	4.3	4.5	4.7
Average Trip Duration (mins.)	9.5	9.9	10.3
Estimated Starter Vehicles Required	2	2-3	3 (or more)

Table 10 shows that while the zone area is similar across all three alternatives, the average trip time and duration increase with each alternative with the introduction of outlying zones in Lafayette to serve the Lafayette Park-n-Ride in Alternative II and both the Lafayette Park-n-Ride and Good Samaritan Hospital in Alternative III. These locations would have average trip times of 13.3 minutes and 16.1 minutes respectively from common locations within Erie which would necessitate the need for additional vehicles largely dedicated to serving these external zones.

Figure 33: Service Alternative I Map
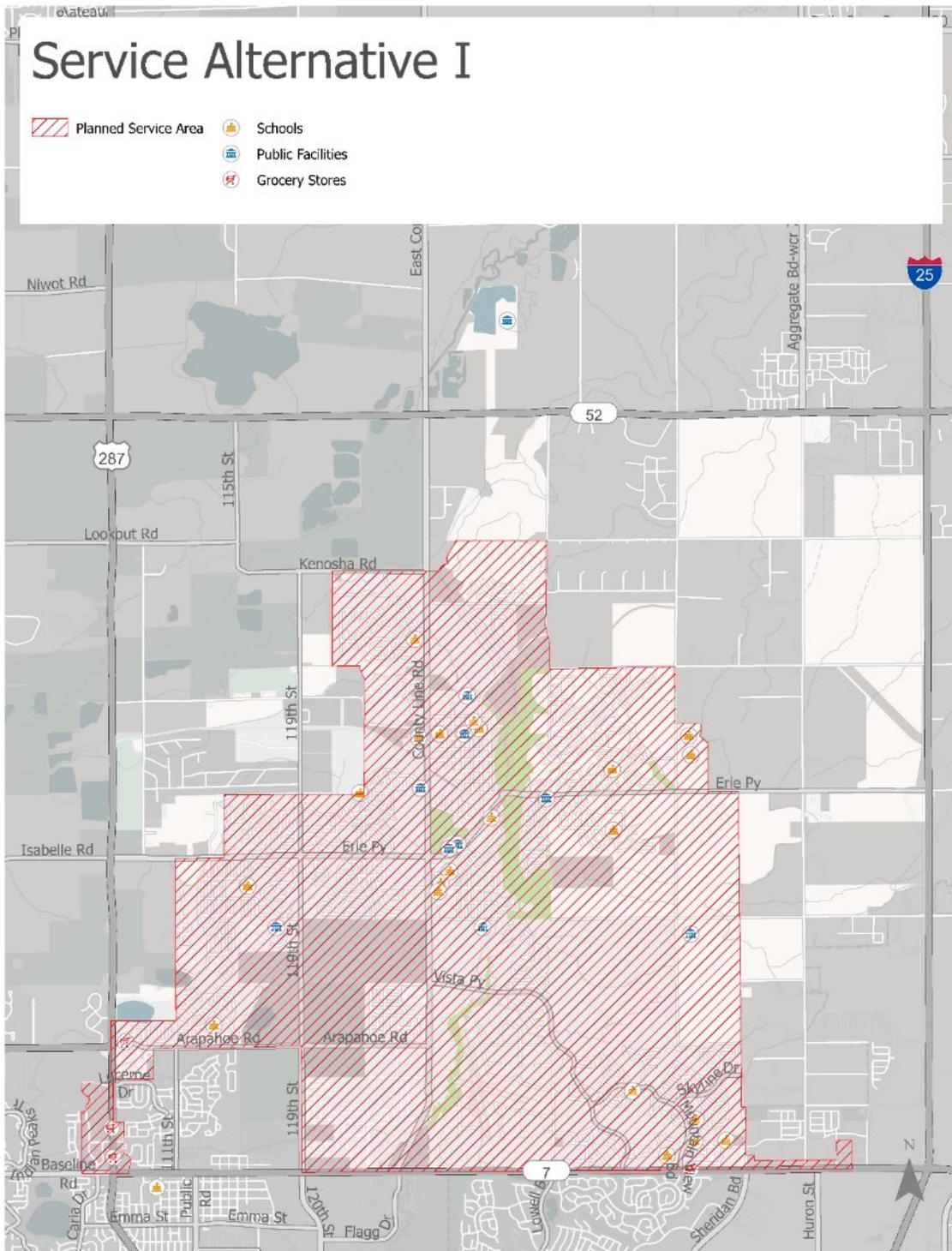
Figure 34: Service Alternative II Map
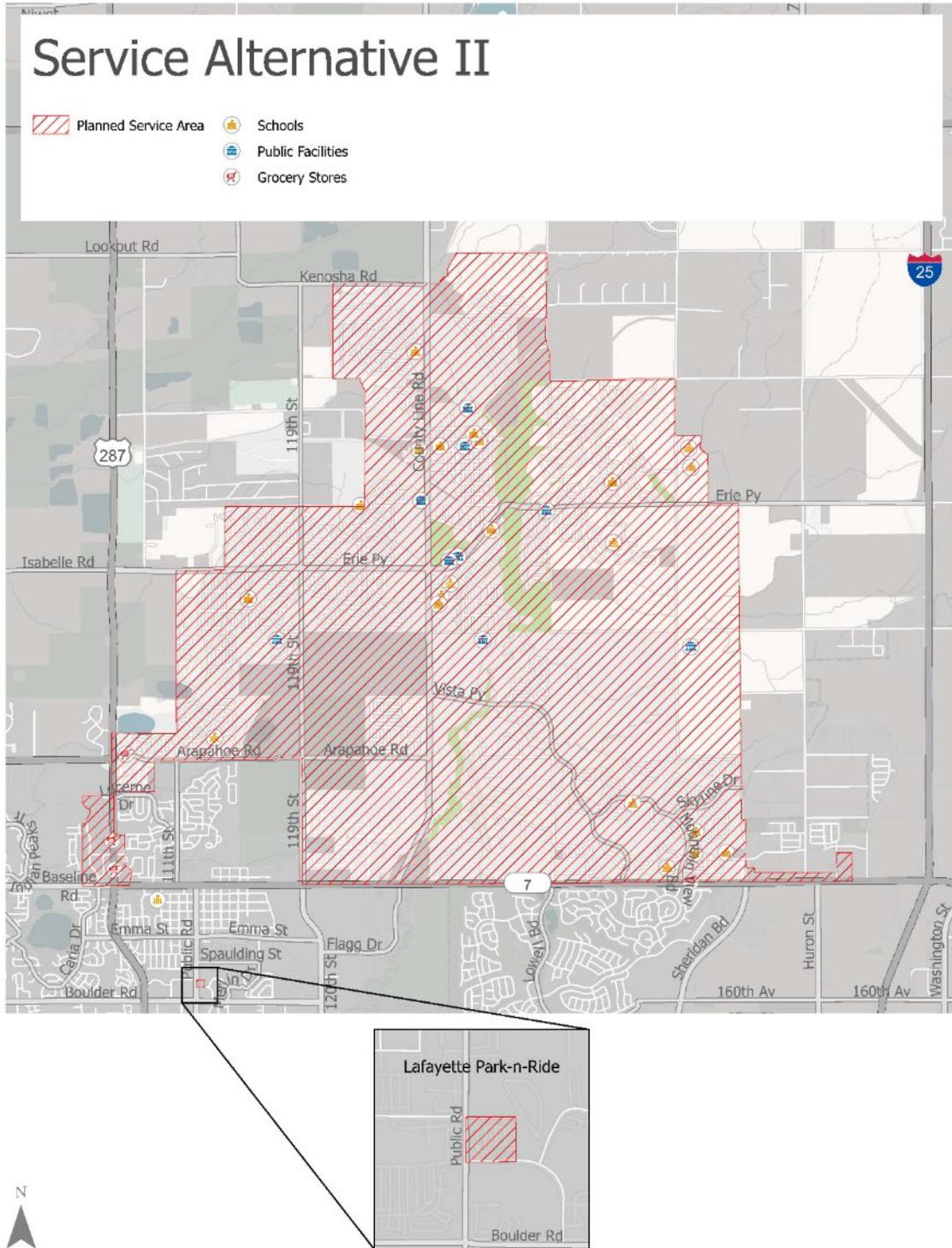
Figure 35: Service Alternative III Map
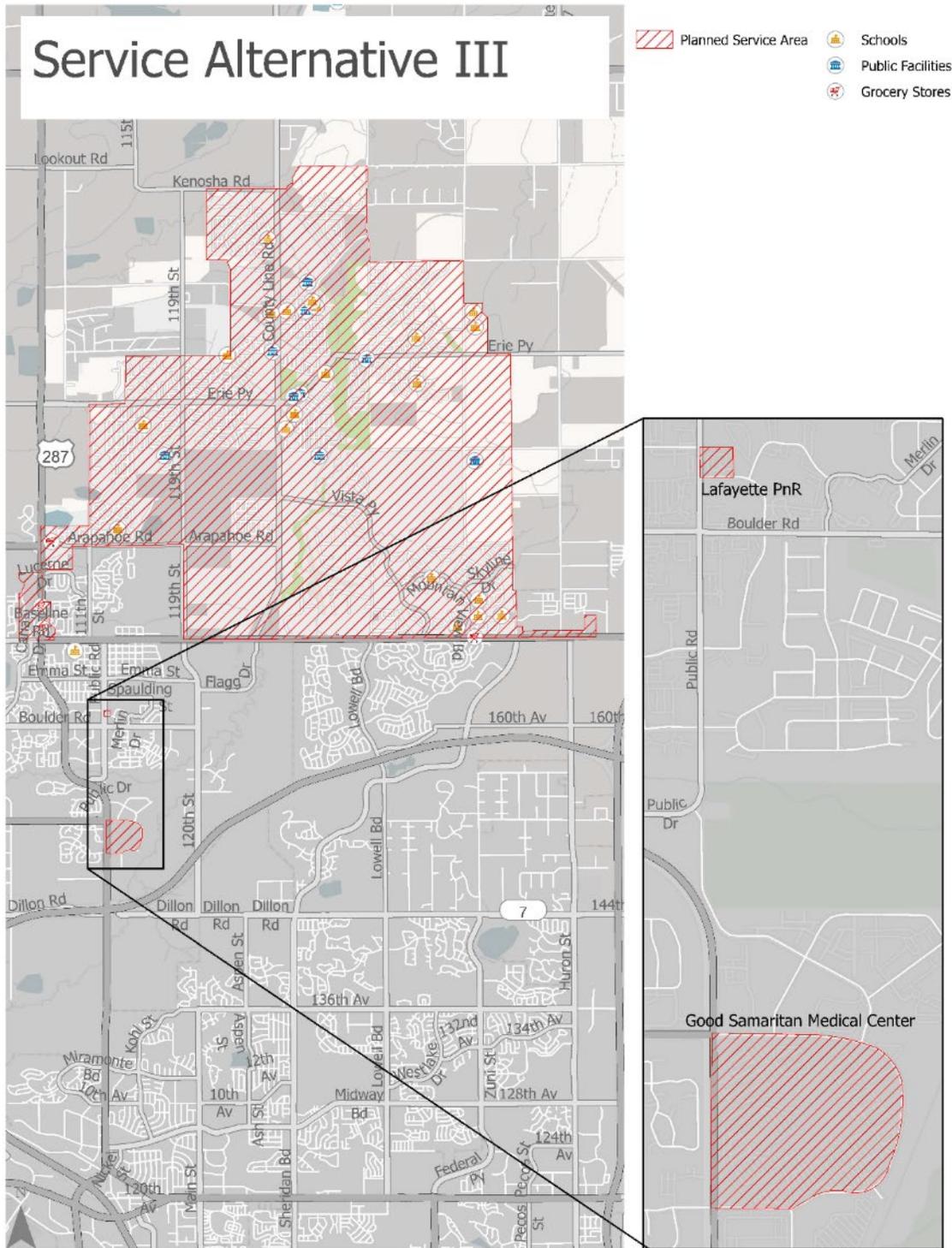
Cost Estimates

Costs were estimated based on the estimated number of vehicles needed to provide 30-minute response times for each alternative and the number of hours per week that service would be provided. Costs were estimated for each geographic alternative under four different service model scenarios as described in **Table 11**. The cost estimates assumed an average operating cost of $80 per service hour.

Table 11: Potential Service Models & Vehicles Needed

Service Model	Days/ Week	Hours/ Day	Vehicles		
			Alternative I	Alternative II	Alternative III
Daily Service 6 AM to 6 PM	7	12	2	2.5	3
Weekday 8 AM to 6 PM	5	10	2	2.5	3
Weekday 6 AM to 8 PM	5	14	2	2.5	3
Weekday 6 AM to 6 PM + Weekend 8 AM to 6 PM	5	12	2	2.5	3
	2	10	1	1.25	1.5

Given the hours per day and days per week assumed in each service model plus the number of vehicles needed for each alternative and assuming an operating cost of $80 per service hour, **Table 12** summarizes the estimated annual operating cost for each alternative under each service model.

Table 12: Cost Estimates by Alternative

Service Model	Alternative I	Alternative II	Alternative III
Daily Service 6 AM to 6 PM	$700,000	$900,000	$1,050,000
Weekday 8 AM to 6 PM	$450,000	$550,000	$650,000
Weekday 6 AM to 8 PM	$600,000	$750,000	$900,000
Weekday 6 AM to 6 PM + Weekend 8 AM to 6 PM	$600,000	$750,000	$900,000

Table 12 show that Alternative II and III would have successively higher costs than Alternative I due to the need for additional vehicles to service the longer trips to the Lafayette Park-n-Ride and/or Good Samaritan Hospital. The analysis also shows the relative scale of costs increases depending on the hours in a day or days of the week that service is provided. Alternative I is estimated to cost between $450,000 annually if operated 10 hours a day, five days a week to $700,000 annually if operated 12 hours a day seven days a week. Alternative II ranges from $550,000 to $900,000 annually and Alternative III is estimated to cost $650,000 to $1,050,000 annually depending on the service model.

9. Recommended Service Alternative with Financial Plan

Recommended Alternative

The recommended service alternative is based on analysis and input received from the community on the priorities, analysis of existing travel demand within Erie, the goals of the Town for this program, and the resources available for funding the service.

Service Area

The recommended alternative would include the locations mapped in **Figure 36** and described below:

- All of the developed area with the Town boundaries of Erie, excluding some rural portions farther from the core, and generally include areas:
    - South of Kenosha Road/CR 12 and north of Baseline Road
    - Between east of 119th Street and CR 3 north of CR 10
    - Between east of 119th Street and Sheridan Parkway alignment from CR 10 to Erie Parkway
    - Between 111th Street and Sheridan Parkway from Baseline Road/Arapahoe Road to Erie Parkway
    - Commercial area around US 287 and Arapahoe Road
- The commercial area in Lafayette around US 287 between Baseline Road and Lucerne Drive
- The commercial/medical area along Baseline Road in Broomfield between Sheridan Parkway and Huron Street

Figure 36: Recommended Service Area Map
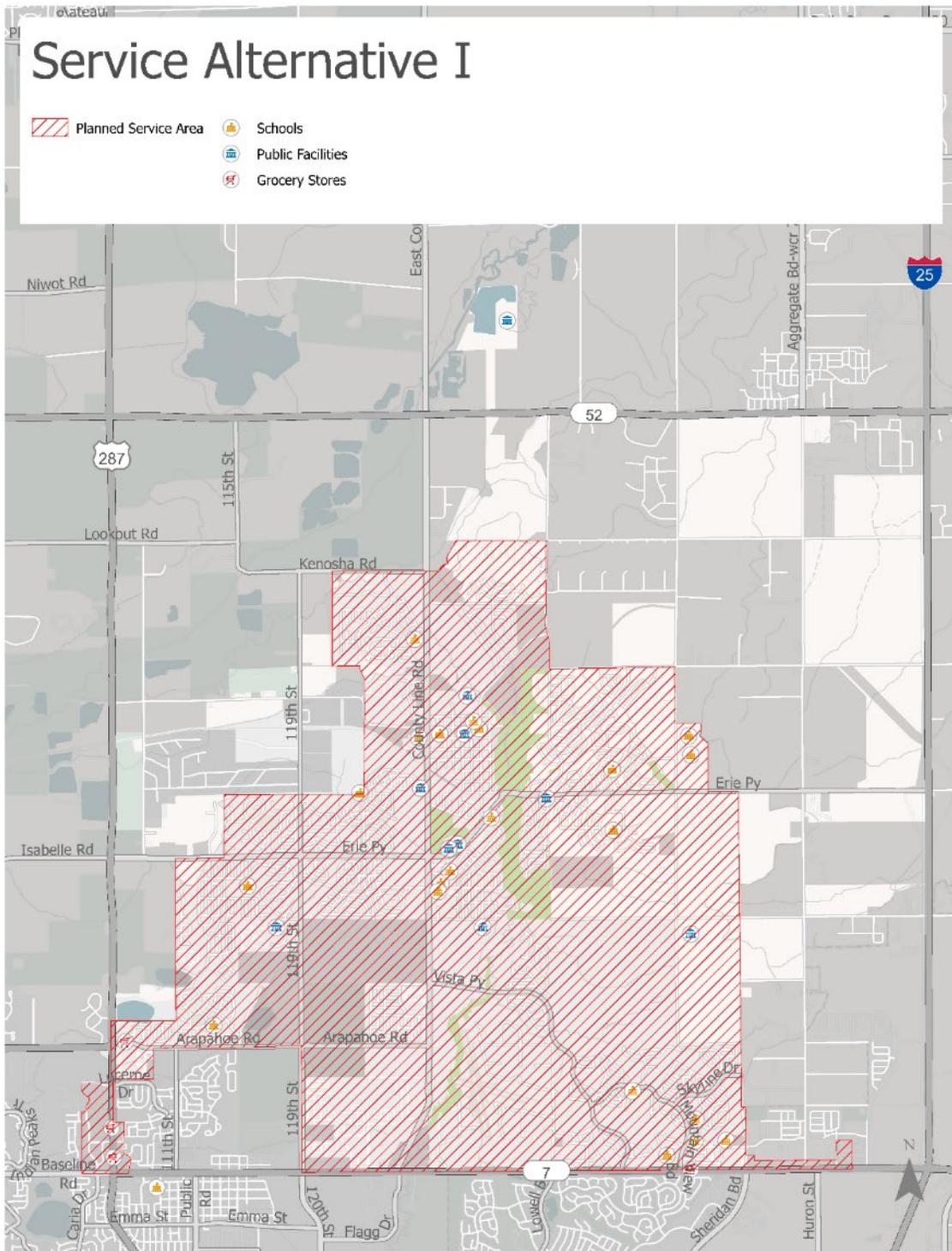
Service Characteristics

Table 13 shows the basic characteristics of the recommended alternative's zone and service. The service would cover 16.9 square miles. Two vehicles are initially recommended during peak times to maintain a response time of less than 30 minutes. Other characteristics include:

- Fare-free service open to the public.
- Monday through Friday operations from 6 AM to 8 PM to cover a variety of trip purposes.
- Trip requests via a smartphone application or using a call-in number, both available in Spanish and English.
- Up to two branded vehicles will operate during peak demand, including a wheelchair-accessible van, with professionally trained drivers.

Table 13: Erie Microtransit Service Characteristics of the Recommended Alternative

Characteristic	Description
Zone Size	16.9 square miles
Vehicles Required	Two vehicles estimated during most of the day to provide an adequate level of service, including at least one wheelchair-accessible vehicle.
Response Time	Less than 30 minutes
Trip Types Served	Ability to connect any two points within the zone.
Fare	Free
Hours/Days of Service	Monday – Friday, 6 AM to 8 PM
How to Request a Ride	Using a smartphone application or by calling in, available in both Spanish and English

Cost Estimates

The recommended alternative is estimated to have an operations cost of about $600,000 per year. The cost estimates are based on the following assumptions:

- Turnkey operations, whereby Erie would contract with a third-party provider to operate the service (including drivers), supply and maintain vehicles, and manage the booking platform and performance metrics.
- An average hourly cost per vehicle of $80.
- Two vehicles operating 14 hours a day, five days a week.
- One vehicle is wheelchair accessible.

In addition to the annual operating cost, it is estimated that the service will require a quarter to a half of the full-time equivalent (FTE) of a Town staff employee to manage the contract with the vendor, collect

and respond to customer inquiries, promote the service, review monthly performance metrics, plan for adjustments in service parameters based on performance, and regularly coordinate with the vendor.

Target Markets

The top travel markets that will be served under the Erie Microtransit Service Plan include:

- People traveling internally in the Town (which is not served well by transit service today), particularly people with limited access to a vehicle and/or with lower incomes.
- People wanting to travel to grocery stores within and outside Erie (including Walmart, the two King Soopers, Safeway, and Sister Carmen Food Bank) and other retail establishments.
- People from Erie traveling to medical appointments at the clinics near the Community Center, or at the commercial centers on the southwest corner and southeast corner of Erie.
- People from Erie traveling to access regional jobs, schools, and services along RTD's bus and rail network, particularly in Boulder, Longmont, Broomfield, and Downtown Denver.
- Youth users for school trips, particularly accessing after-school activities and jobs, most notably between Erie High School or Erie Middle School, and the Erie Recreation Center.
- Commuters who work in Erie or visitors connecting via RTD.

Performance Estimates

System performance is assessed based on metrics such as the number of passenger trips completed per day and the amount of time passengers have to wait between when a trip is requested and when the vehicle arrives (the response time). **Table 14** shows the preliminary performance estimates and goals for Erie Microtransit. Each factor is described in more detail below.

Table 14: Performance Goals/Estimates

Passenger Trips per Day	Passengers per Service Hour	Average Response Time (goal)	Average Trip Distance	Typical Trip Time
75-90	2.5 to 3.5	Less than 30 minutes and 90% of trips fulfilled in 30 minutes or less	4.3 miles	10 minutes

Average Trip Time and Distance

The estimated number of trips per day is derived from the estimated average trip time, the estimated amount of time vehicles will spend traveling between passenger trips, and the number of vehicles available and based on the performance observed in similar microtransit programs. The average trip time of 10 minutes is based on a sampling of potential trips within the proposed service area zone.

It is assumed that when the system first launches there will be instances where vehicles are traveling between passenger trips without any passengers onboard. To factor in time spent without passengers (deadhead time to get between trips and downtime during slower periods), the average trip time was increased by 60% to create a conservative estimate. With two vehicles in operation, the system would have the capacity to fulfill 96 average length vehicle trips per day.

Passengers Per Hour

Given the demographics and density of development patterns within the proposed service area and based on examples from other similar programs it is estimated that the service would average about three passengers per service hour in the first 6-12 months and likely will grow over time. Assuming two vehicles operating 14 hours a day, five days a week, this equates to about 75-90 passenger trips per day.

Average Response Time

The initial average response time is estimated to be between 15 and 30 minutes. As demand increases the response time will increase. If response time increases to the point that more than 10% of trips are exceeding the 30-minute response time that may warrant adding a third vehicle during peak demand times.

Adjusting Performance Estimates

Initial performance estimates and goals have been established based on the characteristics of the service area, peer system performance, and service delivery estimates from potential vendors. However, each microtransit system has unique operating patterns. The service monitoring plan profiled later in this report offers a performance tracking plan that can be used to adjust service goals as needed.

10. Implementation Plan

Service Delivery

The Town of Erie plans to utilize a turn-key contract model for the community's microtransit service. The Town will solicit bids from qualified vendors to launch, manage, and operate the microtransit including providing and maintaining a vehicle fleet, qualified drivers, a trip booking platform, and performance monitoring program.

Service Adjustments and Monitoring Plan

While this service plan presented in this report may prove to be effective for the life of the program, it is anticipated that the service will need to be adjusted periodically to better serve local needs. The following section describes elements of a monitoring plan that should be implemented early in the life of the program and used to determine whether and when service changes are needed.

Tracking Ridership

The vendor should be able to provide to the Town with monthly ridership reports (**Figure 37** shows sample metrics from the Montbello Connector in Denver). Ridership can be reported both as the total number of passenger trips per day and the average number of passengers per vehicle service hour. As discussed in the performance estimates, the service is projected to have 75 to 90 passenger trips per day once the service has gained initial community awareness. Initially, the ridership may be on the lower end of the range while the Town markets the service and community understanding of this new transportation resource grows. It is recommended that the goal for the first three months of service should be approximately 50 to 65 trips per day, growing to 75 to 90 by the end of the first year.

If the service is not meeting this ridership target after the first three months, then additional analysis may be needed to pinpoint whether there are particular times of day when the service is utilized at a higher rate and when service is utilized at a lower rate or if additional adjacent destinations should be considered or additional marketing is needed to promote the service. If issues can be identified, a determination can be made on whether service span or area needs adjustment. While ridership is a key metric, it should not be the single metric for measuring whether the microtransit pilot is performing successfully. When the Town is determining whether to extend the service, metrics like response time, rider satisfaction, types of trips provided, and the rate at which the service completes the trip types it was intended for should be among the factors considered.

Figure 37: Example Ridership Report from the Denver Connector: Montbello

Ridership Report

August 2022
Dates: August 1 - 31, 2022

Rides : 3,113 / 25,995
Passengers (unlinked passenger trips): 4,235 / 36,220
Vehicle revenue hours: 638 / 6,255
Total vehicle hours: 762 / 7,500
Vehicle revenue miles: 9,373 / 79,646
Total vehicle miles: 11,373 / 97,141
Passenger miles: 8,143 / 64,270
Unique rider accounts (month to date / all time): 363 / 1,455
Passengers per revenue hour: 6.6 / 5.8
Percent of rides shared: 34% / 26%
Average wait time: 25 minutes / 20 minutes
Average ride time: 8 minutes / 7 minutes
Average experience rating: 4.75 out of 5 / 4.79 out of 5
Wheelchair rides: 18 / 63
Spanish speaking rides: 100 / 670
No shows: 309 / 1,950
Percent of rides more than 5 min late to pickup: 6% / 8%
Dispatch created rides: 6% / 7%

Tracking Ride Times

The number of passengers that can be served within a daily service span is dictated, in part, by the amount of time vehicles spend completing trips and the amount of time vehicles spend responding to trip requests. It is assumed that single passenger trips will typically take 9-10 minutes from origin to destination. However, one of the goals of the microtransit program is to combine trips as much as possible (passengers may share the vehicle with someone making a similar trip, which will likely extend the ride time for both individuals). Factoring in the time of potential shared rides, it is assumed each passenger will experience a 15-minute average trip time. If, after the first three months, the actual per passenger trip time exceeds 15 minutes, the service plan should be adjusted to better reflect local travel conditions.

It is also projected that the average response time (or the time between when a passenger reserves a ride and when the vehicle arrives) will be less than 30 minutes. The service vendor will be able to provide a response time by passenger trip. If it is found that the average response time is 30 minutes or more or more than 10% of trips have a response time over 30 minutes, then changes to the service area size may be needed in order to improve response times or promotional materials may need to be changed to set more accurate rider expectations for typical response times.

Tracking User Experience

While metrics like ridership can convey system productivity, more qualitative indicators are also important. The experiences of early riders should be captured in order to learn about any unanticipated issues with service provision. Rider feedback can be captured through customer service star ratings provided through the smartphone app after each ride is completed (this is automatic after each ride) and by logging customer feedback received via email or through call-ins. More comprehensive post-trip surveys regarding more detailed service or trip characteristics could be distributed either electronically or using paper copies by the service vendor. In order to ensure the highest response rate possible, it is recommended the survey be brief and focus primarily on multiple choice responses with just one open-ended response.

Since the service vendor will track the quantitative aspects of each trip, like response time and time in vehicle, the survey can be used to assess ease of use of the reservation system, whether riders find the vehicles comfortable, whether riders have positive interactions with vehicle operators, and whether the rider travel experience has improved when comparing to their pre-microtransit travel.

The surveys should be offered to each rider during the first six months of service in English and Spanish. Following a survey response evaluation period, surveying should then be conducted at regular intervals to be determined by Town staff and for passenger samples instead of all riders.

Tracking Rider Demographics

To fulfill grant funding obligations and ensure the service is serving the transportation needs of vulnerable populations, the Town is interested in tracking demographic characteristics of riders, such as age, race, and/or income status. This information will need to be provided voluntarily. One way to do that would be to conduct an annual rider survey linked from the app to an external survey site.

Evaluating Service Area Scope

The initial service zone has been drawn based on the travel market assessment and stakeholder input. It is

Figure 38: Simulation of Origin-Destination Patterns (source: Downtowner)

possible that some portions of the service area may be disproportionately heavy trip generators or popular destinations. Monitoring the origin and destinations patterns by trip will allow the Town to understand whether the service area needs to be modified or if there are particular origin-destination pairs and routes that are utilized at a high rate. The selected vendor should be able to provide visualizations of trip patterns like the example shown in **Figure 38** to help Town staff evaluate service utilization and potentially adjust, such as narrowing the service area or establishing fixed pick-up/drop-off locations that serve popular destinations.

Track "Un-serviceable" Trip Requests

Initially, transit users can request trips within the microtransit zone, and people who attempt to request a trip originating or terminating outside of the zone will not be serviced. These trip requests need to be tracked in order to understand if there are patterns in "un-serviceable" areas, as they can reveal where service changes need to be made based on user demand.

Determining Service Changes

While this service plan seeks to meet the needs of the Town of Erie travel market, it is possible that in practice the performance outcomes may differ from goals outlined here. The Town should be prepared to collaborate with the selected operating vendor on making service adjustments on an as-needed basis to ensure the microtransit service is providing efficient service and filling a mobility need. It is recommended that Town staff complete a thorough review of the performance metrics described in this service monitoring plan along with initial responses to rider surveys after the first three months of service. If any goals are unmet or if initial rider satisfaction is low, then targeted service adjustments may be required.

Implementation Timeline

Figure 39 illustrates the timeline for pre-launch and post launch actions for the three months prior and 12 months following launch of the service. A turn-key operator should be identified at least three months prior to launch. Other pre-launch actions include identifying a name, logo, and brand, marketing and promotion of the service, vinyl wrapping of vehicles, and testing. Post-launch the focus will be on advertising service, monitoring service over the first year, and planning for minor adjustments to the service operating characteristics as needed.

Figure 39: Erie Microtransit Implementation Timeline

3 months before launch	Finalize program management and oversight Select turn-key service operator and associated vehicle fleet Finalize budget and associated operating hours Select program name, logo, and brand
2 months before launch	Develop marketing materials and advertising plan Formalize promotional partnerships with community groups Work with microtransit vendor on service plan adjustments Install electric vehicle charging stations
1 month before launch	Install vehicle brand graphics (vinyl wraps) Begin intensive advertising and promotion of program launch Coordinate with program partners and electeds about launch Test microtransit technology and dry-run service
Launch of operations	Final planning, promotion, and coordination for launch event Determine performance monitoring program Launch event Intensive advertising and promotion of service
Month 1	Daily service quality monitoring Responsiveness to passenger complaints or input Weekly evaulation of performance metrics Intensive advertising and promotion of service
Month 2	Review lessons learned in first month with vendor Intensive advertising and promotion of service Ongoing evaluation/monitoring/customer responsiveness
Months 3-6	Implementation of possible service adjustments Ongoing advertising and promotion of service Ongoing evaluation/monitoring/customer responsiveness Report to electeds and community partners on early results
Months 7+	Plan for Year 2 of service and develop necessary resources Ongoing advertising and promotion of service Ongoing evaluation/monitoring/customer responsiveness Review and report on final pilot results

Phasing

Figure 40 describes a phased approach over a multi-year period that would allow for the program to grow over time as ridership increases and financial resources expand. This would include increasing the overall service level and service area as demand and funding warrant.

Figure 40: Erie Microtransit Implementation Phasing

Phase 1 (Years 1-2)

Two-year pilot operating daytime hours on weekdays in Erie plus along US 287 commercial area in Lafayette. Regularly evaluate and make incremental adjustments over the first two-years.

Phase 2 (Years 3 and 4)

Expand on Phase 1 by expanding the service area and adding weekend service, and increasing funding to support additional years of service.

Phase 3 (Years 5+)

Expand on Phases 1 and 2 to add late night service, early morning service, and larger service area. Possibly convert part of service area to a flex route.

Priorities for Future Improvement

Based on input received from the community, and analysis of travel patterns, potential future recommended improvements are shown in **Figure 41** and ranked with the highest priority shown first. Implementation of these priorities will be based on when funding becomes available and may shift depending on how the service performs and feedback from rider surveys and the community once the service is underway. There are two basic service characteristics that could be considered for expansion over time: expanding the service area and expanding the service to weekends and earlier/later service hours. Initial guidance on each is provided below. Additionally, the Town may also need to fund additional vehicles in order to maintain adequate response time as the service becomes more popular. At some point microtransit's popularity could increase to the point that conversion of part of the service area to a flex route may be warranted (more is discussed on this below).

Figure 41: Prioritized Future Improvements for Erie Microtransit Service

1 — Add Saturday service

Add Sunday/ late night service — **2**

3 — Expand service area
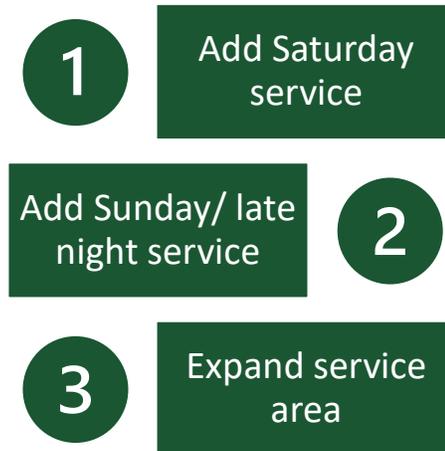
Considerations for Expanding the Span of Service:

Feedback from the community survey revealed demand for the service on weekends and later in the evening. Therefore, it is recommended that the Town consider expanding the service to Saturday as the first priority. If successful, the service could be expanded to Sunday and eventually by an additional hour or two in the evening.

Considerations for Expanding the Service Area:

Several key destinations outside of Erie were identified through the analysis but were not included in the initial service plan based on available resources. These locations should be considered first as part of any service area expansion:

- **Downtown Lafayette:** This would provide a connection to additional shops and services offered in Lafayette. A connection could also be made to the Lafayette Park-n-Ride providing a formal connection to RTD regional services.
- **Good Samaritan Hospital:** Access to medical services was indicated as one of the top uses for the microtransit service by the community and Good Samaritan Hospital is the primary major hospital used by Erie residents.
- **Planned I-25 & CO 7 Mobility Hub:** The Larkridge area and associated commercial/retail services near I-25 and CO 7 was one of the top destinations outside of Erie that the community indicated a desire to have transit connections. Additionally, a mobility hub is planned at this location which will included connections to the Bustang North Line, the planned CO 7 BRT service and potentially future expanded RTD service to Thornton and Denver. This would be a logical location to connect the Erie microtransit service into the regional transit system.

Flex Route Potential

The final service plan for the initial pilot project recommendation is a microtransit zonal system, where trips are fulfilled and grouped in real-time without any defined route. This recommendation is based on the finding that there is a lack of consistent, identified origin-destination points for trips within Erie and due to the dispersed nature of development patterns within Erie.

However, following the first two-years of operation, there may be a clear pattern of trips that lend themselves to a flexible route, where the vehicle travels along a route with defined stops and scheduled time points but can also deviate in between stops to make requested pickups and drop-offs in real-time anywhere within the zone. An example of this model is shown in **Figure 42**, which is one of the RTD FlexRide microtransit examples that operate with a flex route model. The Wagon Road FlexRide operates a similar model to north Thornton and Westminster, with several designated stops at key employment destinations during shift changes at the St. Anthony North Hospital and Amazon distribution center.

Figure 42: RTD FlexRide Routing Example
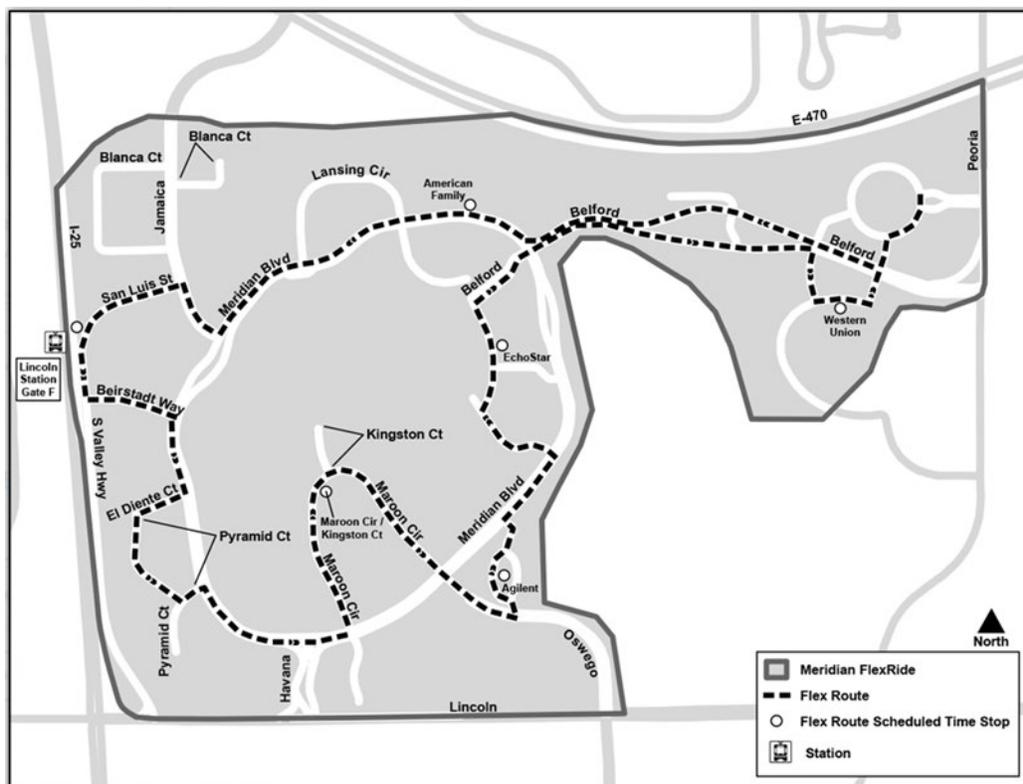
Long-term Vision

The initial service defined herein is a step towards enhanced services within Erie and surrounding communities and should be considered as the start to longer-term enhancements. Current budget

constraints limit the service operations, but additional funding might be identified over time. Ideally, a long-term vision for Erie microtransit service might include:

- Service seven days a week; weekday hours of 5 AM to 9 PM and weekend hours of 7AM to 7 PM.
- An on-demand microtransit zone that incorporates downtown Lafayette, Good Samaritan Hospital, and the planned I-25 & CO 7 Mobility Hub.
- Average trip fulfillment time of 15 minutes or less with a mixed fleet of five or more vans and battery-electric cars.
- A defined flex route (circulator) for a portion of Erie that operates on a defined route and schedule in addition to the microtransit zonal service.
- A close partnership with RTD to coordinate expanding fixed-route transit services with increased frequency to existing routes, and increased connections to and through the Erie.

Marketing, Branding, and Outreach

At the present time most Erie community members likely have limited knowledge of microtransit. An awareness building campaign should be paired with the service rollout to ensure community members learn of the new service, understand how to request trips, and are aware of the service area. While traditional avenues, like visually compelling advertisements, will be important, additional community-specific outreach strategies should also be pursued. These can include engaging local stakeholders who have existing community ties to serve as ambassadors for the new service and establishing educational messaging that the microtransit service is a public service that is open to all Erie community members and visitors highlighting the benefits of using the service (e.g., low cost and shorter travel times relative to existing fixed route bus service).

Overall Marketing Strategy

In order for the Erie microtransit service to be successful, the Town should place an emphasis on maintaining as broad an outreach approach as possible in order to reach existing and potential transit riders. The Town can partner with local businesses, schools, houses of worship, employers, medical providers, social services, and other key destinations to post information about the new service. Beyond physical advertisements, the social media networks of these community partners can also be leveraged to broaden awareness. All marketing efforts should focus on educating community members about the service itself and also on conveying three key messages:

1. Erie microtransit is a new service that has been designed by the community to help address the mobility challenges residents are facing today.
2. Microtransit service will be free and offer a comparable travel time to driving for certain trips.
3. The Town will continuously seek rider feedback to learn how the new service can be optimized to best meet local travel needs.

Branding

Brand awareness is critical to developing a community understanding that the microtransit service is distinctive from existing RTD service and that it is a new mobility resource.

The Town desires a brand that is catchy, inviting, and easily recognizable across town. Erie's priority of community, dedication, and town support led to the name the Erie Bee. Bees symbolize community, friendship, and teamwork which is at the heart of the Erie community.

The logo was designed with a "pinpoint" bee which will be used in marketing material for a symbol of place and location. The vehicles will be bright yellow and have a bumble-bee theme with catchy phrases such as, "Bee-line to your next destination". The logo and potential vehicle branding mockup are shown in **Figure 43**.

Figure 43: The Erie Bee Brand Logo and Potential Vehicle Mockups

Signage

Signage describing the new service and featuring the branding should be posted in all locations where it is likely community members will start or end rides. These signs can serve to designate common pick-up and drop-off locations, which would make the system easier to use. Early locations for signs can include

the Erie Community Center, library, middle and high schools, grocery stores, Walmart, Old Town, medical facilities, and the designated location along Arapahoe Road where riders can connect to/from the JUMP. High quality, visually compelling signs can be targeted to key market groups and can be offered in a variety of languages.

Advertising

Signage can also be adapted into flyers that are posted in popular locations or inserted into utility bills or any other materials that are mailed to each address in the service area. In addition, the Town can partner with local print media along with radio and tv stations to promote the service. While traditional media platforms have a wide reach, social media promotion is also a useful avenue to explore. Social media is particularly effective at reaching younger audiences, which should be a key consideration in Erie given the high share of residents under the age of 18 and the lessons learned about how popular the service is in other similar markets with youth. The Town can use its existing social media presence and also partner with RTD and other stakeholders who may be willing to cross promote the service.

Outreach

The Town should leverage the existing network of community groups to raise awareness and promote the new service. Partnering with organizations will allow the Town to tap into an existing network of community members who are working to improve quality of life in Erie. The Town can invite key stakeholders to serve as ambassadors for the new service. This role can be as simple as committing to including the new microtransit service as a discussion topic in community events or promoting the service on an organization's website and social media pages. The Town can also collaborate with ambassadors to periodically visit popular destinations throughout Erie and informally discuss the new service with residents.

Employer Partnerships

Partnerships with local employers are another tool the Town can utilize. Local employers in Erie can begin informing their employees about the opportunity to travel from one of the nearby RTD bus routes using microtransit or to use the microtransit service to reduce the length of their transit commute. Erie will consider partnering with local employers and businesses to market service to this ridership demographic.

School Partnerships

Local schools, such as Erie High School and Erie Middle School, can also advertise the new service. While some parents may not be comfortable allowing their child to walk, bike, or ride the bus to school or after school activities, microtransit could be perceived as a safer travel option.

Business Partnerships

The Town should work with local businesses to promote the service, in particular partnering with local medical providers so they can effectively communicate the new service to clientele. Having tabletop displays on the counters of local retail establishments, restaurants, and medical service providers that announce the new service and how to use it could be an effective way to gain awareness of the service. Businesses and medical providers could also distribute information to employees and allow local ambassadors from the Town to present at staff meetings.

Special Events

The Town should consider having a presence at local events marketing the service such as Arbor Day, the Town Fair, Senior Lunch, Erie Air Fair, the Sustainability Event, Boo on Briggs, etc. Setting a table with brochures and a friendly community ambassador is a relatively low-cost way to build awareness of the new service.

RTD

Although the microtransit service is a Town program, it is important to collaborate with RTD, specifically with its customer service staff. It is likely that residents will not realize who is providing the service and may reach out to RTD with questions about the Town's microtransit service. The RTD customer service staff must be well equipped to answer questions about how the service works and how a user can request a ride. Providing marketing materials and training for RTD customer service staff will allow for seamless customer service, even if a potential rider is confused about whether the new microtransit service is an Erie or RTD service.

Real Time Customer Information and Trip Planning

Being able to integrate trip planning and vehicle location information from the planned micortransit service into currently utilized rider trip planning apps is important in building confidence in the user experience. As a long-term goal, the Town should work to take the service data and build it into apps such as Google Maps, RTD's Next Ride app, and the Transit App. Real time vehicle location information and trip planning can be done with Application Programming Interfaces (APIs), which help integrate the vehicular data with the mobile application and give realistic estimated time of vehicle arrivals and coordinated trip planning. Ideally, users could plan trips and see real-time travel time estimates across various modes and transportation providers. This integration is known as Mobility-as-a-Service (MaaS).