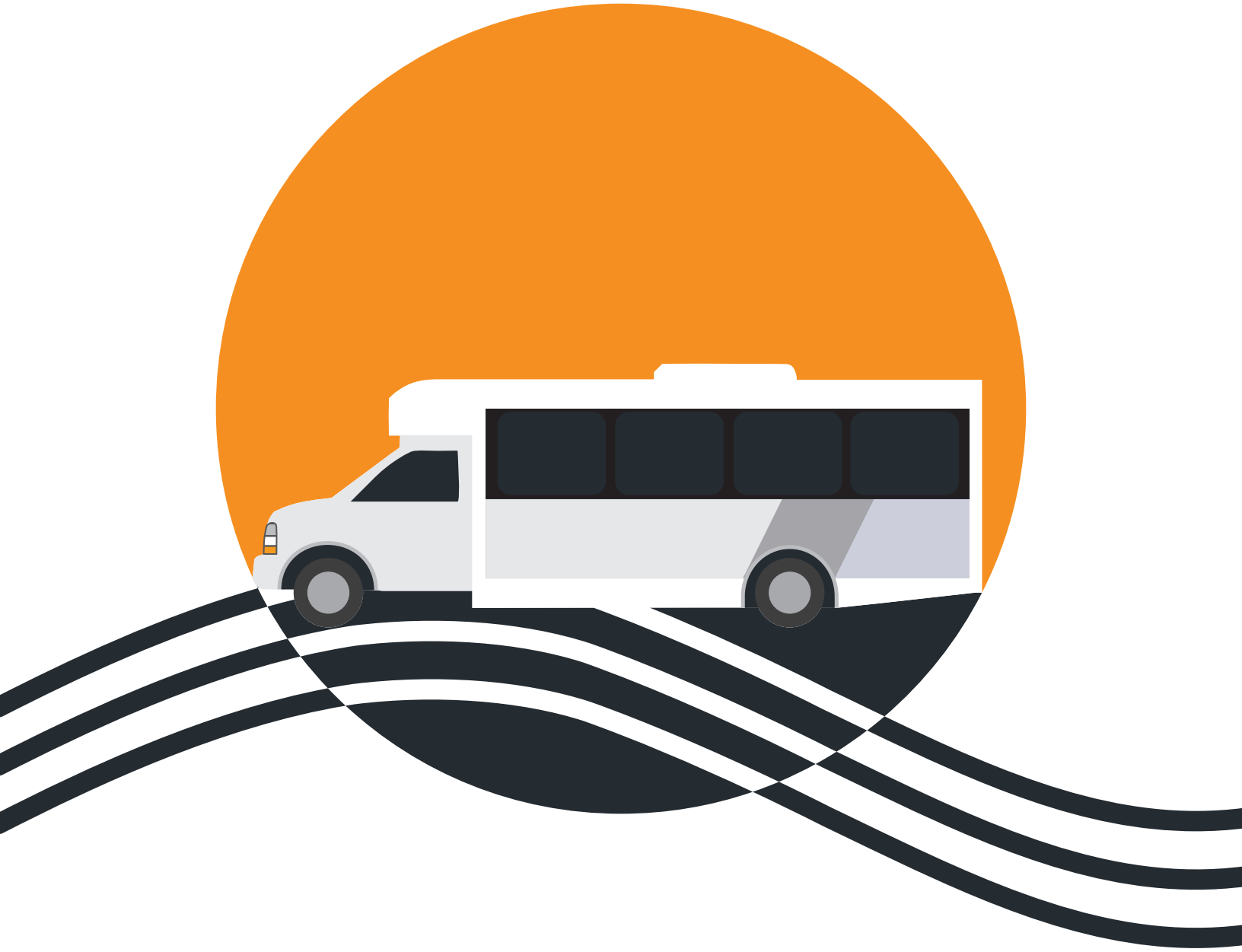
Transit Study Report

City of Lathrop

March 2025



Prepared for San Joaquin Regional Transit District

Executive Summary

The Lathrop Transit Study explores existing transit options and recommends additional transit services for one of the fastest growing communities in California.

Transit in Lathrop today consists primarily of regional services including RTD (San Joaquin Regional Transit District) County Hopper and Commuter buses, as well as ACE (Altamont Corridor Express) Regional Rail and connective services, timed for commuters between Lathrop and Stockton, Manteca, Tracy, and the Bay Area.

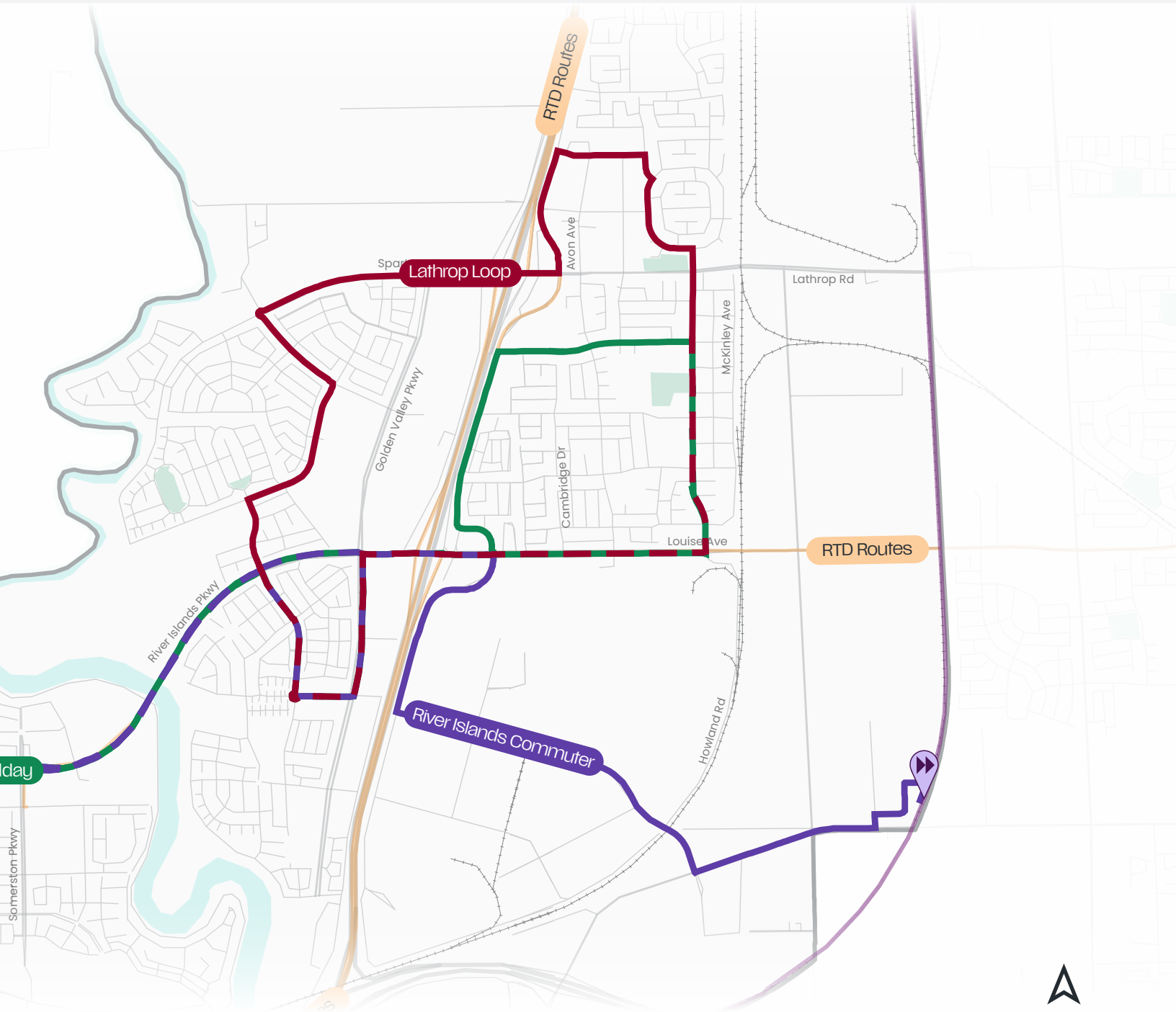
The Study engaged with community members and local stakeholders including the Manteca Unified School District, the City of Lathrop, and other officials to understand where unmet transit needs may be in the community. Community feedback indicated a desire for new fixed-route shuttle/circulator service providing transportation for seniors, children, and commuters connecting to existing regional transit services.

The Study incorporated analysis of demographics, land use, major destinations, and existing travel patterns to develop a recommended transit concept to be implemented in the community. Further feedback from was solicited from community members and stakeholders to refine this concept.

Figure 1
Recommended Concept Map

The recommended concept includes three new transit routes within Lathrop operating Monday-Friday connecting all corners of the community to Lathrop High School, River Islands High School, the Lathrop/Manteca ACE Station, Lathrop Senior and Community Center, Lathrop Marketplace, and numerous other retail, recreation, and employment destinations.

The recommended concept would increase the percentage of residents within walking distance to a transit stop from **25% today to 70%,** as well as include transit access to **53% of jobs** in the community.



The recommended concept is designed to be implementable. It includes nearly 50 new bus stops which require no or very minor infrastructure improvements to be made suitable. The concept is proposed to be operated by RTD for cost and logistical efficiencies, including with existing RTD Cutaway buses. New zero-emission buses may be acquired in the future.

The proposed concept would require between $320,000 and $620,000 in startup costs depending on fleet purchase requirements. The concept would require about $1.68 million annually to operate, including the provision of complimentary paratransit necessitate by the Americans with Disabilities Act (ADA).

Transportation Development Act (TDA) Local Transportation Fund (LTF) funds appropriate to Lathrop can cover up to 70% of the annual operating costs, with other local, regional, and statewide grants available for the remainder. State and Federal grants are also available for capital and fleet requirements. The Study considers evaluation criteria to be undertaken before and after service launch to monitor the effectiveness of the service and adjust the operating plan accordingly.

Glossary of Terms

Important transit planning concepts are outlined below that will help the reader better understand the analysis.

Transit Service Concepts

Fixed-Route services are bus routes following a specific series of stops on a published schedule. Riders must go to a bus stop before the bus is scheduled to arrive and can only exit the bus at a bus stop. Fixed-route buses generally have the capacity to carry dozens of passengers at once and no reservation or advanced tickets are required.

Service Span is how much of the day transit service is offered. For example, service from 10:00 a.m. to 6:00 p.m., Monday through Friday, would have a span of eight hours. In this report, we generally round the span of service to the nearest half-hour of when the first route begins and when the last route ends.

Service Frequency is how often a given fixed-route heading in one direction bus departs a stop. Generally, frequent services in California are defined as coming at least every 15 minutes throughout the day.

Demand-Response service refers to reservation-based transit programs that will pick up and drop off an individual at times and places of their choosing within a defined service area. Americans with Disabilities Act (ADA) Paratransit is required by federal law to be offered within at least ¾ mile of any fixed-route stop at comparable times of day for riders whose disability would preclude them from using a scheduled fixed route to make the trip. Many communities also offer Dial-a-Ride programs which can have broader eligibility (including being open to anyone) but otherwise are similar point-to-point services. Microtransit is a demand-response service, often open to anyone, that provides point-to-point service using mobile phone apps. These allow riders to request a trip and drivers are dynamically scheduled, allowing for faster response times without scheduling a day or more in advance.

Image: City of Lahthrop

Contents

Image: RTD

Section 1

Who Could Use Transit?

Study Area
Understanding Where and When People Can Travel
Evaluating Mobility Gaps in Lathrop
Planning for Successful Transit
Trip and Travel Characteristics
Transit's Opportunity in Lathrop

Transit & Lathrop

Where transit is in Lathrop and mobility gaps that transit could successfully fill.

The City of Lathrop is committed to improving mobility options for those who live, work, study, or visit the City.

As the fastest growing city in California, Lathrop has been seeing impacts from increased traffic congestion and greater general travel demand over the past five to six years. This trend accelerated during the COVID-19 pandemic, as many Bay Area workers who could take advantage of remote work moved to the community spurred by lower housing costs in San Joaquin County. Lathrop has seen considerable growth in employment within the logistics and warehousing sector, as well as manufacturing growth from companies such as Tesla, increasing population growth and growth in travel demand.

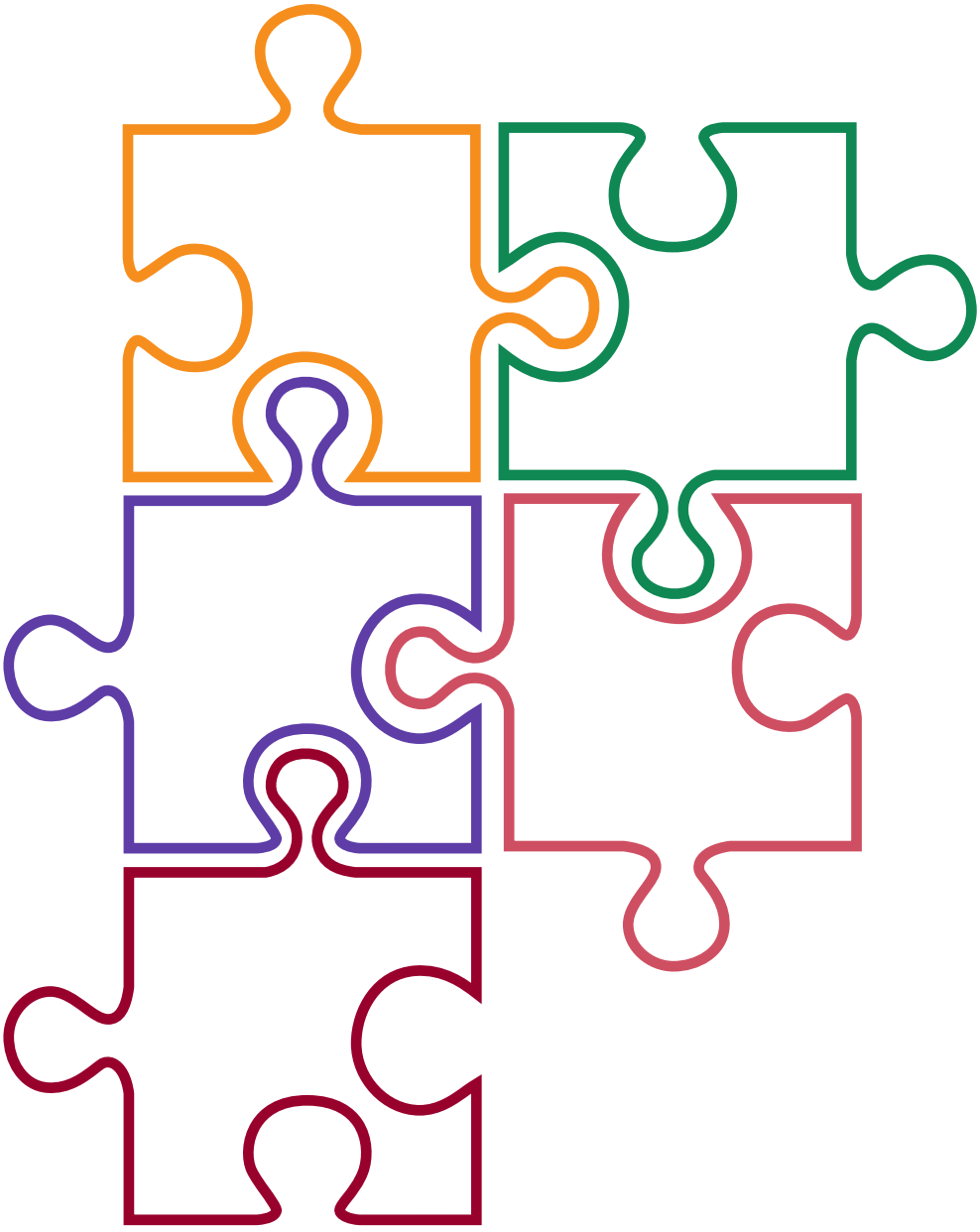
This study is funded by the City of Lathrop but occurred in concert with RTD throughout the entire study process. As the primary operator of public transit service across Lathrop and San Joaquin County today, RTD is an important partner when considering expanded transit service in the community. RTD has provided varying levels of service throughout Lathrop over recent years but scaled back service during the COVID-19 pandemic to limited regional and commuter service the periphery of Lathrop neighborhoods to destinations such as Stockton, Manteca, Tracy, and the Dublin/ Pleasanton Bay Area Rapid Transit (BART) Station. RTD is interested in understanding how to expand their services in a way that fits the needs of the community.

Image: Fehr & Peers

Conditions for Success

This chapter examines the conditions that suggest opportunity for transit to succeed based on where:

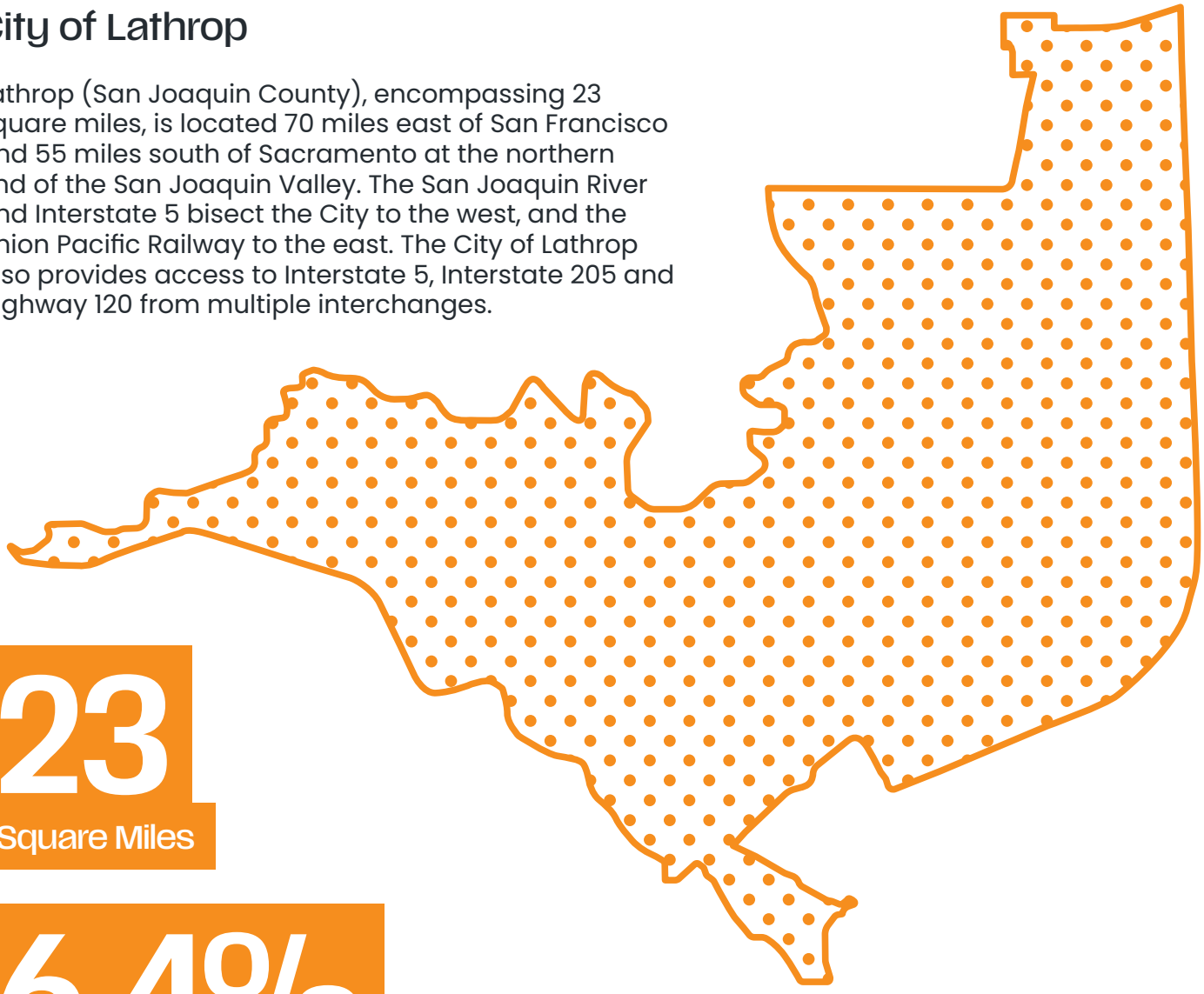
- Population, employment, and activity are the most dense
- Demographics include people who may not drive (such as seniors) or people who would benefit from an affordable alternative to driving and its associated costs
- Community members and stakeholders identified destinations they need to reach
- Residents' overall travel patterns in 2023 suggest when and where travel patterns are strongest and where transit would have the greatest likelihood of gaining market share
- The current state of the public transit network in the City of Lathrop is another key input: where routes and services are currently provided, when those services are available, and how they are being used



Study Area

City of Lathrop

Lathrop (San Joaquin County), encompassing 23 square miles, is located 70 miles east of San Francisco and 55 miles south of Sacramento at the northern end of the San Joaquin Valley. The San Joaquin River and Interstate 5 bisect the City to the west, and the Union Pacific Railway to the east. The City of Lathrop also provides access to Interstate 5, Interstate 205 and Highway 120 from multiple interchanges.



23
Square Miles

6.4%
Five-Year Average Annual Growth Rate[1]

38,000
Estimated residents in 2024

19,000
Estimated new residents since 2010[1]

[1] Per the 2024/2025 Lathrop Community Profile.

Understanding where and when people can travel by transit in Lathrop today

This sub-section reviews the existing transit services connecting to the City of Lathrop, broken out by operator. RTD is the regional transit provider for San Joaquin County, serving the Stockton Metropolitan Area and the County with intercity, interregional, and rural transit services. Figure 2 displays all existing transit serving Lathrop on the following page.

Image: RTD

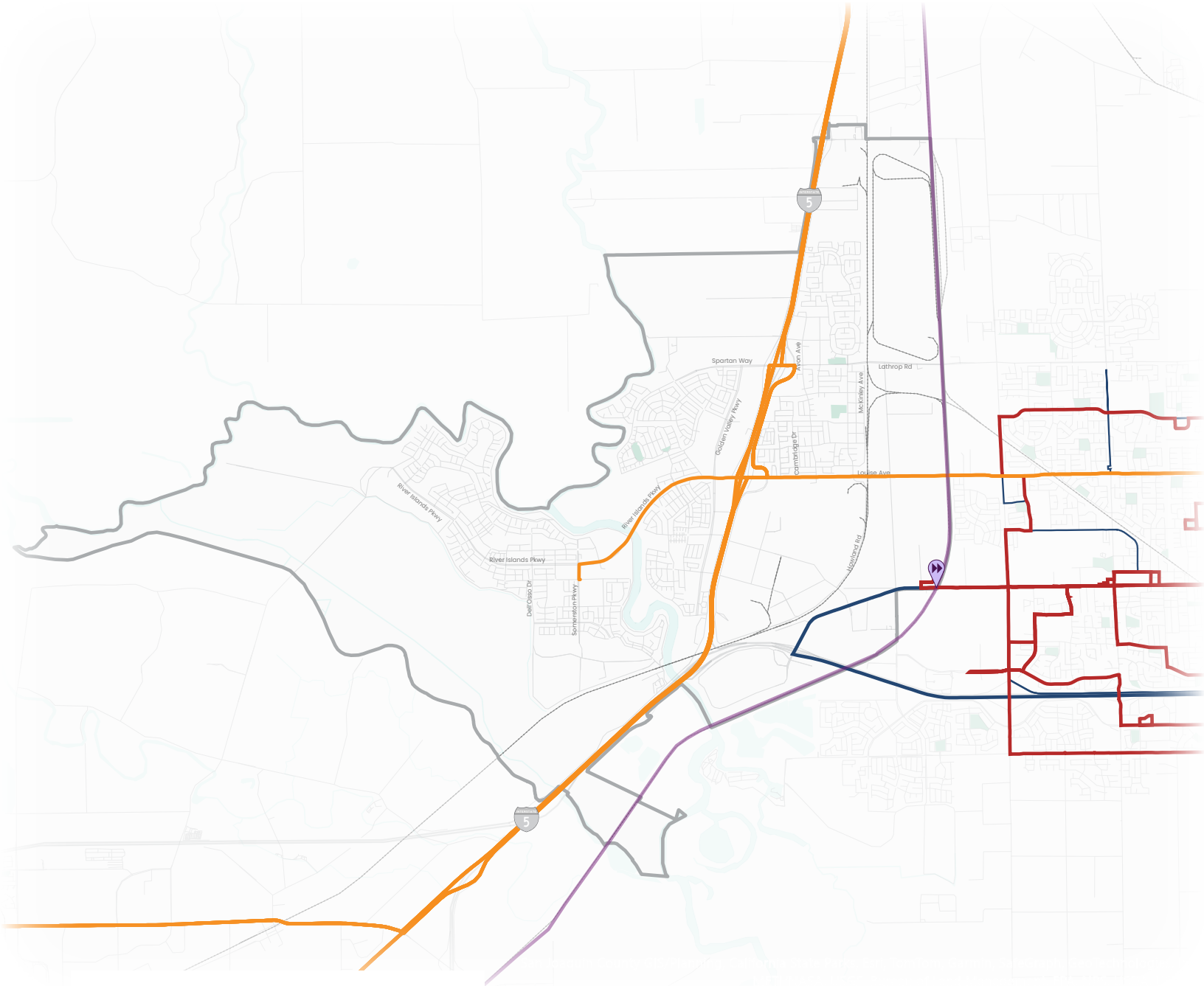


Figure 2

Existing Transit Service in Lathrop

- RTD Bus Route
- Manteca Transit
- StanRTA
- ACE Rail
- Lathrop-Manteca ACE Station

San Joaquin Regional Transit District

San Joaquin Regional Transit District (RTD) is the primary transit provider in the City of Lathrop.

RTD operates three fixed routes in the City. These services are predominately focused on connecting Lathrop to broader San Joaquin County, as each service only has a handful of stops within Lathrop. Figure 3 displays the full extent of RTD's services.

RTD Routes Serving Lathrop

- **Route 90** Stockton - Lathrop - Tracy
- **Route 97** Tracy - Lathrop - Manteca
- **Route 797** Manteca - DTC - Tracy
- **Route 150** Stockton - Dublin BART

Images: RTD

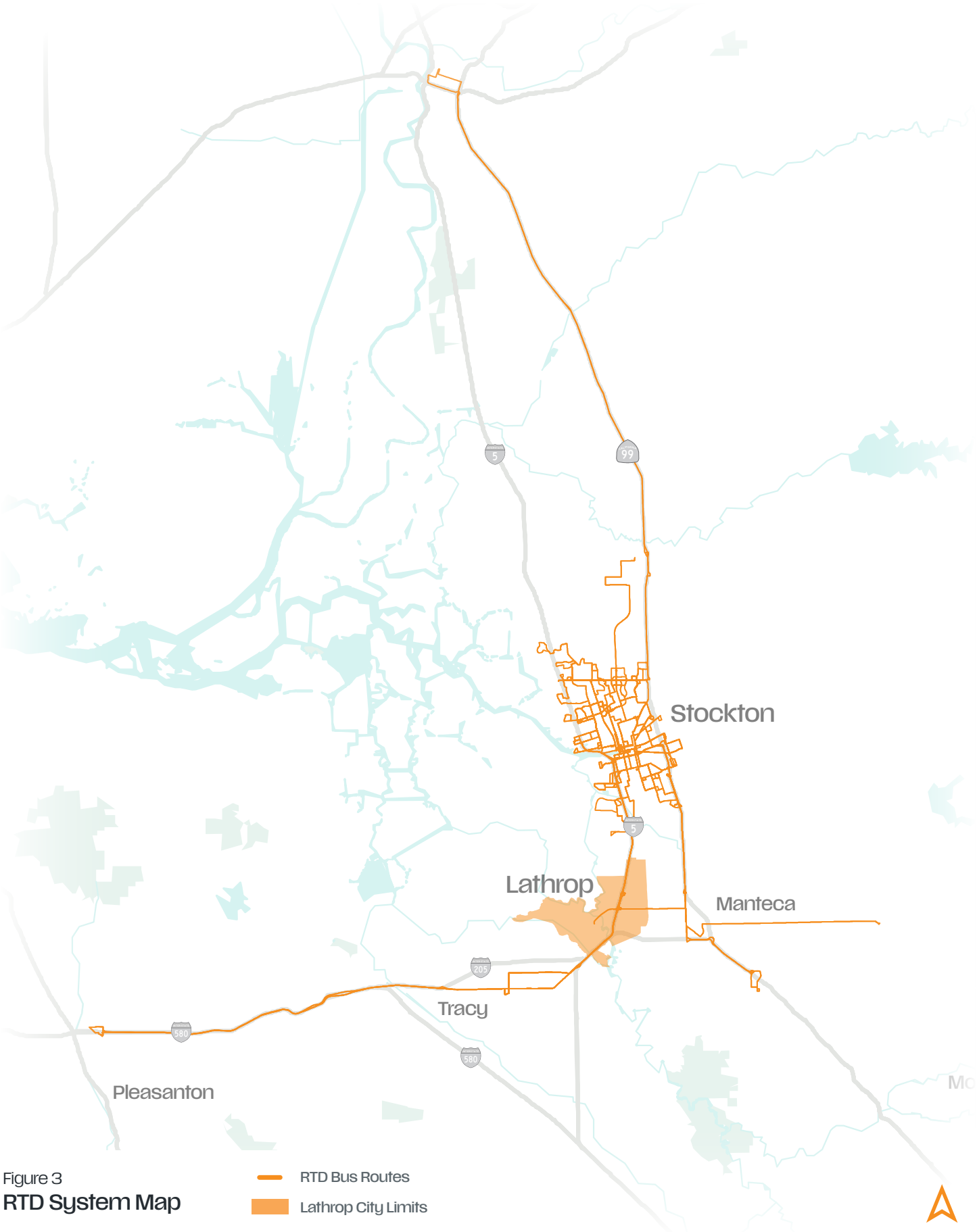


Figure 3
RTD System Map

RTD Ridership

As of October 2024, there are approximately 468 monthly RTD boardings in the City of Lathrop. This equates to about 20 average weekday boardings. Over half of all boardings occur at the Lathrop Transfer Center at Lathrop Road and Harlan Road near the Save Mart, served by Routes 90 and 150. Route 90 and Route 150 have the highest ridership, but Route 150 remains only around 45% of pre-COVID levels as of October 2023. Route 97 has higher recovery at 68% of pre-COVID weekday ridership levels.

The following pages list the number of trips operated, span, and ridership of all these routes. Route 150 is the only route providing weekend service, the other three routes operate on weekdays only. The span of service is approximate to when buses stop within Lathrop. Headways vary but are generally every 60-120 minutes, with some longer gaps in service throughout the day.

RTD Route 90

County-hopper regional service connecting Stockton to Tracy via Lathrop. Stops in Lathrop along Harlan Road at both Lathrop Road and Louise Avenue.

Daily Trips and Span

Weekday	
Trips	13 Roundtrips
Frequency Range	60 to 120 Mins
Span	5:37 a.m. - 9:06 p.m.
Saturday	
Trips	N/A
Span	N/A
Sunday	
Trips	N/A
Span	N/A

Data Source: RTD, 2024.

Average Daily Ridership

In Lathrop	Route-wide
10	111

Data Source: RTD, FY 2024; values rounded to nearest whole number.

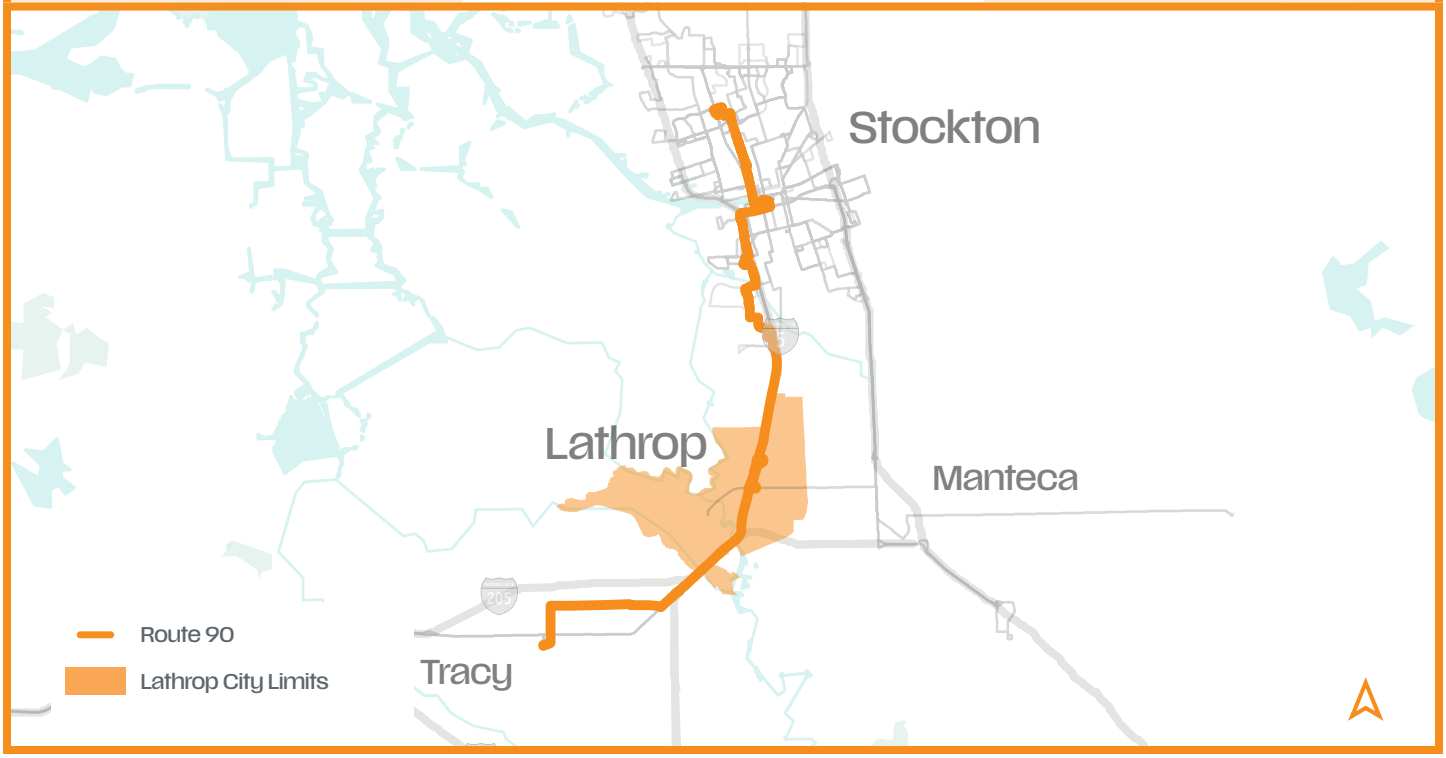


Image: RTD

RTD Route 97

County-hopper regional service connecting Manteca to Tracy via Lathrop. Stops in Lathrop along Louise Avenue at Cambridge Drive and Harlan Road.

Daily Trips and Span

Weekday	
Trips	10 southbound 8 northbound
Frequency Range	60 to 120 Mins
Span	6:15 a.m. - 8:45 p.m.
Saturday	
Trips	N/A
Span	N/A
Sunday	
Trips	N/A
Span	N/A

Data Source: RTD, 2024.

Average Daily Ridership

In Lathrop	Route-wide
2	22

Data Source: RTD, FY 2024; values rounded to nearest whole number.

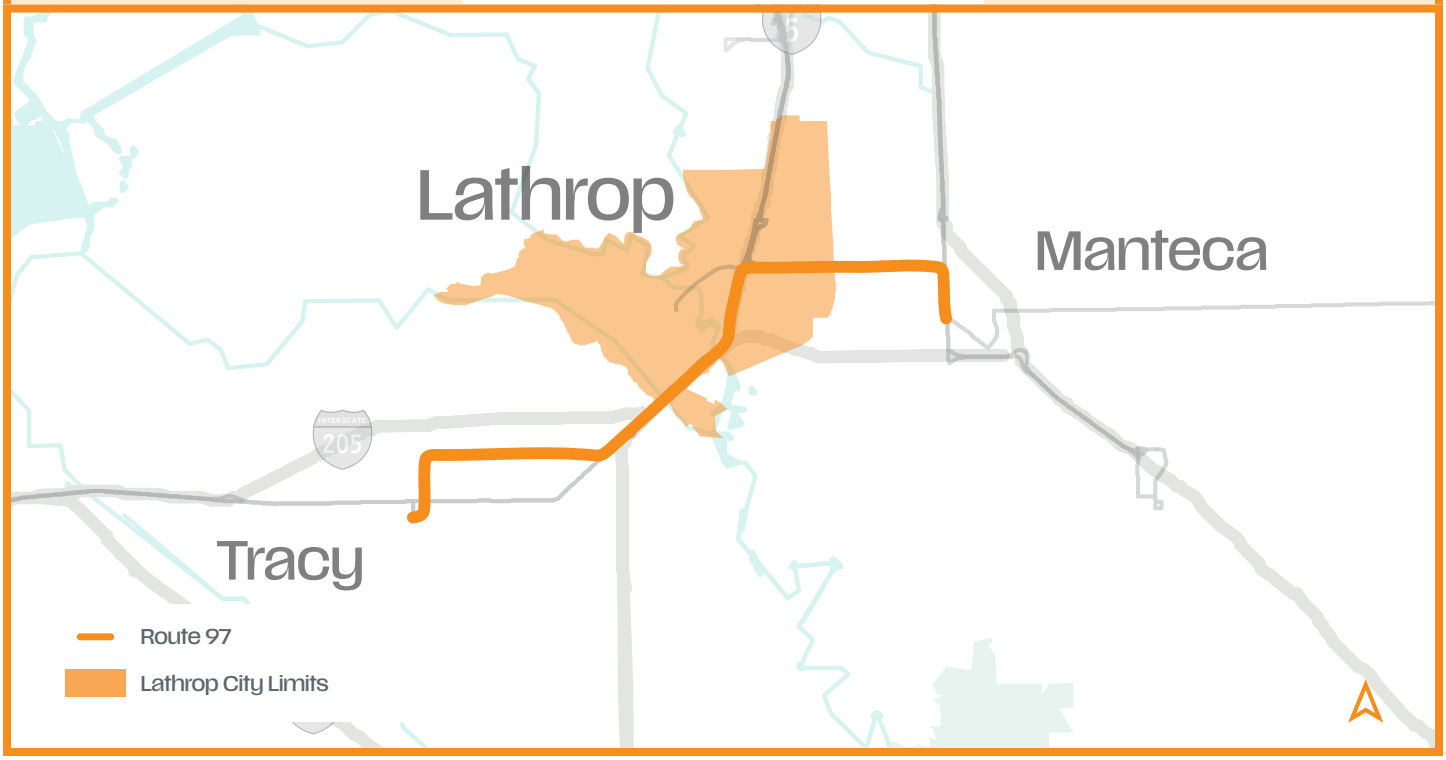


Image: RTD

RTD Route 797

County-hopper regional service connecting Manteca to Lathrop and Tracy via Stockton. Stops in Lathrop along Harlan Road at Lathrop Road.

Daily Trips and Span

Weekday	
Trips	N/A
Frequency Range	N/A
Span	N/A
Saturday (Route 797)	
Trips	5
Span	8:40 a.m. - 6:25 p.m.
Sunday (Route 797)	
Trips	5
Span	8:40 a.m. - 6:25 p.m.

Data Source: RTD, 2024.

Average Daily Ridership

In Lathrop	Route-wide
N/A	N/A

RTD Route 150

Commuter regional service connection Stockton to the Dublin/ Pleasanton BART Station. Stops in Lathrop along Harlan Road at both Lathrop Road and Louise Avenue. Route 150 is the only route providing weekend service, the other three routes operate on weekdays only. Headways vary but are generally every 60-120 minutes, with some longer gaps in service throughout the day.

Daily Trips and Span

Weekday	
Trips	4 westbound 6 eastbound
Frequency Range	60 to 120 Mins
Span	4:40 a.m. - 7:40 p.m.
Saturday	
Trips	5 trips in each direction
Span	7:15 a.m. - 10:15 p.m.
Sunday	
Trips	4 trips in each direction
Span	7:15 a.m. - 6:45 p.m.

Data Source: RTD, 2024.

Average Daily Ridership

In Lathrop	Route-wide
8	102

Data Source: RTD, FY 2024; values rounded to nearest whole number.

Recent and Future RTD Changes

RTD completed a Comprehensive Operations Analysis (COA) in 2020 that recommended increasing service between Manteca, Lathrop, and Tracy on Route 97. Route 97 previously mirrored Route 90 between Stockton and Tracy. Ridership has not yet materialized on this service, but travel demand continues to grow between Lathrop and Manteca. Additionally, RTD reduced Lathrop service, including county hopper service on weekends, as a result of the COVID-19 pandemic.

Image: RTD

Altamont Corridor Express

Altamont Corridor Express (ACE) is a passenger rail service that operates limited rush-hour weekday train services between San Joaquin County, the Tri-Valley, and Silicon Valley.

ACE provides services at a station on the east side of Lathrop near the border with Manteca. Four ACE trains stop roughly every hour in the morning rush hour towards Tracy, Livermore, Pleasanton, Fremont, Santa Clara, and San Jose. Four return trips operate in the evening rush towards Stockton also stopping about once an hour.

Like many commuter-oriented services, ACE ridership remains substantially below pre-COVID numbers, around about 3,000 weekday boardings in the second quarter of 2024. This remains about 53% of the 5,700 weekday boardings observed before the pandemic.

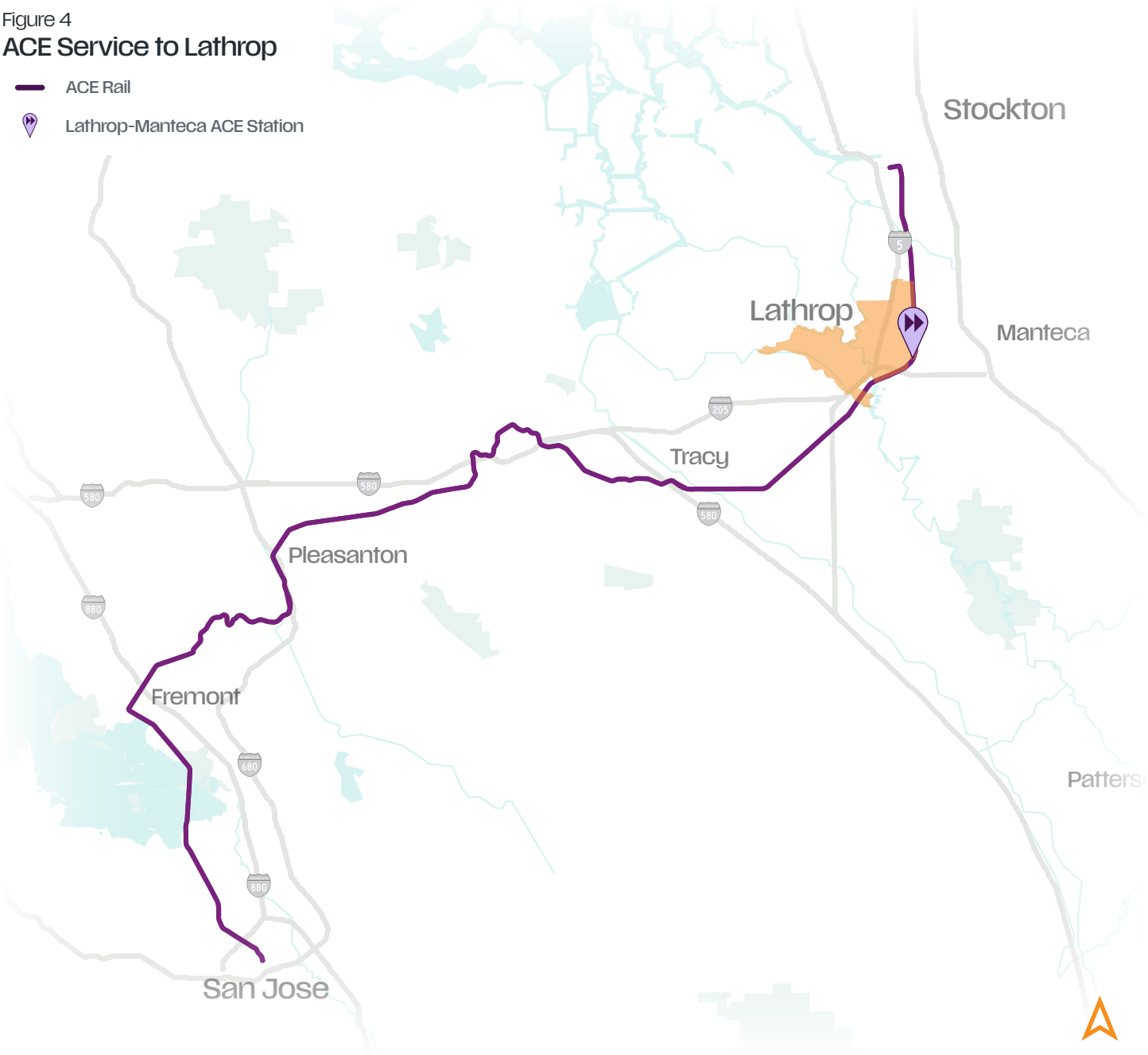
Nonetheless, pressure on the ACE station parking lot at Lathrop/Manteca is growing. Parking was significantly undersupplied at the station prior to the pandemic and so even limited ridership recovery is nearly filling the parking lot on certain days. As ridership continues to recover, there will likely be needs to provide first/last mile alternatives to driving to relieve parking pressures.

Image: ACE Rail

Recent and Future ACE Changes

Prior to the COVID-19 pandemic, ACE piloted running weekend services (two round trips on Saturdays), but that service was discontinued at the onset of the pandemic and there have not been indications that it will resume. ACE is the midst of a capital improvement program known as Valley Rail, which is expanding ACE services throughout the Central Valley. Beginning as early as 2027, one ACE round trip will be extended from Stockton to Natomas, serving Sacramento, Elk Grove, and Lodi. Around the same timeframe, a fifth ACE round trip is expected to begin from San Jose through Lathrop and branching off to serve Downtown Manteca, Modesto, and Ceres. By 2030, additional services are expected to reach as far as Merced, providing a connection to California High Speed Rail in the 2030s. Additionally, an ACE station is under study in North Lathrop near Lathrop Road to better connect to new Central Valley services between Merced and Sacramento.

Figure 4
ACE Service to Lathrop



ACE Connecting Routes

Two transit agencies provide limited service during weekday peak periods to the City of Lathrop via the Lathrop/ Manteca ACE station to provide timed connections with ACE trains. While these services are intended for onwards ACE passengers, they are open to the public.

Stanislaus Regional Transportation Authority

Stanislaus Regional Transportation Authority (StanRTA) operates Route 70 ACE Commuter from Modesto to the Lathrop/Manteca ACE Station with three round trips in the morning rush hour and four round trips in the evening timed with ACE trains. The route service the Vintage Faire Mall and Downtown Modesto in Modesto.

City of Manteca Transit

The City of Manteca operates the ACE shuttle service as a part of their city transportation department. The shuttle operates two round trips in the morning peak and three round trips in the evening peak with timed connections to and from ACE trains. In Manteca, the route serves the Downtown Manteca Transit Center where connections are available to other Manteca Transit services.

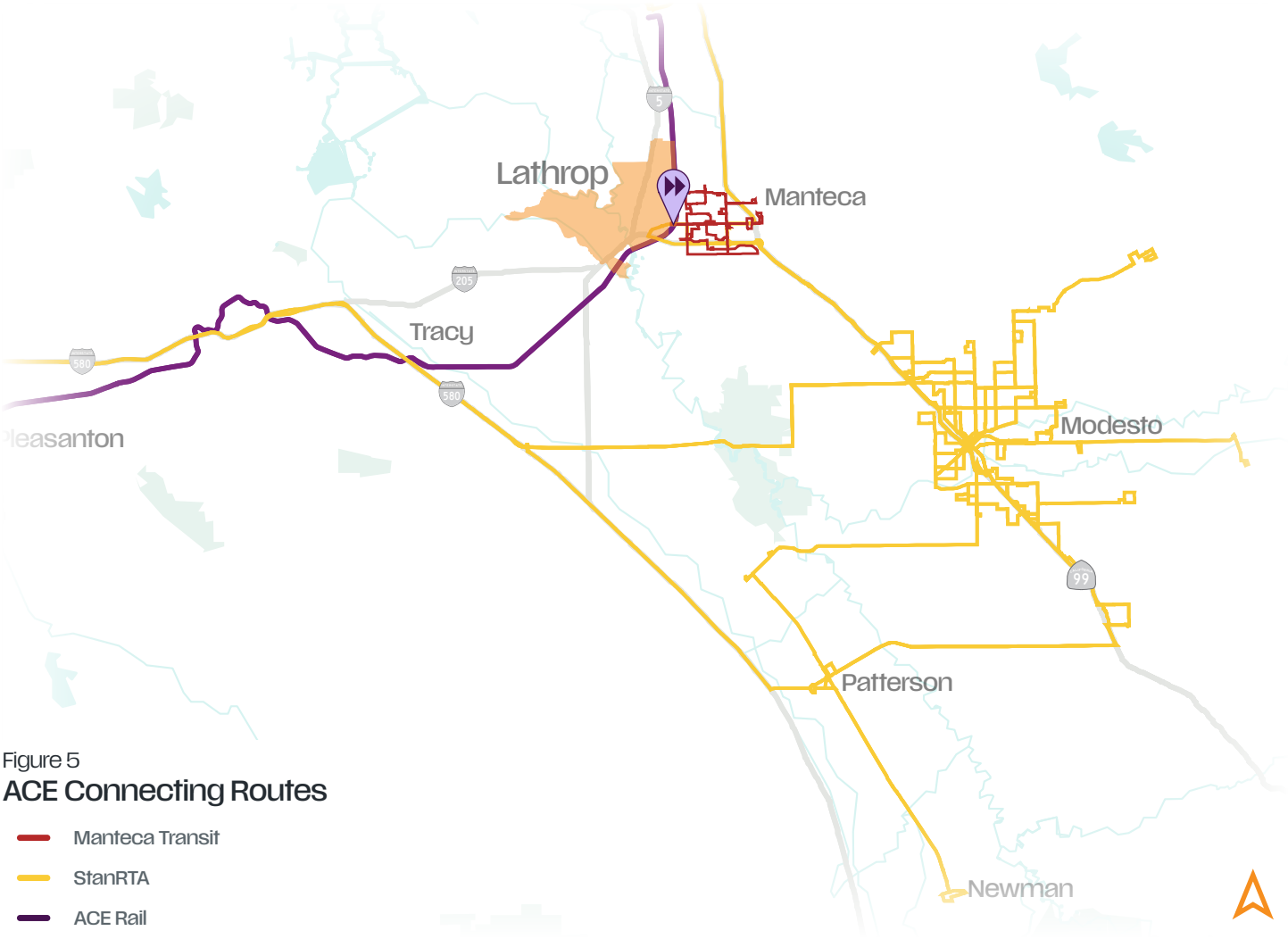


Figure 5
ACE Connecting Routes

- Manteca Transit
- StanRTA
- ACE Rail
- Lathrop-Manteca ACE Station

Other Services

Van Go!

In addition to fixed route transit services, RTD also operates the Van Go! on demand transit program available within Lathrop. The Van Go! service utilizes an app to provide trips between locations within rural San Joaquin County and incorporated jurisdictions outside of Stockton.

Van Go! is available for trips within the City of Lathrop and from Lathrop to any other community in San Joaquin County, including Stockton. Van Go! service is offered seven days a week between the hours of 8am and 5pm. Rides can be booked through the mobile app or online. Van Go! fares are higher than fares on the RTD County Hopper Routes, with a $4.00 flat fare for the first five miles increasing at $0.50 per mile.

San Joaquin Council of Governments dibs Vanpool Program

Beyond fixed route public transit, the San Joaquin Council of Governments (SJCOG) operates the dibs Vanpool program throughout San Joaquin County including the City of Lathrop. Vanpooling allows a group of employees going to a standard worksite to enter into a formalize carpool agreement with subsidies and incentives to encourage participation.

As of the summer of 2024, 61 vanpools operate to or from the City of Lathrop. Most dibs vanpools are Lathrop residents commuting to other destinations across Northern California, but the Lathrop Tesla facility has a vanpool program for residents living elsewhere in the region and community to the factory in Lathrop. The most popular destinations for vanpools are Fremont (34 vanpools), mostly to the Western Digital and Tesla facilities there, as well as Tracy (nine vanpools) to the Tracy Defense Depot. Other vanpools operate worksites to Dublin, Livermore, Mountain View, Redwood City, Stanford, and Sunnyvale.

Images: RTD, SJCOG

Evaluating Mobility Gaps in Lathrop

Community engagement is key to understanding what transit service may be successful in Lathrop.

As a part of the Study, members of the public were initially polled on the types of mobility that they would be most likely to use if it were expanded/provided, as well as indicating key destinations and markets where public transit service would be most useful for their existing travel needs.

Members of the Lathrop community were able to give their feedback through an online survey distributed through social media and city communication channels. The Manteca Unified School District was also identified as a key community partner and helped spread the word about the study by sending the project website and survey to Lathrop families within the schools. The survey was open throughout April 2024 and received responses from 115 members of the community. Two workshops, one in-person and one online, were available for community members to provide the project team feedback on current transit services and places where public transit in Lathrop could better serve them. Additionally, the study team tabled at the annual Lathrop City Day event, discussing the project with dozens of residents and facilitating more feedback about mobility within the community.

Stakeholder Support

Working with the City of Lathrop and RTD, stakeholders were identified early in the project to facilitate feedback, community connections, and input on existing and proposed transit concepts.

The stakeholders included:

- Manteca Unified School District
- San Joaquin Regional Rail Commission (governing body of ACE commuter rail)
- SJCOG
- Lathrop City Council and City Administration
- Lathrop Senior Center

Stakeholder groups provided important connections with community members to get the word out about the study. These groups also provided the study team with venues to connect with their community members and gather feedback on ideas and concepts.

Image: Fehr & Peers

Understanding current mobility patterns in Lathrop

April 2024 Survey Results

Initial surveying was undertaken to understand how people currently get around Lathrop and provide space for members of the public to indicate their preferences for future transit system expansion in Lathrop, including key destinations, travel markets, and modal preferences.

Survey At A Glance

124
Survey respondents

92%
Respondents lived in Lathrop

9%
Respondents worked in Lathrop

40 and 44 years old
Average respondent age (versus 37 years old citywide)

$100,000 to $150,000
Average respondent household income (compared to $108,000 citywide)

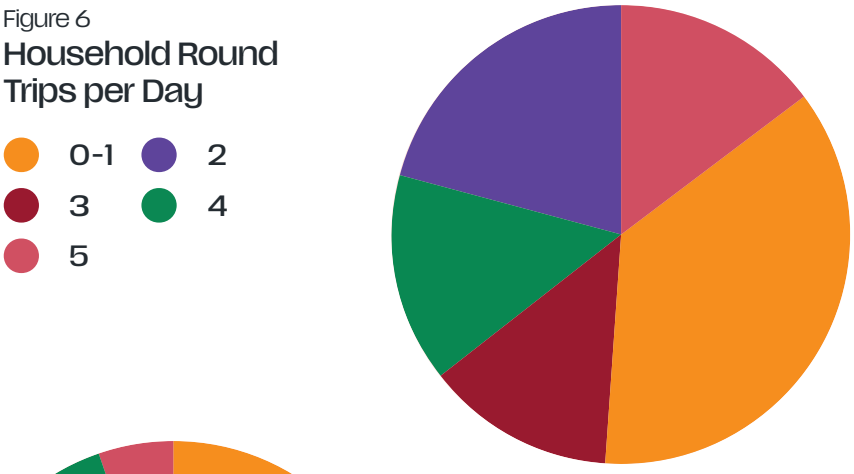
53%
Respondents lived in a household with zero or one cars available to them

69%
Respondents identified as a person of color

Household Trips

Lathrop households generally make less trips per day than the national average. A plurality of households made two round trips per day, and a majority made less than the four-roundtrip average indicated in the 2022 National Travel Household Survey (Figure 6). Lathrop's built environment with homes, place of employment, and shopping or leisure destinations located a relatively large distance from each other encourages fewer but longer trips, generally by automobile (Figure 7). community members and gather feedback on ideas and concepts.

Figure 6
Household Round Trips per Day



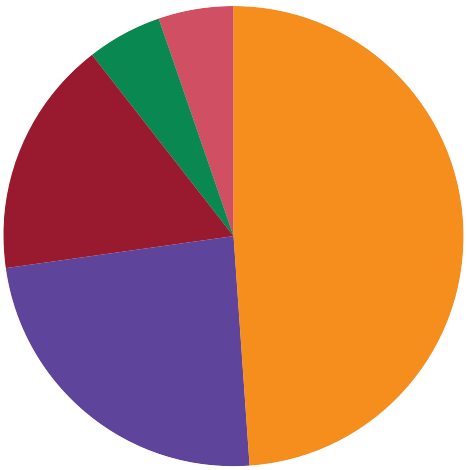


Figure 7
Predominant Transportation Modes Used in Lathrop

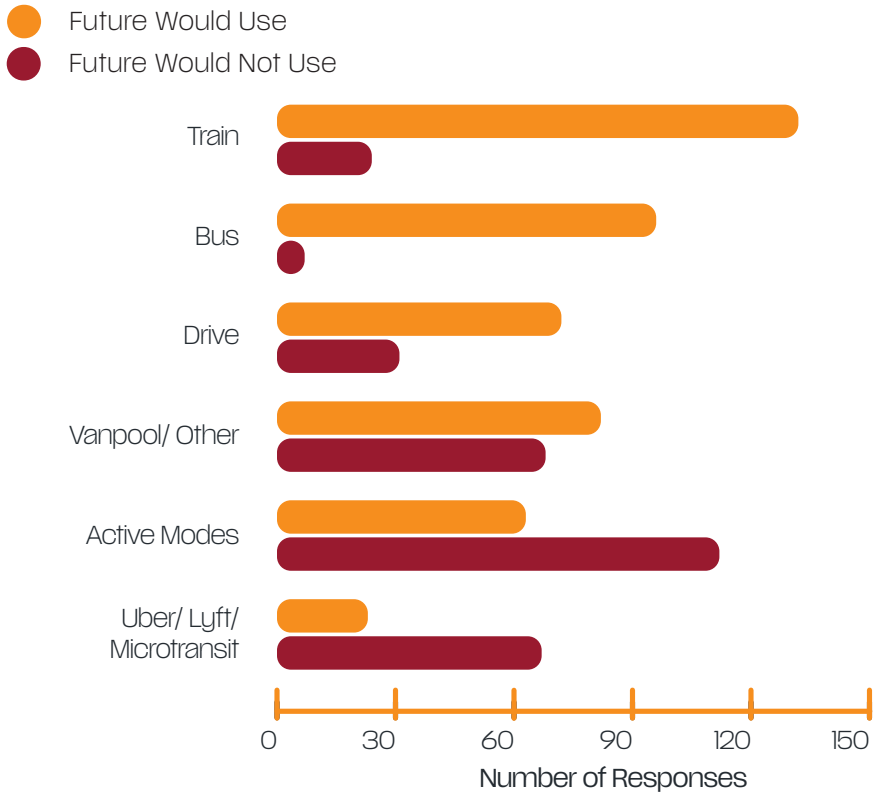
Driving
Bus
Rail
Other
Active Modes

How do residents envision future transit investment in Lathrop?

Despite the dominance of personal automobile mode share in the community today, Lathrop community members surveyed were open to non-car modes if options were expanded and convenient. Given expansion and convenience of any modes, travel by both rail and bus outscored driving as modes that households may use in the future, with travel by bus having the greatest increase from current household usage if convenient options were provided in the future. As a part of the same question, respondents indicated a generally unfavorable desire to use active modes such as biking and walking, or expanded rideshare and microtransit services, even if more of these travel options were provided and convenient. This indicates an opportunity to provide more fixed route transit service within Lathrop.

Figure 8

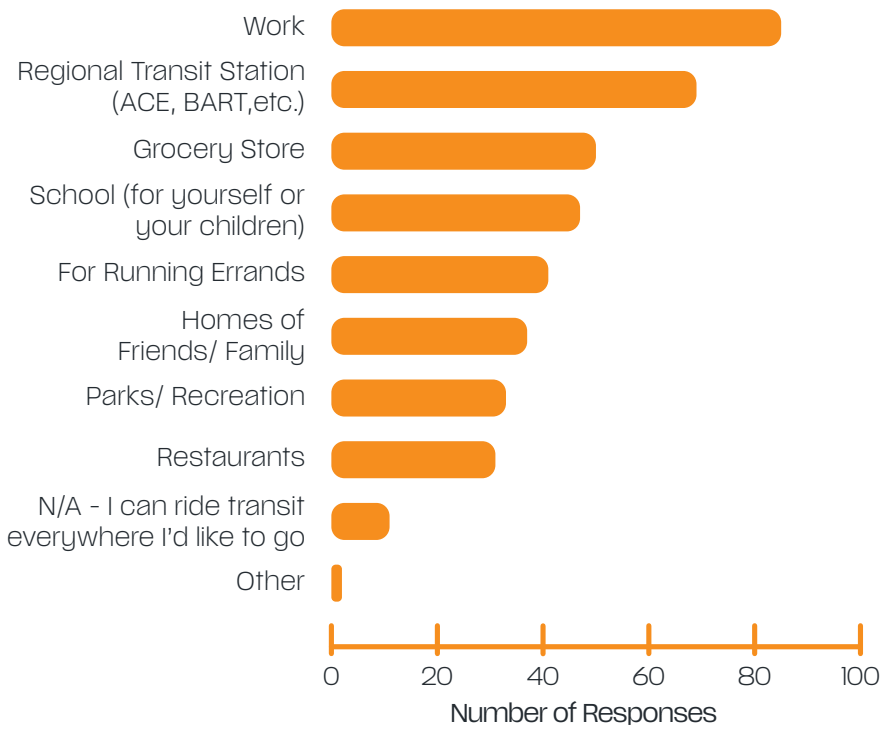
Transportation Modes Lathrop Households Would Use or Not Use if Provided and Convenient



Lathrop community members indicate that transit could do a better job connecting them to a variety of destinations, with the greatest responses indicating better connections to places of employment and regional transit stations (such as BART or ACE stations). Very few respondents indicated that transit was available everywhere they would like to travel (Figure 9).

Figure 9

Where Lathrop Community Members Would Like To Travel By Transit That They Cannot Currently



Priorities

When considering a transit service, respondents ranked their top three priorities as:

1. **Frequency**
   How often a transit service comes
2. **Punctuality**
   How often the transit vehicle arrive on schedule
3. **Cost**
   How expensive the transit service is

Other factors evaluated include **safety, convenience, speed, comfort, and accessibility.**

The project team heard from stakeholders and the general public two primary goals that new transit service in Lathrop should seek to accomplish, **representing over 80 percent of written and verbal feedback received by the project team.**

Survey Theme 1

Transportation for school-aged children

Congestion around Lathrop High School is significant, and families must drive their children under 16 to school, sports, and recreational activities. Teenagers also face challenges accessing local employment without driving. There is a need for transit to connect residential areas, schools, employment, and recreation centers.

Survey Theme 2

Increasing regional connectivity

Many Lathrop residents commute outside the city, making connectivity to regional rail and bus services essential. With no transit access to the ACE station, the parking lot at Lathrop/Manteca ACE station is near capacity, even with reduced work-based travel.

Planning for Successful Transit in Lathrop

Exploring Where People Live and Work in Lathrop

Lathrop is predominately characterized by single family homes across the community. East of I-5, lots tend to be smaller, leading to larger population densities than on the west side of I-5. However, as developments continue to fill in west of the freeway, population density is expected to increase. Figure 10 shows the population density by Census Tracts, with higher concentrations east of I-5 particularly between Louise Avenue and Lathrop Road. Non-residential development tends to consist of large-format retail stores, strip malls, and restaurants along I-5 and Harlan Road paralleling the freeway. Large industrial and warehousing spaces occupy the northeast and southeast corner of the community, particularly south of Louise Avenue and east of Harlan Road.

Image: City of Lahthrop

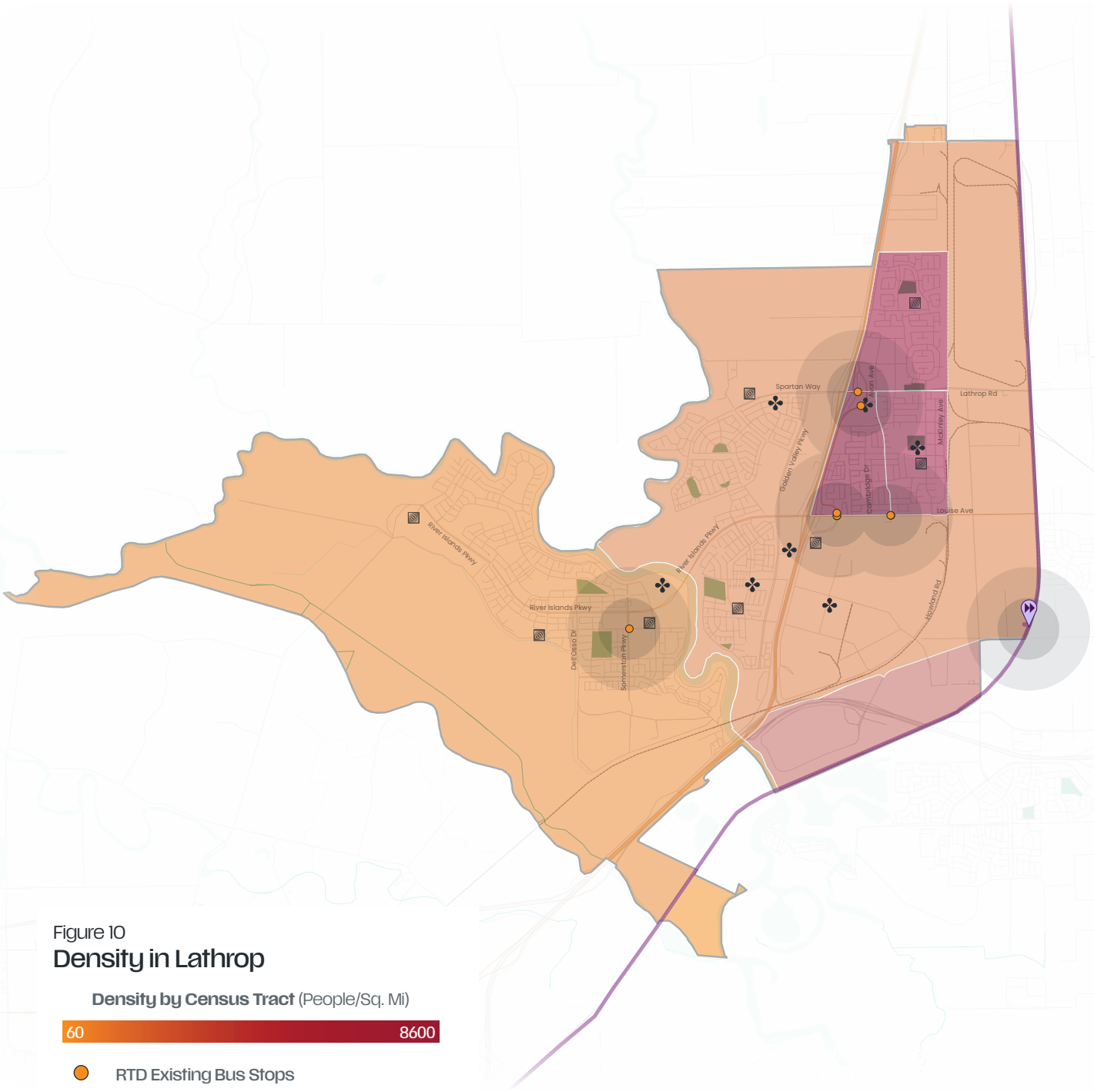


Figure 10

Density in Lathrop

Density by Census Tract (People/Sq. Mi)

60 — 8600

- RTD Existing Bus Stops
- 1/2 mi & 1/2 mi Buffers Around Stops
- ACE Train
- ACE Train Station
- Schools
- Civic Centers/ Points of Interest

Neighborhood Population Characteristics

Certain demographic groups, including seniors, low-income households, households with lower overall educational attainment, residents who primarily speak a language other than English, zero-car and/or low-income households, and more, are important to serve via transit.

Understanding where any clusters of these groups are located can help inform areas of the community that would especially benefit from increased transit investment.

The following section draws data from the 2018-2022 American Community Survey for the City.

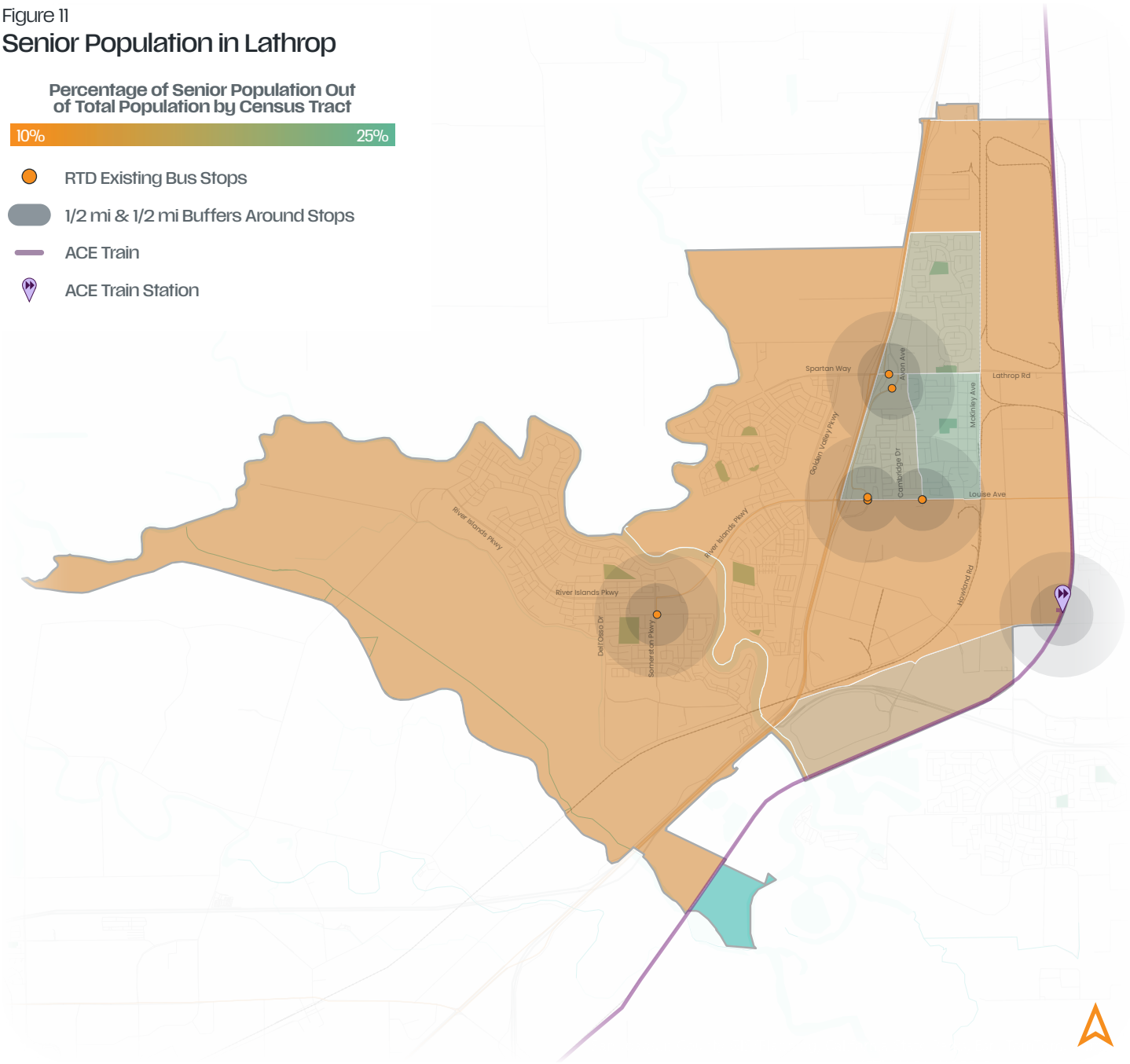
Image: City of Lathrop

Seniors

Seniors are a large group of potential transit riders, as many seniors are on fixed income and trying to conserve expenses on transportation by reducing car travel and ownership.

Additionally, seniors may be unable to drive anymore for a variety of health-related reasons, and access to public transit can greatly increase their mobility. The senior population in Lathrop lives throughout the community, but higher concentrations of population are found in neighborhoods east of I-5, north of Louise Avenue, and south of Lathrop Road (Figure 11). Additionally, community members indicated a prevalence of multi-generational households, including seniors, west of I-5 in the River Islands community.

Figure 11
Senior Population in Lathrop



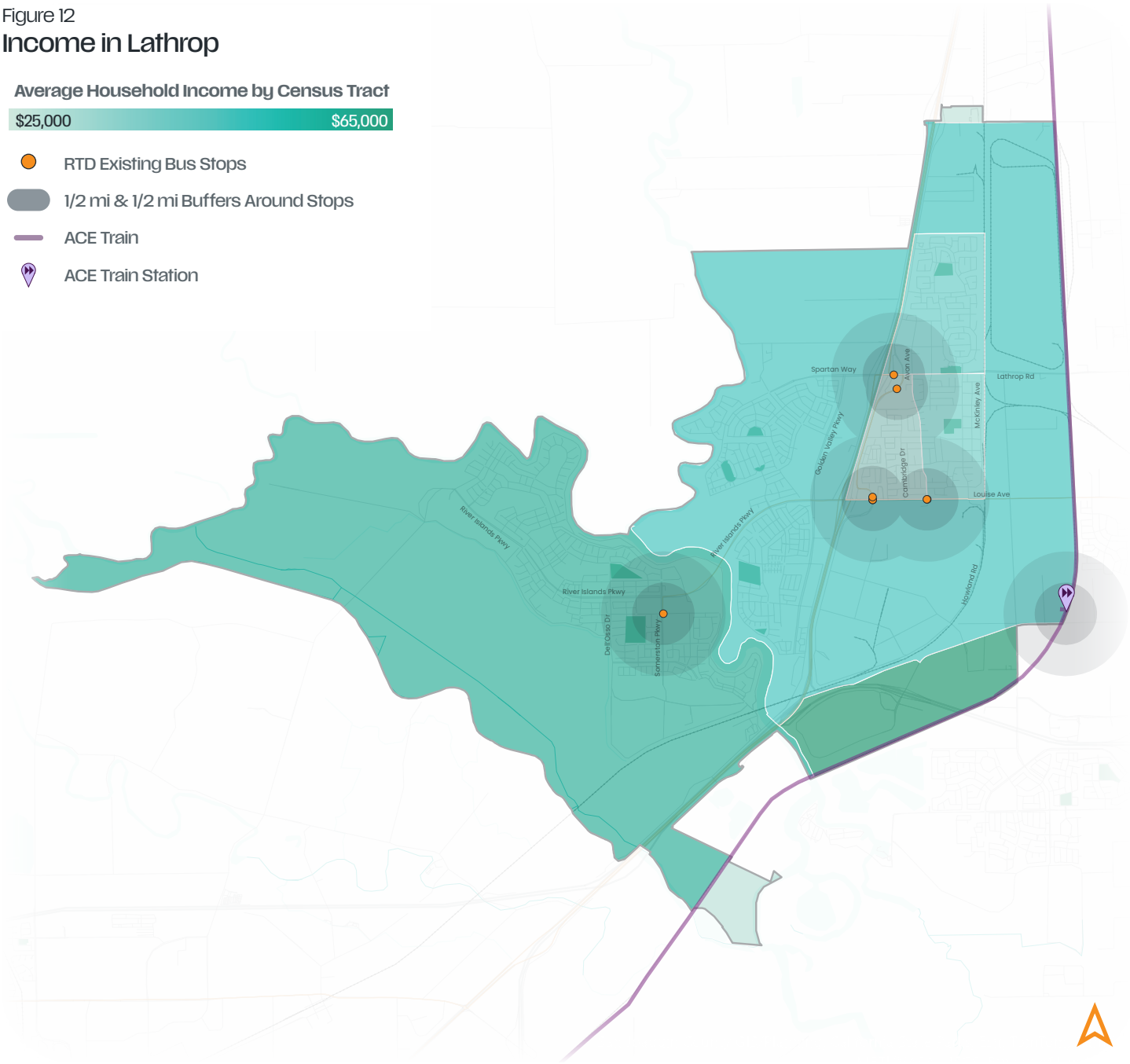
Lower-Income Residents

As of 2022, Lathrop has a median household income of around $108,000 and a per-capita income of around $34,000.

The River Islands community west of the San Joaquin River has the highest incomes in the city. Other areas west, north, and east of the core of Lathrop have about average incomes compared to the city as a whole.

The lowest income areas of the community are similarly located east of I-5 and south of Lathrop Road (Figure 12).

Figure 12
Income in Lathrop

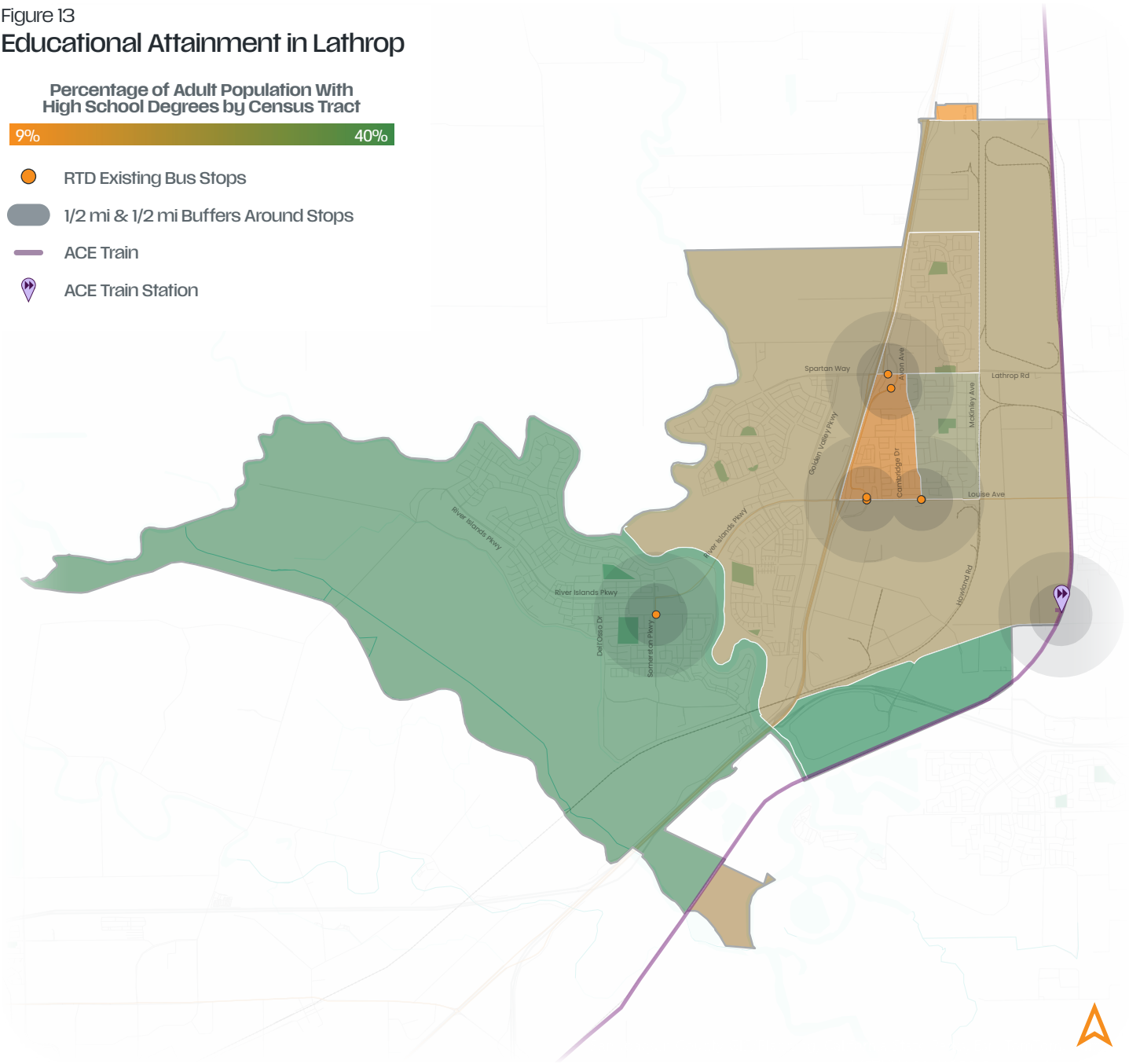


Educational Attainment

Educational attainment is useful for understanding the types of employment that people may engage in, and how transit can be useful for their work travel.

Residents with a lower formal educational attainment may work jobs that require non-traditional commute hours and locations, including service sector or manufacturing jobs. All-day transit service should be provided to serve a wide range of trip purposes throughout the day in areas with higher concentrations of these individuals. Residents formal educational level is generally lowest across less than high school diploma (Figure 13), high school diploma, and four-year college degrees east of I-5, especially north of Lathrop Road and between Harlan Road and Cambridge Drive.

Figure 13
Educational Attainment in Lathrop



English as a Second Language

Residents whose primary language is not English and self-identify as speaking English at a level "less than very well" in the Census may have non-traditional employment needs and more specialized travel patterns.

Additionally, special care should be taken with promotional materials, service marketing, and other information about the transit service in these areas to provide accessibility to the transit network at the same level as English-speakers. The highest concentrations of residents who say they speak English less than very well are in areas east of I-5, particularly east of Cambridge Drive between Louise Avenue and Lathrop Road (Figure 14). As demonstrated below, the highest transit propensity, or combination of factors that would indicate successful transit, is generally east of I-5 and north of Louise Avenue in the core of some of the oldest portions of the city.

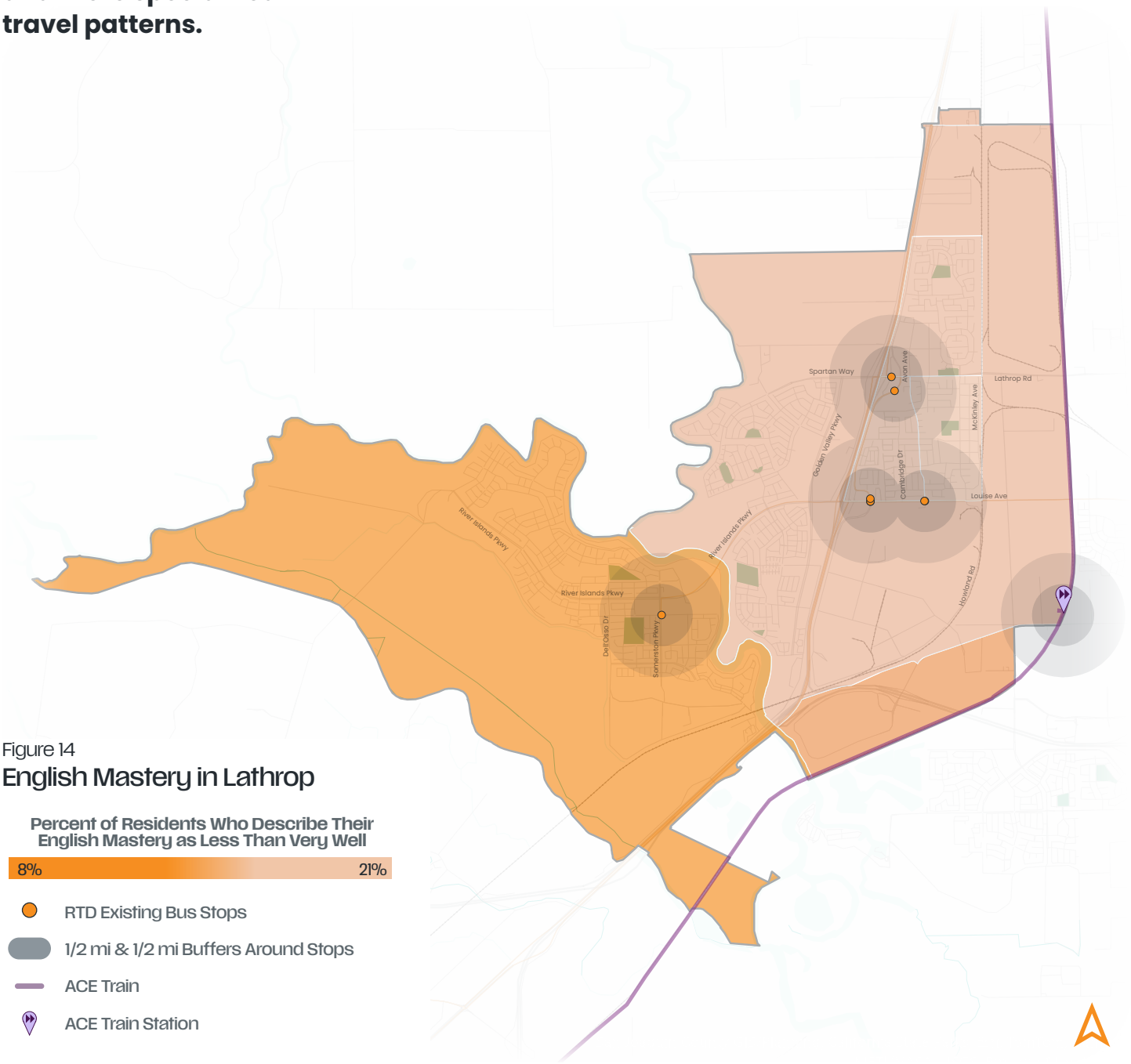


Figure 14
English Mastery in Lathrop

Major Employment Sites

Employers within the City of Lathrop are growing rapidly, with an ever-expanding retail, warehousing, and logistics industry.

Tesla is by far the largest employer in the community, with nearly 3,000 employees at their Lathrop facility. Per Longitudinal Employer-Household Dynamics (LEHD) data collected by the Census Bureau, other concentrations of employment are near the Tesla facility south of Louise Avenue and east of I-5 (Figure 15). One outlier is the second largest employer, UPS, who operates a distribution center on the north side of Lathrop.

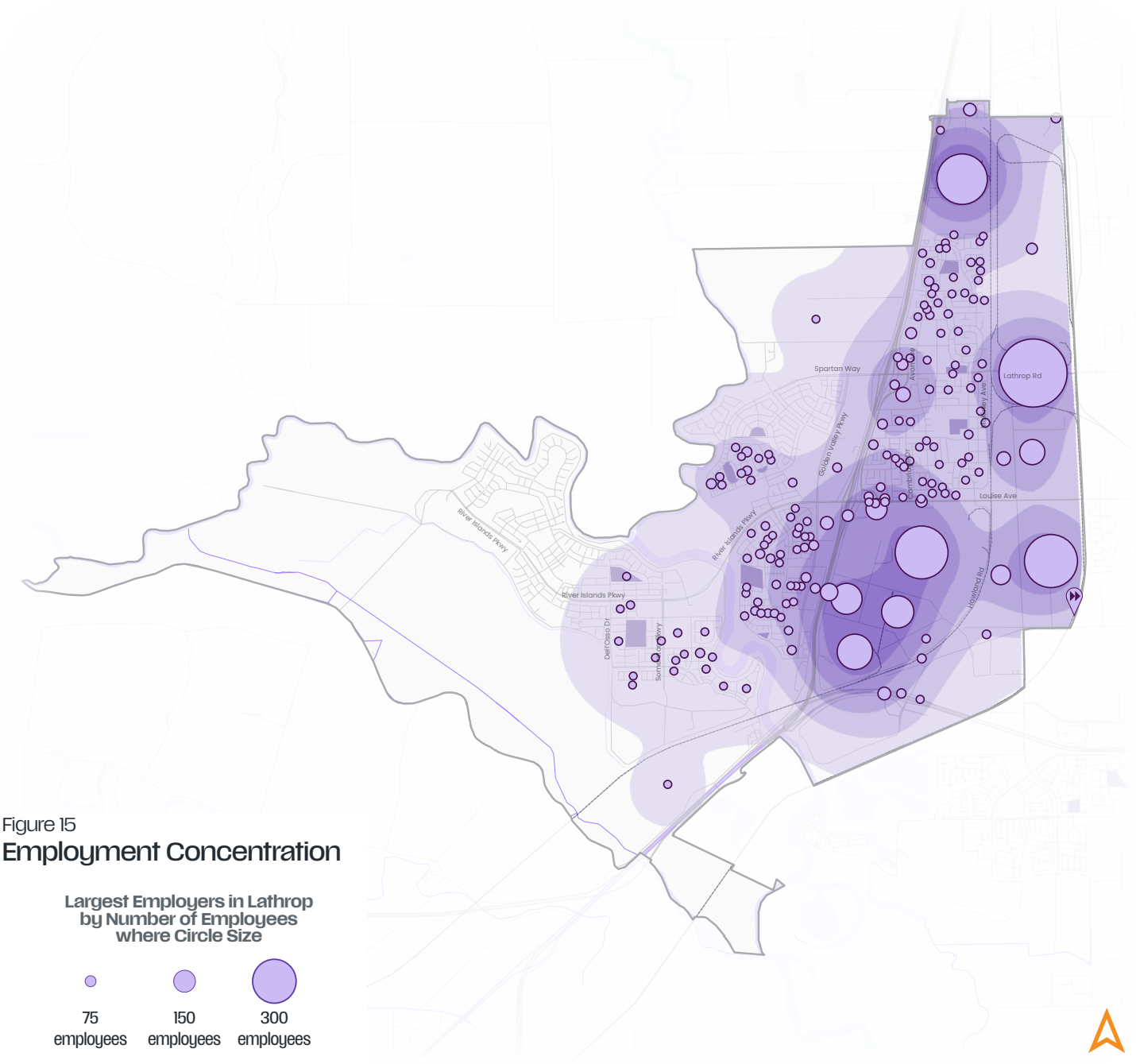


Figure 15
Employment Concentration

Other Key Destinations

As there are several other key travel needs that transit can serve beyond employment in Lathrop, the study team considered the locations of schools, parks, and civic destinations across the community as displayed on Figure 16.

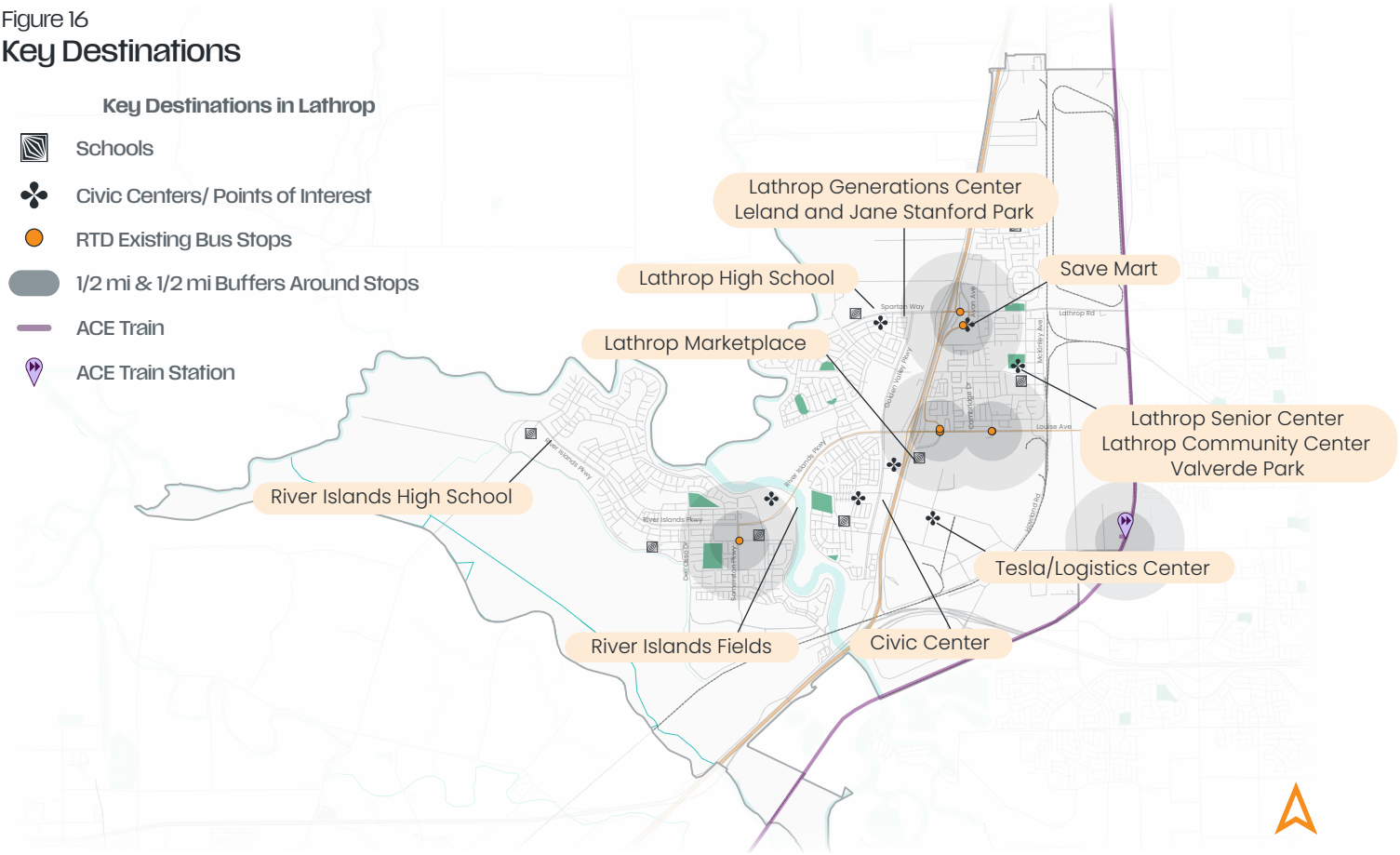
Major destinations that were evaluated included:

- Lathrop High School is in the Manteca Unified School District and serves Lathrop students east of the San Joaquin River
- River Islands High School is in the Banta School District and serves Lathrop students in the River Islands development west of the San Joaquin River

Additionally, Valverde Park, the Community Center, and Senior Center form a cluster of civic destinations along 5th Street in Central Lathrop. Generations Center and Park is located near Lathrop High School and is another important destination in the community. Finally, the River Islands fields and park along River Islands Parkway is a large recreation venue.

Developing commercial areas are located along Harlan Road just east of I-5, including the Save Mart at Lathrop Road and Harlan Road. The Lathrop Marketplace includes Target and Sprouts and is located just west of I-5 is a major growing retail area. Finally, the River Islands Town Center along River Islands Parkway will be a mixed-use development with new retail destinations.

Figure 16
Key Destinations



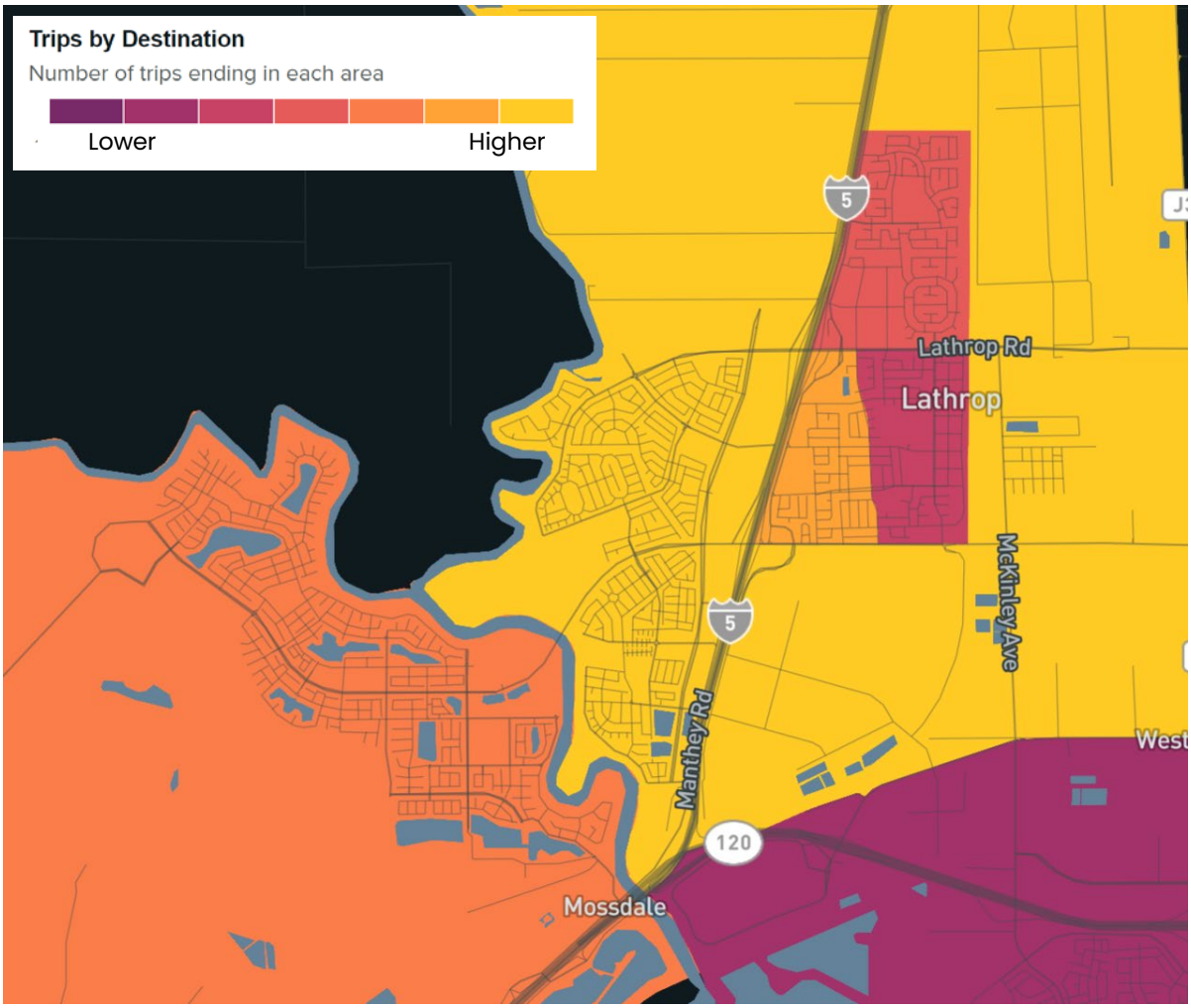
Trip and Travel Characteristics

In order to evaluate the degree that transit could be successful, it is important to consider the broader travel market.

The study team used a tool called Replica to evaluate total city-wide travel across all modes. Replica is a travel-demand modeling tool that inputs factors such as land use, key destinations, and regional context to estimate travel demand for various geography sizes. Replica is particularly useful in understanding rough orders-of-magnitude of travel demand size, how travel demand may vary throughout the day, and the types of trip purposes that travelers are taking. Overall travel patterns provide one piece of the broader evaluation to create successful transit service, along with the aforementioned demographics, employment, gaps analysis, as well as community input.

On an average weekday in Fall 2023, about 100,000 weekday trips are made originating in the City of Lathrop to points throughout the city, county, and broader region across all travel modes. Transit can capture a portion of this pie with the correct service design, fare structure, and promotion.

Example Replica Interface Results



Internal Lathrop Travel

Per Fall 2023 travel model data, there are about 40,000 weekday trips that remain within the City of Lathrop on all modes.

Approximately 85% of these trips originate within the 12-hour window between 6:00 a.m. and 7:00 p.m. Trips are spread throughout the day, but peak periods occur between 7:00 a.m. and 9:00 a.m. and between 2:00 p.m. and 5:00 p.m. The peak hour throughout the day is 3:00 p.m. (Figure 17).

As indicated in prior sections of this report, many Lathrop residents do not work in the community. Therefore, several other trip purposes are much more prevalent for intra-Lathrop travel, with the largest trip purpose being shopping and errands.

Figure 17
Weekday Trips within Lathrop by Starting Hour

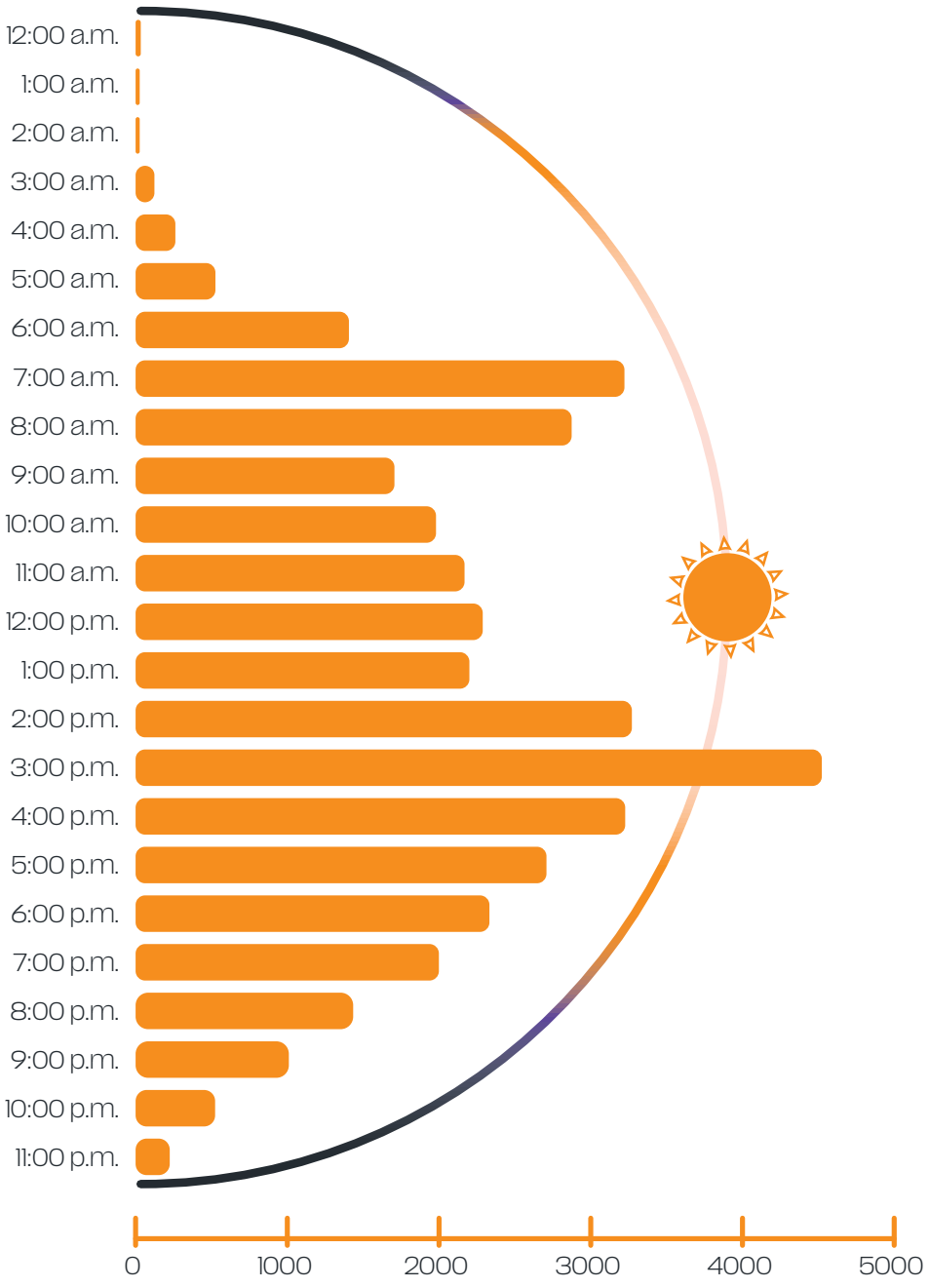
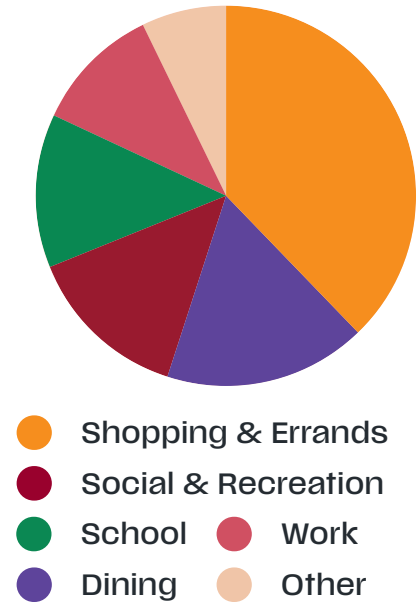


Figure 18
Intra-Lathrop Trips by Trip Purpose



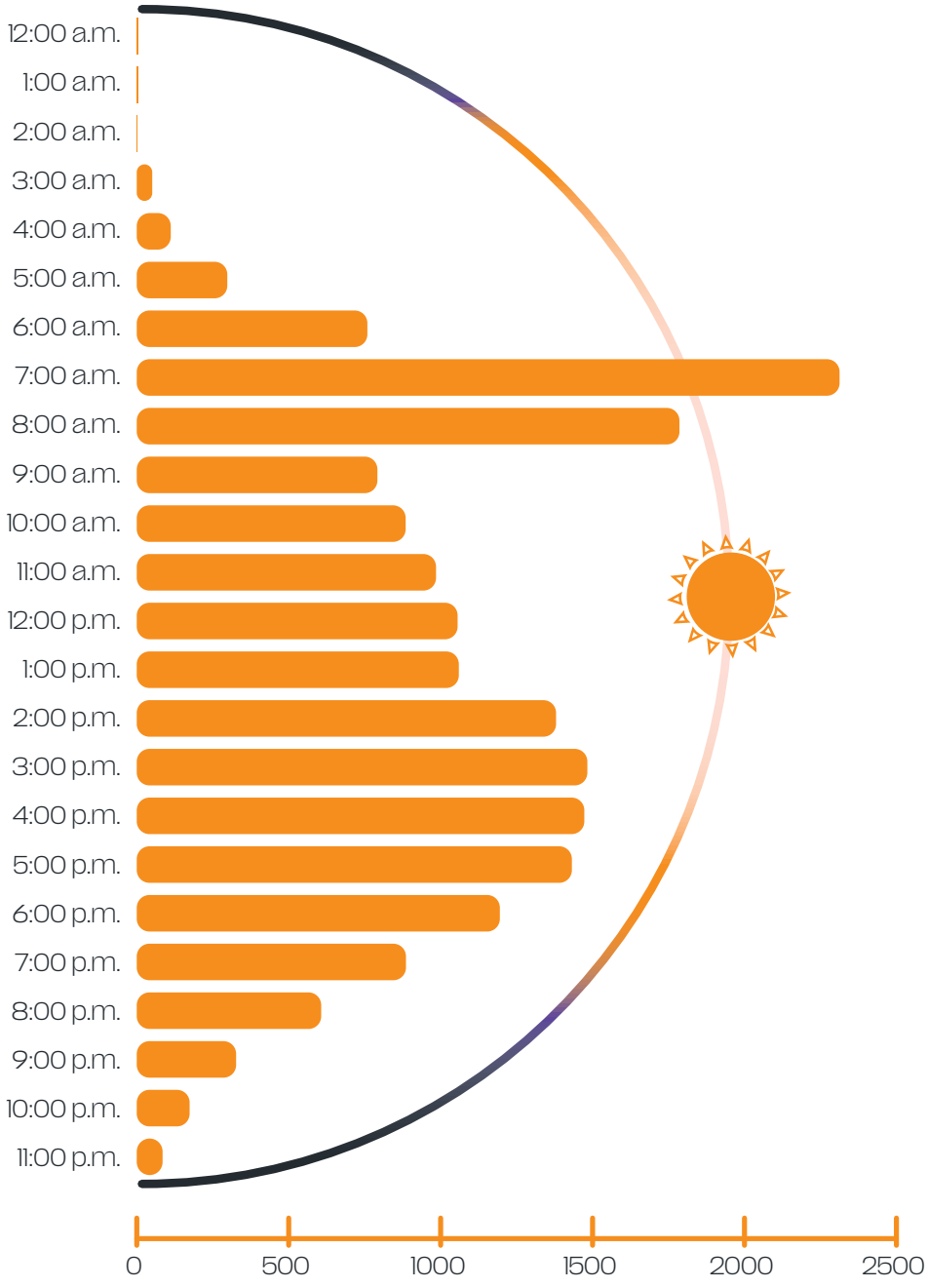
Regional Travel

About 40,000 additional trips leave the City of Lathrop to some other destination within San Joaquin County. 19,000 trips originate in Lathrop to Manteca each day.

There is a traditional commute pattern where more Lathrop residents travel to Manteca in the morning commute period than vice versa, suggesting Lathrop residents traveling to Manteca for work, school, and appointments.

Figure 19

Weekday Travel from Lathrop to Manteca by Time of Day



Travel to the Bay Area

Travel to San Francisco Bay Area communities represent a small but growing share of total travel demand from Lathrop. Additionally, Bay Area trips are some of the longest-mileage trips originating in the community. Single occupancy vehicle trips between Lathrop and the Bay Area increase vehicle-miles traveled (VMT) and carbon emissions at a greater rate than trips within the community. About 4,500 trips to the Greater San Francisco Bay Area originate in Lathrop each weekday.

Unlike intra-Lathrop trips, travel to the Bay Area is predominately work-based (Figure 21). Because of this, travel demand has a strong peaking pattern, with trips beginning in earnest as early as 5 a.m. and peaking by 7 a.m. (Figure 20).

Figure 20
Trip Starting Time, Weekdays to Bay Area

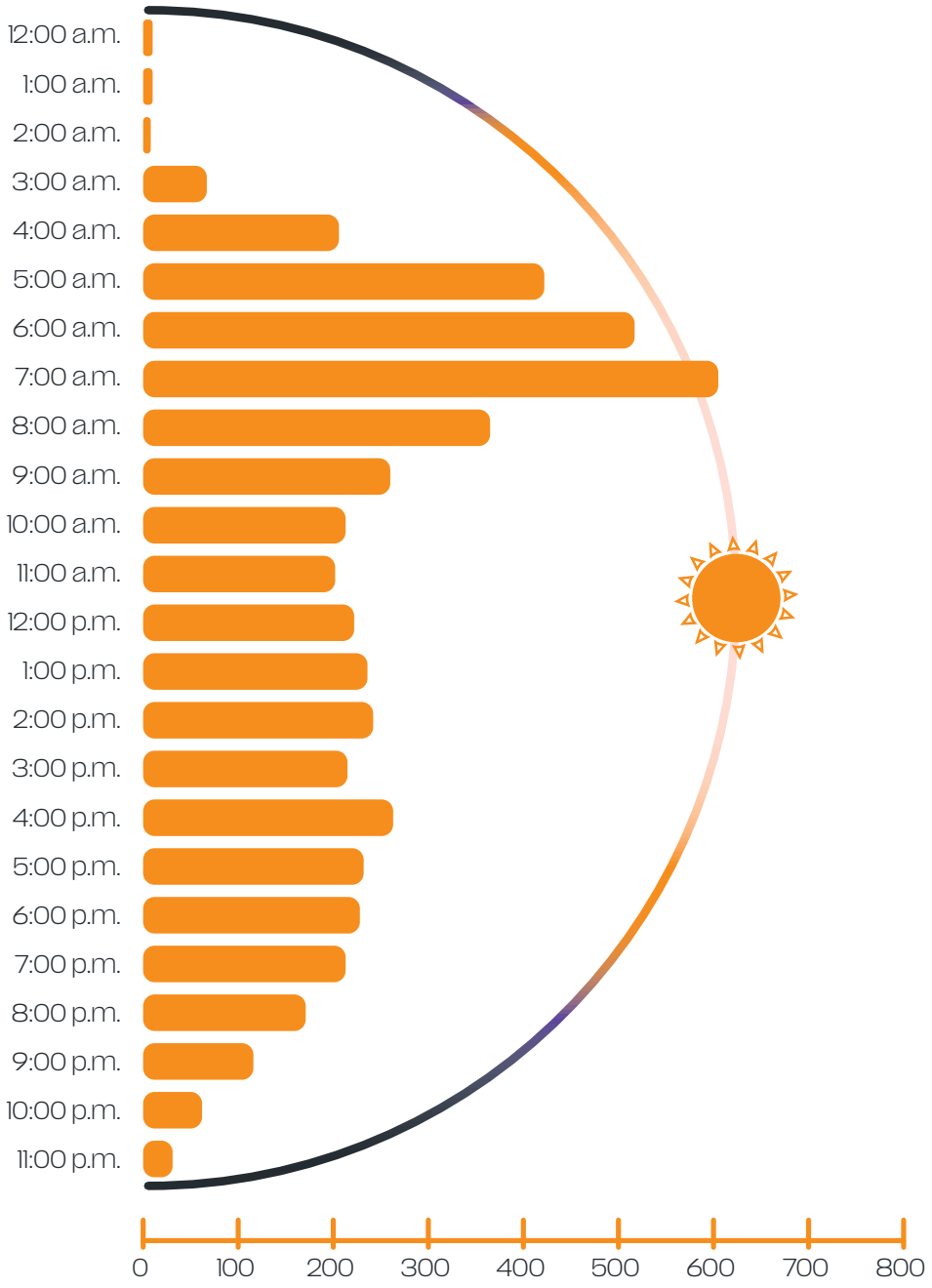
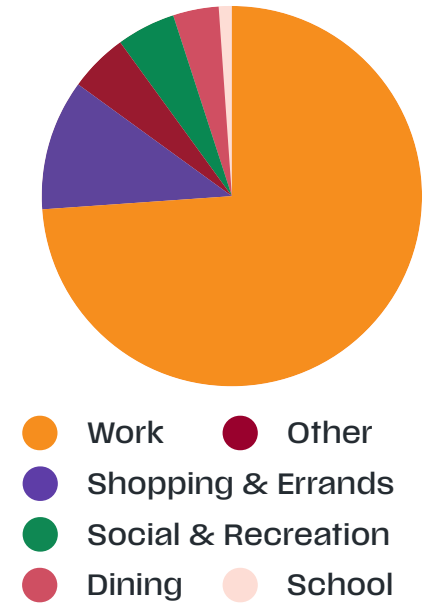


Figure 21
Lathrop to Bay Area Trips by Trip Purpose



Transit's Opportunity in Lathrop

Existing transit service operates to connect Lathrop with the broader region.

Infrequent, all-day service connects the community to Stockton, Tracy, and Manteca in San Joaquin County and peak-hour commuter service is offered to the San Francisco Bay Area and Modesto.

However, existing transit stops are built as park-and-rides and are often away from major destinations and residential areas within the community, limiting ridership potential and usefulness for local trips.

There is an opportunity to provide more focused local service in the City of Lathrop that connects residential areas with key destinations within the city, as well as providing connectivity to existing regional transit service operated by RTD, ACE, and others. This new service would have very little duplication with existing transit routes and could serve a wide variety of trip purposes, including school trips, employment, shopping, appointments, and recreation. Local trips within the community for these purposes account for 40% of total travel in and out of Lathrop, representing around 40,000 trips every weekday. Enhancing connectivity of regional services can help increase ridership on those services by feeding more trips into the transit system.

While there are opportunities to increase transit service across Lathrop, the neighborhoods east of I-5, especially between Louise Avenue and Lathrop Road, have the greatest indicators of transit propensity that can drive meaningful ridership, including a high concentration of seniors, lower income residents, and residents without a high school diploma. This neighborhood also has a denser, more connected street grid conducive to increased transit ridership. Employment sites south of Louise Avenue and east of I-5 are an additional region that could benefit from increased transit connectivity.

The substantial growth associated with the River Islands neighborhood buildout anticipated in the coming years will continue to put increased pressure on Lathrop's roadways. Commuters to the Bay Area from this neighborhood will also lead to further crowding at the Lathrop/Manteca ACE station parking lot. Multigenerational households and increasing variety of destinations may also increase all-day demand to River Islands.

Image: Fehr & Peers

Image: RTD

Section 2

Service Concept

Initial Draft Concept
Concept Refinement
Recommended Concept

Conceptualizing Transit in Lathrop

Transit service in a community like Lathrop can be delivered in different forms. Service goals and feedback from community members are important factors to consider to select an appropriate transit service delivery "mode".

The project team evaluated several alternatives including

- Fixed Route Local Bus Circulator System
- Expanding Commter and/ or Regional Bus Service
- Microtransit or Public Dial-a-Ride Service

Image: Fehr & Peers

Fixed-Route Local Bus Circulator System

A fixed-route local bus circulator system was the recommended concept chosen by the project team. Local circulators are the most appropriate to meet the needs of increased ridership that can be present at school bell times, as well as peak commuting hours connecting to other transit services, both of which were desired outcomes from the study. They also can fulfill the role of providing consistent and reliable transit around the city connecting residents to appointments, shopping, and recreation.

Expanding Commuter and/or Regional Bus Service

Another consideration was expansion of commuter and/or regional bus services. Regional bus services operate long distances connecting municipalities, and have traditionally focused on operating during rush hour periods to attract commuters. Regional bus services can be effective in providing an alternative to driving in communities far from large employment and civic centers. Expanded regional bus services were not advanced as recommended concepts through the study. The goals from community members and stakeholders of increasing transit options for circulation within the city is difficult to accomplish solely through regional buses. Additionally, Lathrop is already served by multiple regional transit. Given that these services have not recovered their ridership since the COVID-19 pandemic, it did not seem appropriate to recommended expanding these services at this time.

Microtransit or Public Dial-a-Ride Service

In some suburban environments microtransit or public Dial-a-Ride service has been successful in providing baseline mobility to seniors, people with disabilities, or others who prefer not to drive. Microtransit operates as a publicly administered and subsidized on-demand shared taxi service, similar to ride hailing apps like Uber or Lyft. Microtransit can expand transit access to lower density areas or areas without high transit propensity. However, microtransit was ultimately not advanced as a recommended concept through this study. On-demand transit can be overwhelmed during school bell times if school transportation is a desired transit market, such as in Lathrop. Additionally, community feedback favored expanded bus and rail services over on-demand service. This may be explained by a desire to have the consistency and reliability of a fixed transit schedule in more ex-urban communities, where residents may find ride-hailing services such as Uber being unavailable or less reliable.

Concept: Initial Draft

The following pages detail the initial concept plan developed by the project team and presented to the public for feedback.

The Red Route
(Lathrop Loop)

Service

30-45 minutes throughout the day connecting Central and East Lathrop to several key destinations.

Key Destinations

1. Lathrop High School
2. Lathrop City Hall
3. Lathrop Marketplace
4. Lathrop Senior Center, Community Center, & Valverde Park
5. Save Mart
6. Lathrop Generations Center

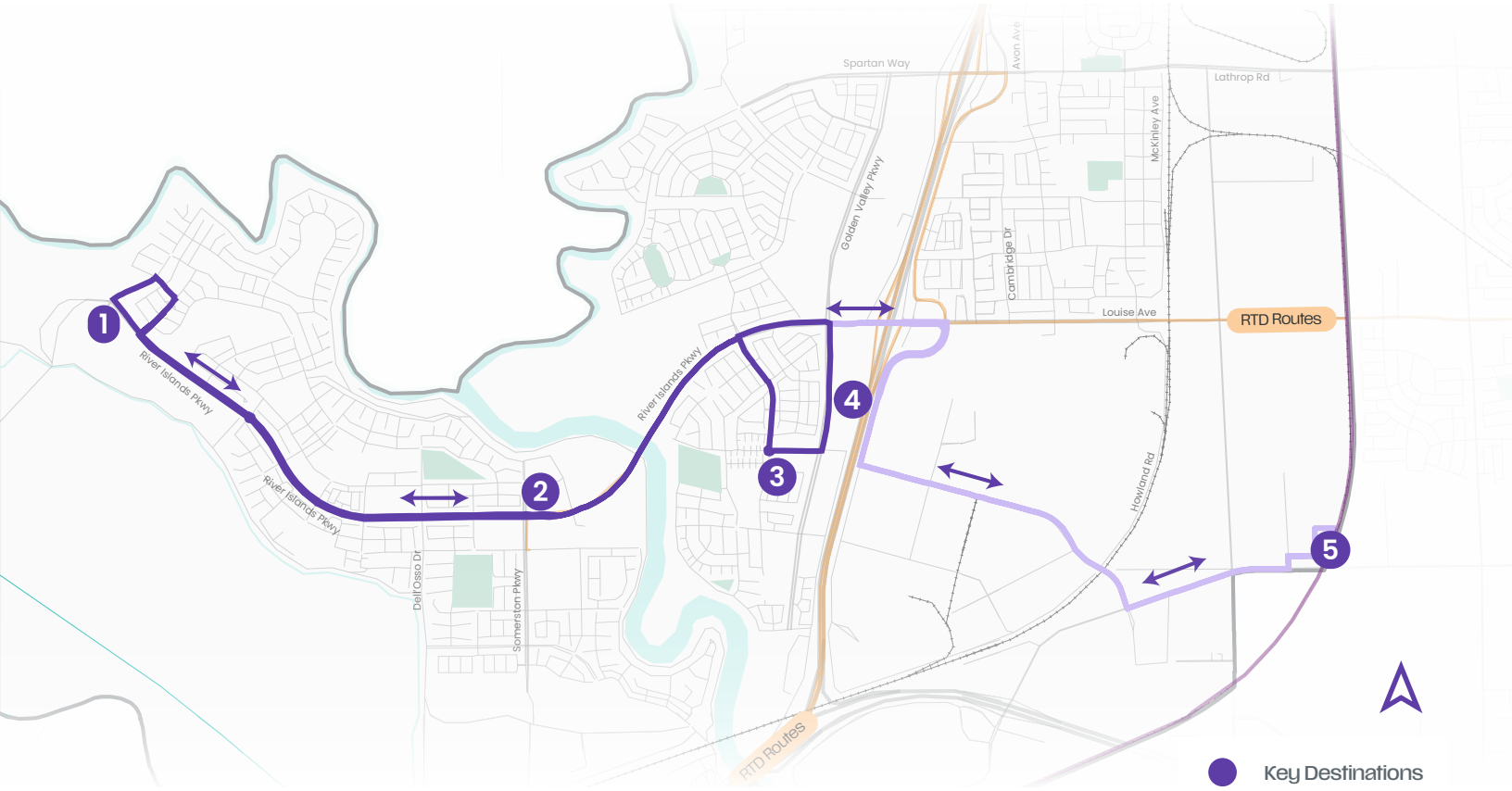
Connections to Existing Services

- RTD Route 90
- RTD Route 97
- RTD Route 150

Regional Destinations (via Connections)

- Stockton
- Manteca
- Tracy
- Bay Area

Concept: Initial Draft



The Purple Route
(River Islands Commuter)

Service

30-60 minutes throughout the day connecting the River Islands community to Central Lathrop and the Lathrop/ Manteca ACE Station. Note that service east of I-5 would operate during peak periods only to connect with ACE trains. During the middle of the day, service would only operate as far as Lathrop Marketplace.

Key Destinations

1. River Islands High School
2. River Islands Welcome Center & Recreation Area
3. Lathrop City Hall
4. Lathrop Marketplace
5. Lathrop/Manteca ACE Station

Connections between both routes at the Lathrop Marketplace would enable travel from River Islands to destinations such as Save Mart and the Lathrop Senior Center.

Connections to Existing Services

- RTD Route 90
- RTD Route 97
- RTD Route 150
- ACE Rail

Regional Destinations (via Connections)

- Stockton
- Manteca
- Tracy
- Bay Area

Concept Refinement

The fixed route concept underwent a review period throughout Fall 2024 by stakeholders and community members.

Initial reactions were positive, but a number of recommendations were received by the project team to tweak the routes for operational and service benefits.

Feedback was gathered through:

- Workshops with City staff and RTD
- Run times and schedule testing to ensure that frequency could be reliably met given the vehicles proposed to operate the service.
- An online survey promoted through social media channels which received responses from around 70 community members.
- Project information distributed to all Lathrop residents through a flyer in utility billing.
- Public meetings and tabling during the Lathrop Senior Fair

Table 1 summarizes key feedback received through these groups and the response of the project team made to address the feedback, or reasoning why the feedback could not be incorporated into the final concept.

Table 1 Public Feedback Received

Feedback	Addressed?	Explanation
Add more service to Stonebridge/North Lathrop	Yes	The project team extended the Red Route north to Warren Avenue instead of Shilling Avenue to provide more service closer to Stonebridge and North Lathrop.
Add service to Camino Real Mobile Estates mobile home park	Yes	The project team adjusted the River Islands midday routing to provide service along Harlan Avenue, including a stop near Camino Real.
Make the Red Route Two Way Loop	No	The project team evaluated a bi-directional loop on the Red Route, but this would double operating expenses and is not recommended or feasible at service launch. However, this recommendation will be considered in longer-term evaluations if more resources become available.
Extend the Red Route to Brookhurst Blvd. instead of Town Center Drive	No	Extending the Red Route to Brookhurst Boulevard would increase the travel time for the bus by several minutes, requiring an additional vehicle on the route and doubling operating expenses. This recommendation will be considered in longer-term evaluations if more resources become available. Access to Mossdale Elementary can be provided by a stop at Lathrop City Hall one block away.
Add more links between River Islands and Senior Center/ Central Lathrop	Yes	River Islands midday service was extended east of I-5 into Central Lathrop, providing enhanced for River Islands residents to the Save Mart, Senior Center, and Community Center.
Provide service to River Islands Farmers Market on Saturday	No	Saturday service to River Islands route was considered by the project team, but ultimately would result in a large operating cost increase for initial launch. This recommendation will be considered in longer-term evaluations if more resources become available.
Provide connections to Manteca/Tracy buses	Yes	Considerations were made to provide connections to existing transit options operated by RTD to Manteca and Tracy.
Provide more connectivity to new developments west/ south of River Islands HS (Del Webb)	Yes	River Islands routes were extended in a loop around River Islands High School, providing more connectivity to developments under construction along the perimeter of Enneking Drive, Paradise Road, and Steward Road.
Adjust timings to school bell times and ACE Trains	Yes	Timings were evaluated to ensure efficient connections to ACE trains and with school bells on all routes.

Additionally, members of the public provided the following feedback about the proposed service:

- 70% of respondents were interested and would use the Red Route at least some of the time
- 93% of respondents were interested and would use the Purple Route at least some of the time
- Lathrop Marketplace was the top destination indicated for both routes
- 62% of respondents indicated a preference for increased service span on weekdays over providing weekend service
- 60% of respondents indicated a preference for an earlier start time in service over service running later in the day.

Concept: Recommended

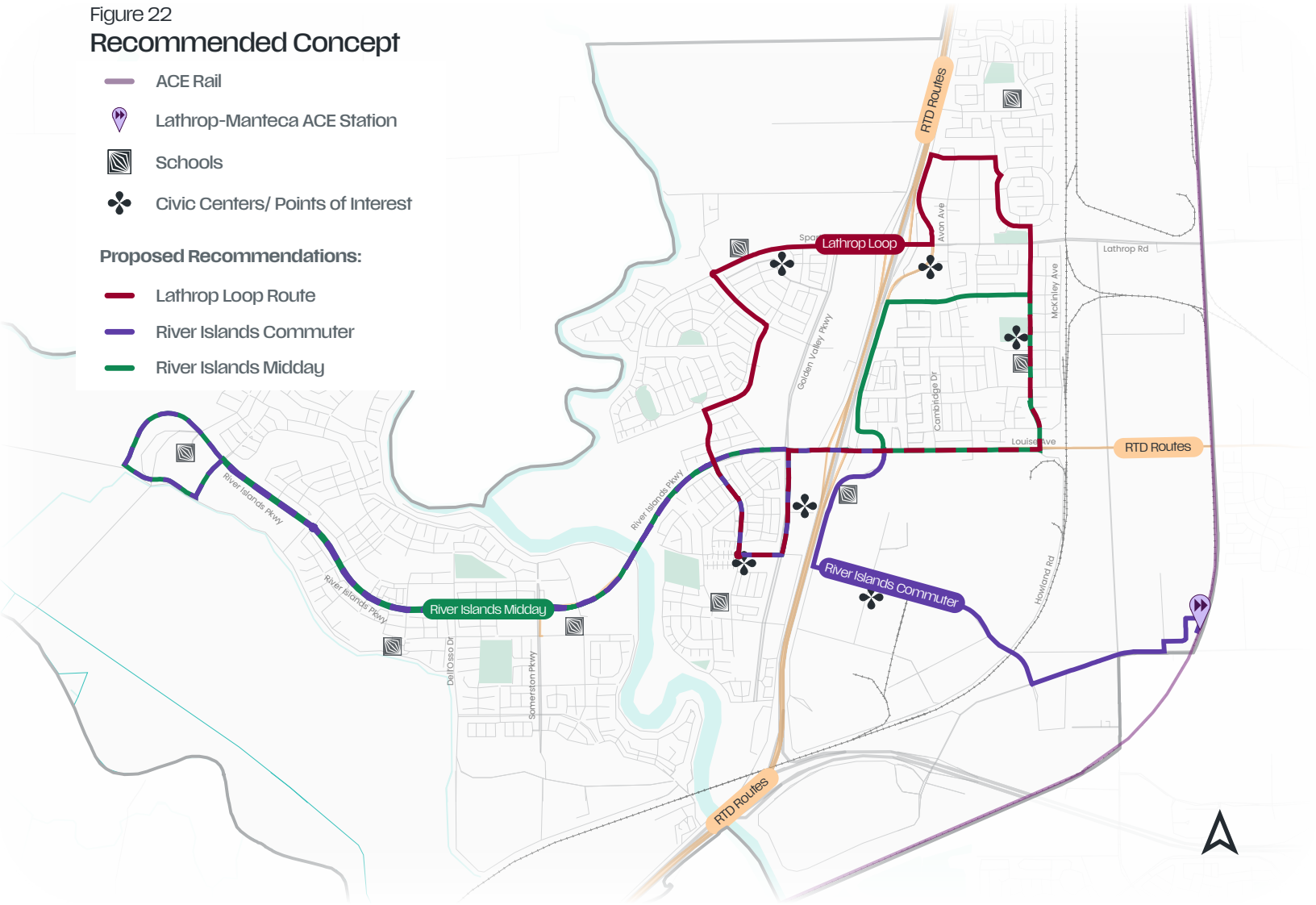
The final recommended concept developed by the project team and presented to the public for feedback is available in Figure 22 below.

Increasing Access to Transit in Lathrop

The recommended service concept would greatly improve access to public transit within the City of Lathrop for residents and visitors. Percentage within half mile (ten-minute walk) of transit under recommended service concept:

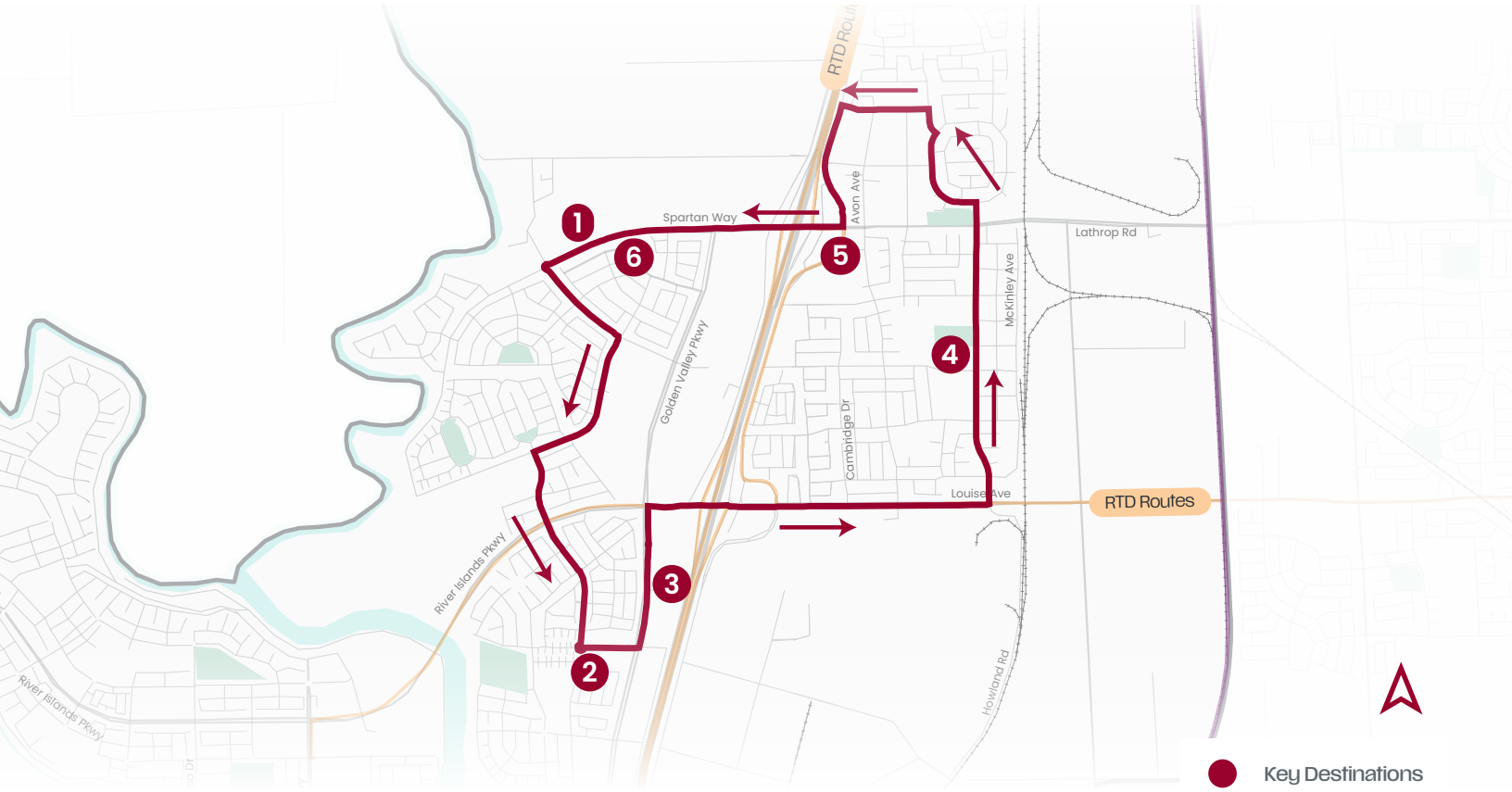
- 70% of Lathrop residents, up from 25% today
- 57% of jobs in Lathrop
- All 12 K-12 public schools within the City
- 83% of supermarkets/ grocery stores
- Connections to all existing regional transit services

Figure 22
Recommended Concept



Concept Recommended

The following pages detail the recommended concept routes.



The Red Route
(Lathrop Loop)

Service

Counterclockwise every 30 minutes throughout the day connecting Central and East Lathrop to several key destinations.

Note: The project team considered several options to directly connect the Red Route with the existing Lathrop Save Mart RTD stop. Due to the surrounding street network however, substantial deviation was required to serve both the Save Mart stop and the high school. As such, the team elected to serve the Save Mart area with a new stop on Harlan Road at the north side of Lathrop Road.

Key Destinations

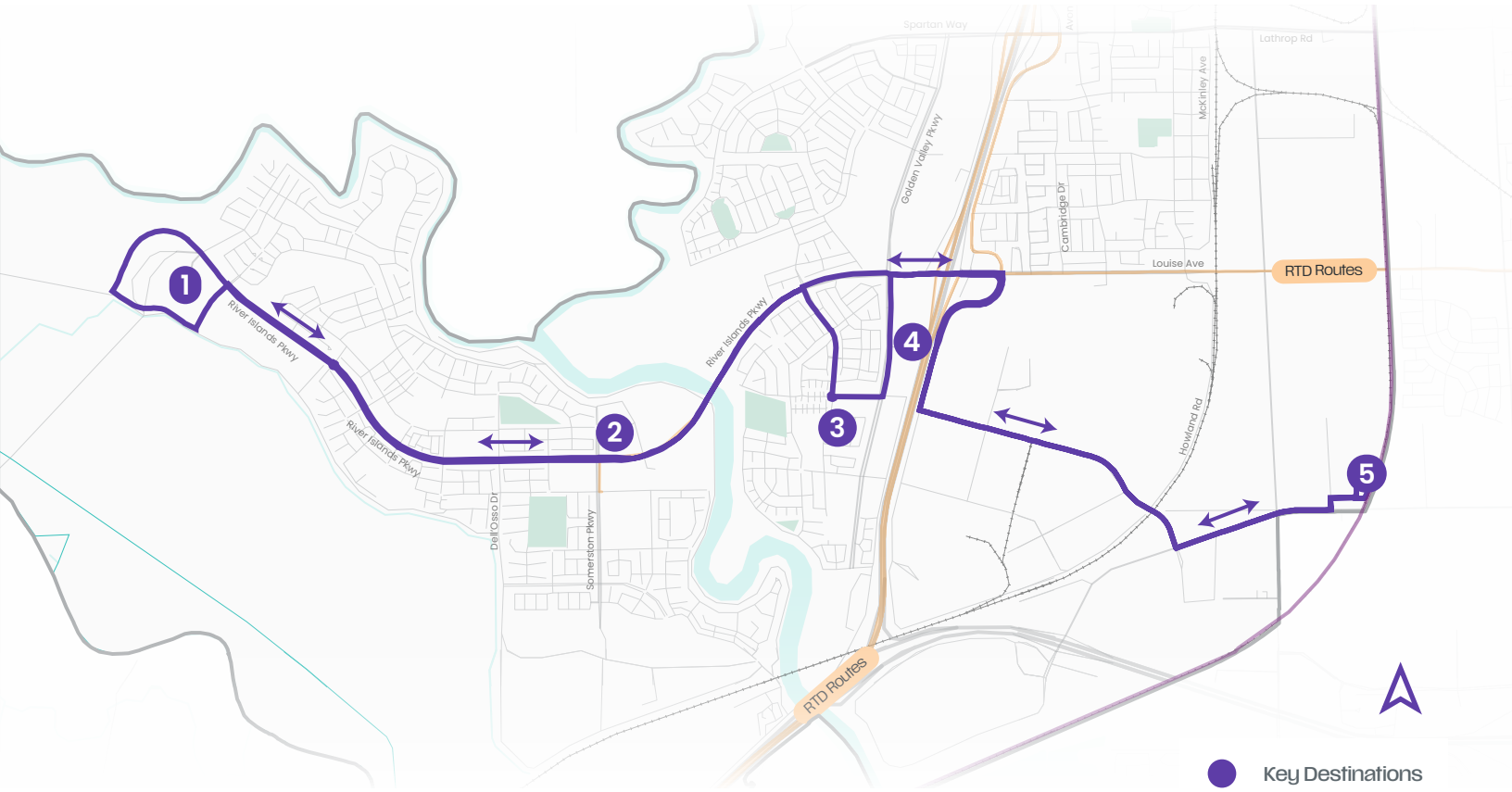
1. Lathrop High School
2. Lathrop City Hall
3. Lathrop Marketplace
4. Lathrop Senior Center, Community Center, & Valverde Park
5. Save Mart
6. Lathrop Generations Center

Transit Connections

- RTD Route 90
- RTD Route 97
- RTD Route 150

Changes from Draft Concept

An extension to Warren Avenue instead of Shilling Avenue in north Lathrop was added to provide better access to Stonebridge and better visibility for left turn onto southbound Harlan Road.



The Purple Route
(River Islands Commuter)

Service

60 Minutes during peak hours, roughly 5:30 a.m.-8:30 a.m. and 5:00 p.m.-8:00 p.m., connecting the River Islands community to Central Lathrop and the Lathrop/Manteca ACE Station. Connections at ACE will be timed with ACE Trains.

Key Destinations

1. River Islands High School
2. River Islands Welcome Center & Recreation Area
3. Lathrop City Hall
4. Lathrop Marketplace
5. Lathrop/Manteca ACE Station

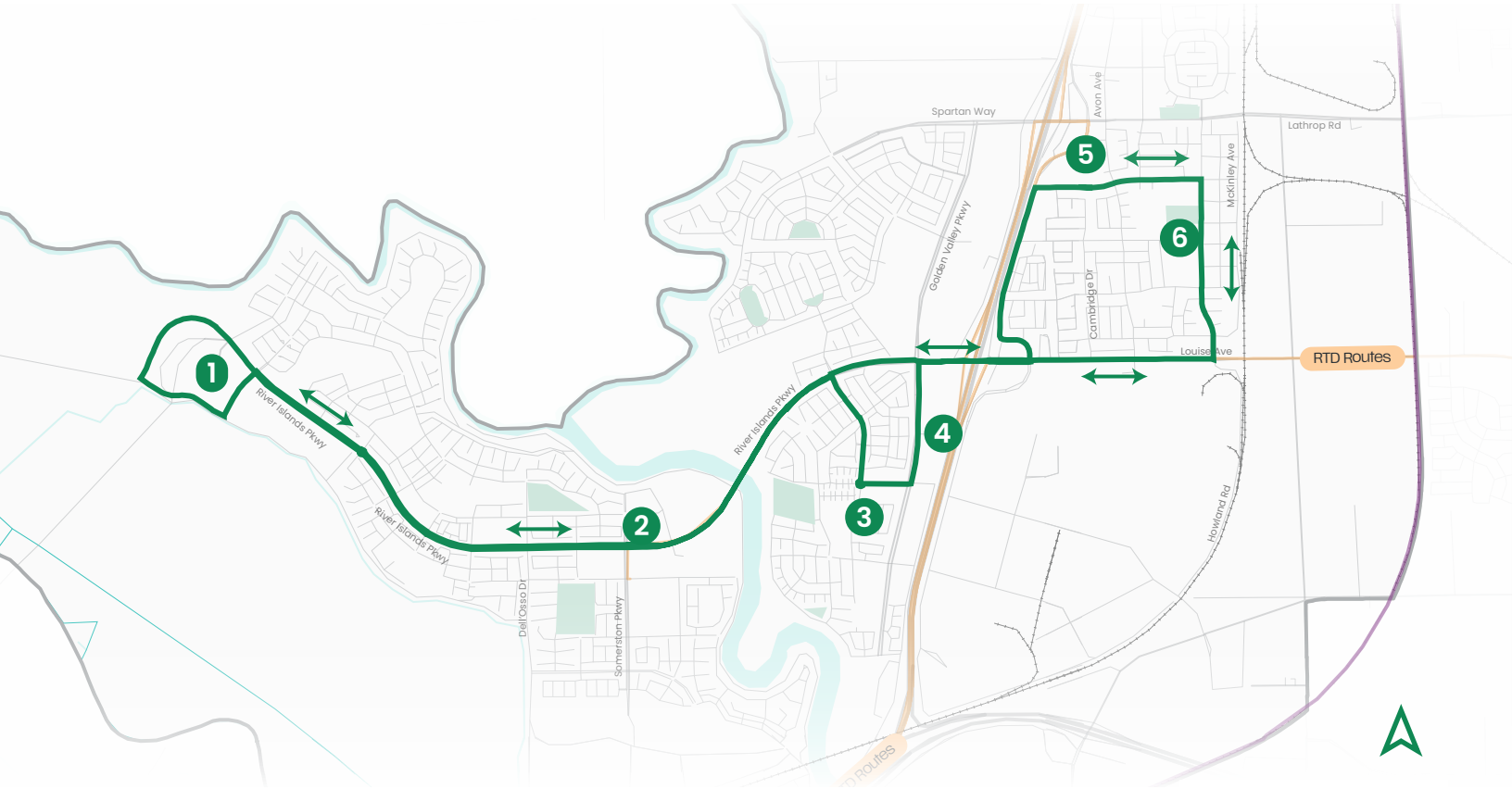
Transit Connections

- RTD Route 90
- RTD Route 97
- RTD Route 150
- ACE Trains
- Manteca ACE Commuter
- StanRTA Route 70

Changes from Draft Concept

Minor timing changes were made to better connect with the ACE schedule.
Midday service was removed to the new Green Route.

Concept Recommended



The Green Route
(River Islands Midday)

Service

Service every 60 minutes outside of peak hours between roughly 8:30 a.m. and 4:30 p.m., when the Purple Line is not operating. It connects the River Islands community to Central Lathrop and Eastern Lathrop, including Save Mart and the Lathrop Senior Center, providing a clockwise loop along Harlan Road, J Street, and 5th Street.

Key Destinations

1. River Islands High School
2. River Islands Welcome Center & Recreation Area
3. Lathrop City Hall
4. Lathrop Marketplace
5. Lathrop Save Mart
6. Lathrop Senior Center, Community Center, & Valverde Park

Transit Connections

- RTD Route
- RTD Route 90
- RTD Route 97
- RTD Route 150

Changes from Draft Concept

This route was added from the draft concept as an extension of the midday River Islands service in order to reduce confusion regarding the operating patterns and to better connect destinations such as the Senior Center with River Islands.

Schedules Coordinated for Seamless Service

Creating a transit schedule generally requires trade-offs when creating the most convenient connections, as competing priorities such as multiple connecting transit services, school times, and internal connections often can't all be accommodated in the same schedule. Per community feedback, connections to ACE trains for the Purple Route, RTD buses for the Red Route, and school bell times for all routes were most important to consider when scheduling.

The draft Purple Route schedule would operate roughly every 60 minutes, with three round trips in the morning and three in the evening to connect with ACE trains at the Lathrop/Manteca, along with other regional services timed to meet those trains. Table 2 provides a snapshot of the approximate times that the Purple Route will operate and intended connecting trains.

Table 2 Purple Route ACE Train Connectivity

Depart River Islands HS	Arrive ACE Station	Train Departure/ Arrival Time	Depart ACE Station	Arrive River Islands HS
5:25 a.m.	5:49 a.m.	**5:54 a.m.**	6:03 a.m.	6:25 a.m.
6:25 a.m.	6:49 a.m.	**6:59 a.m.**	7:00 a.m.	7:22 a.m.
7:22 a.m.	7:46 a.m.	**7:51 a.m.**	7:55 a.m.	8:17 a.m.*
4:56 p.m.	5:20 p.m.	**5:23 p.m.**	5:25 p.m.	5:47 p.m.
5:56 p.m.	6:20 p.m.	**6:23 p.m.**	6:25 p.m.	6:47 p.m.
6:56 p.m.	7:20 p.m.	**7:23 p.m.**	7:25 p.m.	7:47 p.m.

*Final inbound purple route trip also provides access to River Islands HS first bell time at 8:30 a.m.

As mentioned in the table above, the final morning Purple Route trip is timed for the first bell at River Islands High School. Green Route service will leave hourly from River Islands High School at 45 minutes past the hour (8:45 a.m., 9:45 a.m., and so on) between 8:45 a.m. and 3:45 p.m. in order to provide connections to dismissal times at 1:32 p.m./3:30 p.m. on most school days while also providing access to a full programming schedule at the Senior Center.

The Red Route will operate on 30-minute frequencies leaving Lathrop High School at 15 and 45 minutes past the hour. This will allow for connections with other transit services with minimal wait at the Lathrop Marketplace, along with provide connections to arrival and dismissal bell times at Lathrop High School while avoiding peak congestion that occurs within just before bell times.

Bus Stops at Launch

In order to operate the recommended concept, around 50 new bus stops are recommended in the City of Lathrop. These generally include short term improvements such as a passenger landing pad for accessibility and a standard pole and sign in the short term, but may be upgrade with more amenities in the longer term.

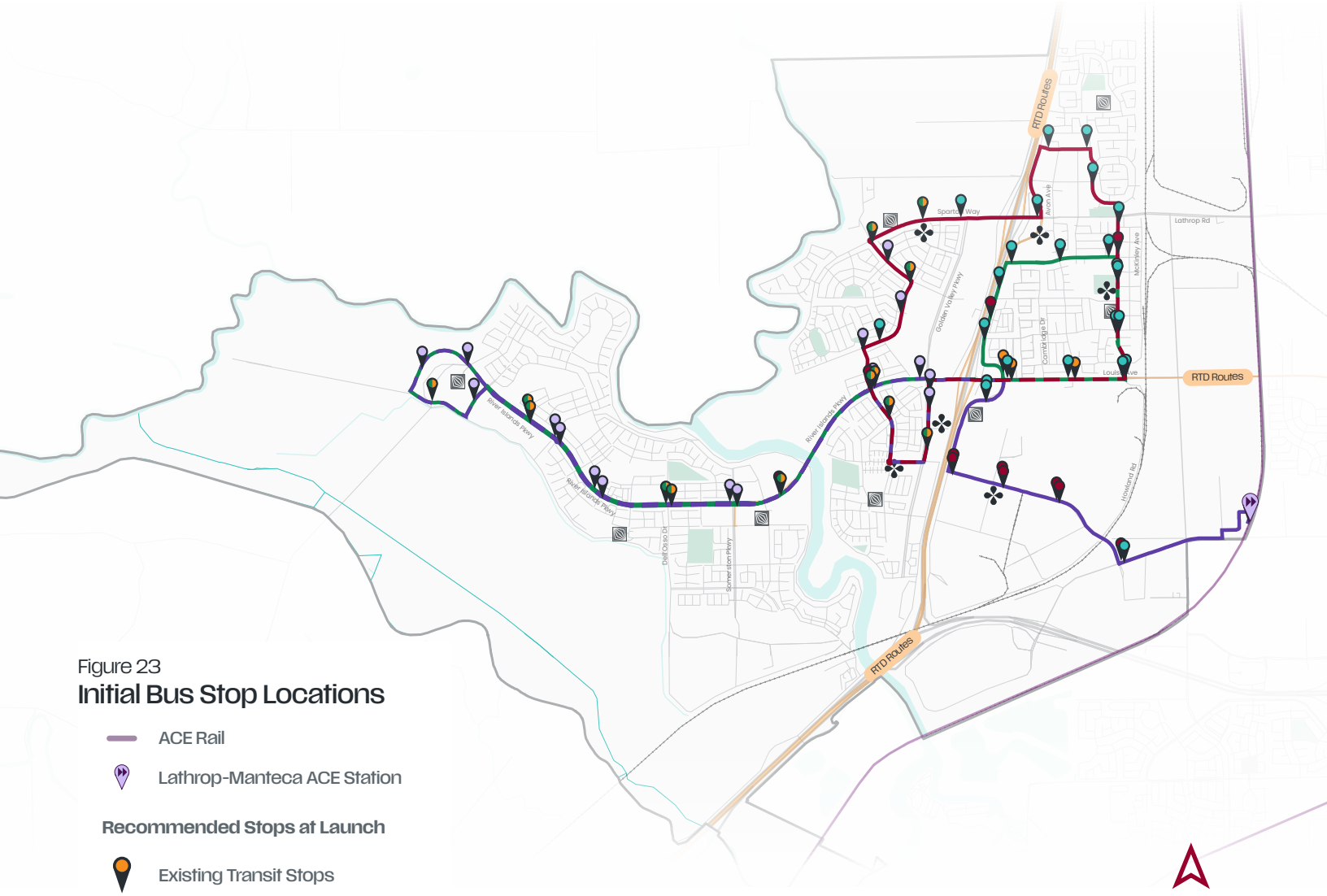


Figure 23
Initial Bus Stop Locations

- ACE Rail
- Lathrop-Manteca ACE Station

Recommended Stops at Launch

- Existing Transit Stops
- Adequate Stop Location
- Adequate Stop Location (with existing turn-out)
- Minor Improvements Needed
- Major Improvments Needed

Initial bus stops locations were chosen in order:

1. Stop locations roughly one-quarter mile apart, the preferred spacing for local transit
2. Convenience of connections to nearby destinations and access to crosswalks, traffic signals, and other pedestrian improvements
3. Maximize existing RTD stop locations and infrastructure
4. Include locations with an existing curb and sidewalk for accessibility
5. Prioritize existing turn-outs built as a part of development approval along many streets that the proposed transit network is expected to travel on

The bus stop breakdown includes:

- Four existing RTD/transit bus stops
- 22 bus stops requiring minimal signing/striping (bus stop sign, no parking sign)
- 13 bus stops at existing turn-out locations requiring a bus stop sign
- 16 bus stops requiring minor improvements, such a landing pad connecting the curbside area to the existing sidewalk

More information about the required capital outlay for these short-term improvements is available in the implementation guide. Additionally, longer term capital improvements intend to add stop locations where more curb and gutter work is required or where a sidewalk is not present, such as along D'Arcy Parkway at the Purple Route. These stop locations can also be found in the implementation chapter of this report.

Image: RTD

Anticipated Ridership - Peer City Comparison

To better understand how a future service may perform, it is often useful to evaluate existing services that are similar in local context and service type. Three communities in San Joaquin County operate their own fixed-route transit service at a scale and scope similar to the recommended concept in Lathrop and were selected for ridership analysis.

The three circulator services selected are:

- TRACER (City of Tracy)
- Manteca Transit (City of Manteca)
- GrapeLine (City of Lodi)

While these cities share some similarities with the City of Lathrop, there are marked differences in terms of population, land-use, travel behavior, pedestrian infrastructure, city block size, and more. Some of the differences can be normalized by comparing demographic differences that may impact transit propensity and ridership. The demographic and built environment differences are outlined in Table 3 below.

Table 3 Peer City Demographic Characteristics

Jurisdiction	Compared to Lathrop Demographics				
	Population	Median HH[1] Income	Jobs	Population Under 18	Population 65+
City of Tracy	0.41	0.97	0.30	0.45	0.42
	98,010	$111,717	39,813	26,071	9,507
City of Manteca	0.44	1.21	0.64	0.51	0.33
	91,059	$89,966	18,723	23,038	12,384
City of Lodi	0.59	1.39	0.50	0.68	0.40
	67,679	$78,468	23,726	17,326	10,016

Data Source: ACS, 2022; LODES, 2021
Notes
1. Household
2. The first row for each service indicates the multiplier compared to the City of Lathrop
3. The second row for each service indicates the total demographic total

Ridership and operating data of the respective city agencies was obtained through the National Transit Database (NTD), a national repository of service providers through the Federal Transit Administration. The operating characteristics of each peer city are shown below in Table 4. Note that this data is for fixed-route transit service only.

Table 4 Peer City Ridership & Operating Characteristics

Name	Jurisdiction	Vehicles	Approximate Passengers per Revenue Hour	Span	Headways
TRACER	City of Tracy	9	4.2	Mon-Fri: 6:30 a.m. - 6:00 p.m. Saturday: 9:00 a.m. - 6:00 p.m.	Mon-Sat: 30 - 60 minutes
Manteca Transit	City of Manteca	4	3.8	Mon-Fri: 6:00 a.m. – 6:00 p.m.	Mon-Fri: 60 minutes
GrapeLine	City of Lodi	8	8.1	Mon-Fri: 6:30 a.m. - 7:30 p.m. Saturday: 7:30 a.m. – 6:30 p.m. Sunday: 7:30 a.m. – 3:30 p.m.	Mon-Sun: 60 minutes

Data Source: Data obtained from National Transit Database, 2023

Weighting off of several characteristics, it is expected that the recommended route concept for Lathrop would get around five riders per service hour (Table 5). Note that transit services nationwide have seen ridership increases since 2022, so this value represents the lower end of ridership that the recommended concept would expect to see.

Table 5 Weighted Averages of Selected Transit Propensity Demographics in Peer Cities Relative to Lathrop

Name	Jurisdiction	Riders[1] per 100k Pop	Riders[1] per $100K Household Income	Riders[1] per 100K Jobs	Riders[1] per 10K Under 18 Population	Riders[1] per 10K 65+ Population
TRACER	City of Tracy	4.29	3.76	10.55	1.61	4.42
Manteca Transit	City of Manteca	4.17	4.22	20.30	1.65	3.07
GrapeLine	City of Lodi	11.97	10.32	34.14	4.68	8.09
Estimated Average Passengers per Hour (Based on rounded weighted average)						5

Notes
1. Riders are average riders per service hour
2. Service population is defined as the total residents plus the total jobs

For more information on ridership and cost estimates, please visit the implementation guide to this report.

Image: City of Lathrop

Section 3

Implementation Guide

Organization Philosophy
Concept Operating Costs
Fleet Plan & Costs
Bus Stop Improvement Costs
Other Considerations
Implementation Timeline & Cost Schedule

Organization Philosophy

The recommended operator has a large impact on capital costs and ease of pilot implementation & service startup.

The project team considered several different recommended operators for the proposed transit concept, including RTD, the City of Lathrop, or a separate contract operator. Ultimately, the project team recommends that RTD be chosen to operate the service.

Having RTD operate the proposed Lathrop routes will yield benefits including:

- Access to the existing RTD fleet, facilities, and planning departments, resulting in reduced startup and administrative costs for the City of Lathrop
- As the countywide transit operator, RTD has economies of scale in areas such as procurement and general administration that a smaller operator like an independent Lathrop would not have, leading to long term cost efficiencies
- Integration into the existing RTD network will improve the customer experience and make transfers between Lathrop routes and regional routes more seamless, increasing ridership on both the Lathrop and broader RTD system
- Familiarity of Lathrop residents with RTD branding and RTD as a transit operator

Even as Lathrop will almost certainly be a funding partner through a cost sharing agreement, it is strongly recommended that the City forgo the expense and hurdle of setting up an in-house department to operate or administer a contract

Image: RTD

Concept Operating Costs

The primary cost factor in fixed-route planning is revenue hours, the total number of hours a service is available to passengers. For any fixed-route service, revenue hours are a function of span (when) and frequency (how often) the transit vehicle comes. The cost to operate the fixed-route concept was estimated at $227 per revenue hour, based on existing RTD operating costs in the National Transit Database for light-duty transit vehicles such as cutaways proposed to be operated on the service. This rate includes all direct operating costs such as drivers, maintenance, and supervision of the service, but does not include startup costs such as vehicle procurement, marketing, or planning time to manage the service.

As mentioned in the prior schedule, the concepts focus on school-oriented service and connections to regional transit, much of which only runs on weekdays. Therefore, it is proposed that the operating concept initially run on weekdays only.

- The Purple Route will operate between approximately 5:30 a.m. and 8:30 a.m. and between 5:00 p.m. and 8:00 p.m.
- The Green Route will operate between approximate 8:30 a.m. and 5:00 p.m.
- The Red Route will operate between 6:00 a.m. and 6:00 p.m.

Additionally, six holidays are budgeted each year where service will not operate. ACE trains do not operate on these six holidays, and these dates coincide with times when school is not in session and there are closures at many employment locations and public buildings.

The span of service above and frequency of routes described in the concepts section, along with cost inputs, generates an annual proposed operating cost of around $1.53 million, as detailed in Table 6 below. The Red Route will cost approximately $692,000 (45%), the Purple Route approximately $346,000 (23%), and the Green Route approximately $490,000 (32%).

Table 6 Proposed Concept Estimated Operating Costs

Service Day	Days per Year	Buses[1]	Daily RVH	Annual RVH	Annual Cost @ $227[2]/RVH
Monday	50	2	26.5	1,325	$301,000
Tuesday	52	2	26.5	1,378	$313,000
Wednesday	52	2	26.5	1,378	$313,000
Thursday	49	2	26.5	1,299	$295,000
Friday	51	2	26.5	1,352	$307,000
Total	**254[3]**	**2**		**6,731**	**$1,529,000**

Notes
1. Bus cost based on a light-duty Cutaway model. Spare vehicles would be sourced from the RTD spare pool.
2. Operating and maintenance costs per hour in service for FY 2023.
3. Assumes no service on New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, and Christmas Day.

Fleet Plan & Costs

Given the anticipated operating environment, expected passengers per revenue hour, and existing transit service performance, the project team recommends utilizing a Cutaway-style bus (below) for concept launch.

RTD currently operates 26 Cutaway buses in Hopper service, including 22 assigned to County operations. These buses have room for 19 passengers, include bike racks, and are fully accessible with spaces for passengers using wheelchairs. Depending on fleet utilization, two of these existing buses may be used to begin operations on the proposed Lathrop concept.

If new buses are required, Cutaways when purchased new, generally cost around $250,000 each when fully equipped.

22 of the oldest Cutaways in the fleet are proposed for fleet renewal between FY 2025 and 2028 in the RTD planned fleet purchases as they near the end of their useful life, at a rate of roughly seven per year. If a dedicated fleet of Cutaways for Lathrop service is needed, it could be included in these procurements, potentially at a discount compared to purchasing two buses individually. Cutaways are not available commercially in battery electric form as of the publication of this study in 2024, and therefore a gasoline or hybrid Cutaway is recommended until sufficient options for zero-emission Cutaways are available.

One downside of Cutaways is their reduced capacity at peak hours due to their inability to accommodate standing passengers. This can be particularly impactful on successful services at school bell times or factory shift changes. Post-implementation, crowding should be evaluated on all services within the proposed concept to ensure that vehicles are able to meet demand. All routes are able to be operated with larger 30, 35, or 40 foot buses if needed.

Image: RTD

BYD currently manufactures a battery electric 30 foot heavy duty transit bus, the K7M, which can accommodate standees. Gillig, an existing RTD supplier, also manufactures 30-, 35-, and 40- foot heavy duty buses. However, only the 35 and 40 foot versions are offered with battery-electric and hybrid powertrain options. These buses are more expensive in terms of upfront capital outlay, generally priced at over $800,000 for hybrid versions and upwards of $1.1 million for battery electric versions when fully equipped. Therefore, they should only be considered for this service if cutaway capacity is insufficient for service demand. RTD may have additional 40 foot buses in the fleet that could operate the service in the interim if more capacity is needed until additional 30 or 35 foot buses could be procured. For more information about the Fleet Plan, please see the matrix (Table 7) below.

Table 7 Fleet Sourcing Trade-offs Matrix

Fleet Sourcing Strategy	Description	Benefits	Challenges
Acquired by City of Lathrop	Vehicles would be purchased by the City of Lathrop with City funds. Vehicles would be operated through a contract mechanism with an operating agency, such as RTD.	• Dedicated Lathrop fleet could be outfitted with the features and specifications desired by the city. • Dedicated LTF transit funds are already available to assist with vehicle purchase.	• Lathrop-owned assets stored at a non-Lathrop facility could create contracting challenges. • If service did not move beyond a pilot period, the city would have to sell the vehicles. • An extra vehicle may have to be purchased for a spare. • Would have to carry commercial vehicle insurance for passenger buses which is likely different than the existing commercial insurance.
New or Used Fleet Acquired by RTD	Vehicles would be purchased by RTD for the service. This may include a standalone order or an addition to a planned RTD order. Buses could be leased or acquired used to reduce upfront costs.	• Divides financial burden from a cost sharing agreement negotiated between RTD and Lathrop. • Vehicles would be standardized to fit RTD specifications for use on any route. • RTD spares could be used.	• Funding would need to be secured from grants and/or the RTD budget. • If the service were discontinued, RTD would be left with extra vehicles exceeding the typical spare ratio.
Existing/retiring RTD fleet	RTD would use existing or retiring fleet to operate a pilot service. Depending on the success of the pilot, new vehicles could be purchased.	• Low initial fixed cost as utilizing existing fleet. • Existing RTD spares could be used	• Operating vehicles beyond useful life may incur excessive maintenance costs. • The RTD fleet may already be operating at maximum utilization.

Bus Stop Improvement Costs

As only a small number of existing bus stops are utilized by the proposed concept, some capital investment will be required across the system to ensure bus stops are properly signed and for accessibility for passengers with limited mobility or utilizing a wheelchair.

Table 8 shows each stop categorization, the nature of each improvement needed at the stop, and the estimated cost.

For a map of all stop locations, please see Figure 23.

Near-Term Stop Improvements

The total capital improvement costs across all near term stops is approximately $270,000. Given the higher line item cost of stops with additional landing pad spaces needed, a priorized ranking of these locations is available below based on stop proximity to other stops, destinations, and ridership potential. Ultimately, it is recommended that all stops in the table receive the improvement prior to service launch. However, given the higher cost and potential need to negotiate with homeowners associations or land owners, this may not be totally feasible for this category.

Stop Priorization Ranking for Stops Needing Minor Landing Pad Improvements

1. Lathrop Marketplace
2. River Islands Parkway/Golden Valley Parkway
3. River Islands Parkway/Walera Drive
4. River Islands Parkway/McKee Boulevard
5. River Islands Parkway/Somerston Parkway (WB+EB)
6. River Islands Parkway/Sidwell Drive (WB+EB)
7. McKee Boulevard/Barbara Terry Boulevard
8. River Islands Parkway/Norbeck
9. Barbara Terry Boulevard/Sierra Mar Road
10. Stanford Crossing/Isidore Way
11. River Islands High School Loop Stops (2x)

Table 8 Near-Term Bus Stop Improvements

Stop Type	Number of Stops	Nature of Improvements	Estimated Cost (Per Stop)	Estimated Cost (Total)
Existing RTD Stops	4	• Update bus stop flag	$100	$400
Existing Lathrop Bus Turn-Outs	16	• Bus stop flag & pole	$1,000	$16,000
Adequate Stop Locations	13	• Bus stop flag & pole • Red curb	$1,000	$13,000
Additional Landing Pad Space Needed	16	• Bus stop flag & pole • Landing pad pavement or pavers across landscaping	$15,000	$240,000
Total	**49**	-	-	**$269,400**

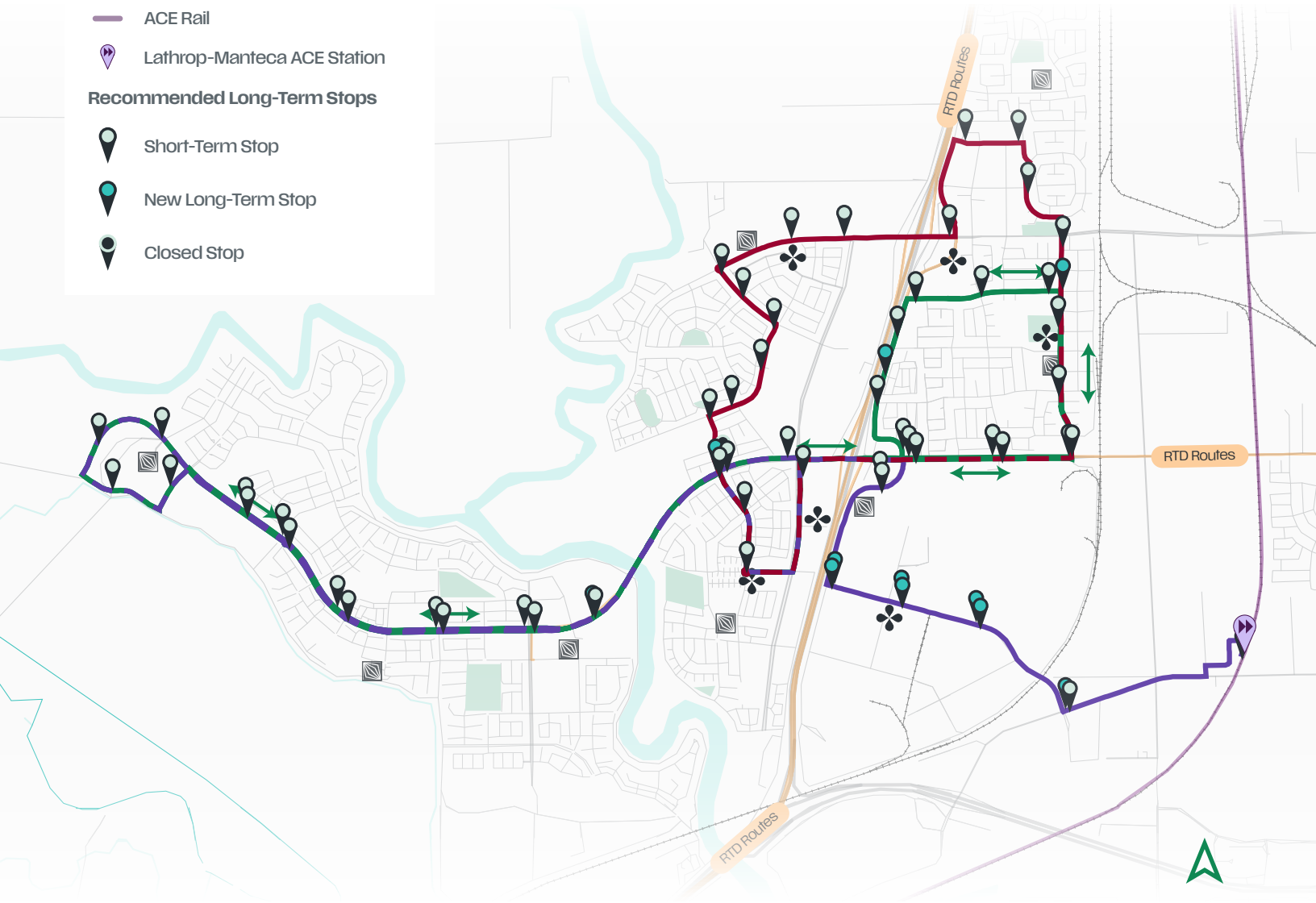
Long-Term Stop Improvements

In the longer-term after service launch, a number of furthur stop improvements are proposed to increase access, particularly along D'Arcy Parkway near Tesla. These stops require curb & gutter work and sidewalk/walkway construction alongside a landing pad, increasing the cost substantially as well as the coordination required between the city and adjacent property owners. These 11 stops will likely cost anywhere from $300,000 and up to implement, or at least $3.3 million to implement in their entireity. Cost sharing agreements may be reached with adjacent commercial landowners depending on their interest.

The location of these long-term stops is available in Figure 24 on the next page.

Figure 24

Long-Term Stops



Other Considerations

ADA Compliance and Paratransit

An additional component of the ADA is that the proposed concept will require the addition of complimentary paratransit, required within ¾ of a mile of all fixed route service during the hours that the route is operating. This service is required for individuals who cannot use the fixed route system due to a disability and individuals may be required to qualify for the service.

Existing RTD service in Lathrop is either commuter/express oriented or deviated fixed-route in the case of the county hoppers, both of which are exempt from the complimentary paratransit requirement. Circulator-style fixed route service such as the proposed concept does require it.

Lodi, Manteca, and Tracy all operate complimentary paratransit alongside their fixed-route service system. Table 10 shows the average number of riders the complimentary paratransit service can expect when scaled to population and service hours. The estimated cost per trip is from RTD's current cost per paratransit trip operated.

Using a weighted average, the proposed concept in Lathrop can be expected to generate about 5,700 complimentary paratransit trips annually. At the current RTD cost of around $80 per paratransit trip, this represents an additional operating cost of $456,000 per year that must be accounted for in budgeting proposal.

Paratransit service does not need to be delivered by the same provider as fixed route service, in this case RTD. Lathrop could contract the service with either RTD Metro Stockton paratransit operations, or look to see if the city can join the nearby communities of Manteca or Tracy who provide complimentary paratransit with their fixed route systems. Ultimately, this would require deadheading (operating empty) for any trips for varying distances generally between 10 and 15 miles for any provider.

Alternatively, RTD could contract local/regional taxi or private shuttle provider that provide accessible van services. RTD would still incur costs to manage intake, eligibility, and scheduling but this option would presumably be more affordable than deadheading their paratransit fleet multiple times a day to Lathrop.

Table 10 Peer City Paratransit Comparison

Agency/ Community	Annual Paratransit Trips	Trips Scaled by Annual Revenue Hours to Proposed Concept	Trips Scaled by Population to Lathrop
City of Tracy	21,009	5,957	8,543
City of Manteca	7,370	3,865	4,340
City of Lodi	15,420	4,993	6,749

Title VI and ADA Compliance

As with any service change, the proposed concept in the Lathrop must be compliant with Title VI of the Civil Rights Act of 1964. The project team ran a Title VI Analysis on the existing RTD network compared to the additional concepts proposed and the results are below.

Table 9 Title VI Results

Metric	Existing RTD System	Existing RTD System + Proposed Lathrop Concept
Population (1/4 mile)	318,540	326,746
Low Income	16.4%	16.3%
Minority	80.5%	80.5%

As no service cuts are proposed to fund this concept and additional service is added across the Lathrop community, Title VI compliance is achieved by the proposed additions of the service.

Operations and Deadheading

For fixed route operations, assuming the proposed concept is operated by RTD, vehicles would originate at the RTD Regional Transportation Center operations facility located at 2849 E Myrtle Street in Stockton. Vehicles would have about a 15-mile deadhead trip each direction to reach an end point of each route and would expect to spend about 25 to 30 minutes each way in deadhead time depending on traffic/time of day. This is similar to deadhead trips for fixed route services in the region and across the state.

The project team also considered vehicle storage in Lathrop to reduce deadhead time. Vehicles could be stored at the City Corp Yard alongside other city vehicles. However, the deadhead time required in a non-revenue vehicle for operators to reach the vehicle site would ultimately result in a similar labor expenditure and limited benefits compared to consolidating operations at the RTD county division base in Stockton.

Fare Structure

In order to provide consistency with other RTD services, it is recommended that the proposed concept utilize the same existing fare structure for all RTD local/hopper services, as described below.

- $1.50 base local fare
- $0.75 discount fare for seniors, persons with disabilities, other persons eligible for discounts
- $3.00 paratransit fare

Given that the proposed operating concept serves high schools, it is recommended that RTD and the City of Lathrop pursue a partnership with Manteca Unified School District and Banta School District allowing students to ride free with their student ID, similar to programs that RTD already has with Stockton Unified School District and San Joaquin County of Education students.

Additionally, the City and RTD could pursue a partnership with ACE to allow for free riders on Lathrop transit services when presenting a valid connecting ACE ticket or monthly pass to help incentivize utilizing the proposed transit concept to access the ACE station over driving a personal vehicle.

Implementation Timeline & Cost Schedule

The study is proposing pilot implementation in time for the 2025/2026 school year, providing that existing RTD Cutaway vehicles can be used and necessary cost sharing and funding agreements can be executed to get relevant agencies and providers under contract. If additional vehicles need to be procured or there are administrative hurdles, service may need to be pushed back a further year to begin in 2026/2027.

In Table 11 below, the estimated budget for the first two years of service is provided.

Table 11 Proposed Concept Cost Summary

Category	FY 2024/2025 (Startup preparation)	FY 2025/2026 (Full year of operation)	Notes
Operations – RTD Fixed-Route Service	-	$1,529,000	$175/Revenue Hour
Operations – Complimentary Paratransit Required by ADA	-	$456,000	RTD per-trip paratransit cost
Capital – Stop Improvements	$270,000	-	See bus stop tables
Capital – Vehicles (if needed)	$500,000	-	2 Cutaway Buses at $250,000 each if needed outside of existing RTD fleet.
Admin – Marketing & Coordination	$50,000	$50,000	-
Total Cost	**$520,000- $820,000**	**$2,035,000**	-

Considerations for the implementation include the following:

Operating

RTD operating budget at $175 per revenue hour for 6,731 hours of fixed route service annually, along with a general estimate of the need for complimentary paratransit budgeting alongside this service.

Capital

Near-term stop improvements as described in Table 8 of this report. These improvements prepare stop locations for use, ensuring they are clearly marked and accessible. Optional vehicle purchases if operating needs cannot be handled using the existing cutaway fleet.

Administration

A new service needs to have marketing to get the word out and be successful. The budget includes a $50,000 marketing and coordination cost for the first two years. In the first year of startup preparation, critical tasks would include coordination with both ACE and the Manteca Unified and Banta School Districts on promoting the new service, text copy and other materials for service promotion, and even billboards or other physical media spots. After implementation, this promotional activity could continue along with additional reduced and free fare programs to reduce hurdles for Lathrop residents to try the new transit service.

Ultimately, the project team recommends launching the service on City Day 2025 or 2026 in July to provide maximum outreach for the new service and spread the word at Lathrop's largest annual event. This would also provide a few weeks shakedown period to get operators familiar with the route and any initial teething problems resolved before back to school in August, when larger passenger numbers would be anticipated.

Image: City of Lathrop

Section 4

Funding Sources & Cost Sharing

TDA LTF Funds

Other Potential Funding Sources & Cost Sharing

TDA LTF Funds

The Local Transportation Fund is funding through the state Transportation Development Act, which returns statewide sales tax to county governments for transportation investments. LTF funding in San Joaquin County is administered through SJCOG. Funding is distributed based on population and growth rates. In recent budget cycles in order to advance statewide equity and climate goals, certain percentages of LTF funding must be set aside for non-roadway investments, including public transit. Both RTD and Lathrop receive LTF dollars.

In the latest funding cycles for Fiscal Year 2024/2025, the City of Lathrop was awarded $2.4 million from the LTF. 50% of that, or about $1.18 million, must be set aside for transit funding. The required transit funding of the LTF award covers approximately 58% of the total annual operating cost for the proposed route concept, including fixed route and paratransit operating costs. Lathrop could chose to spend a higher percentage of LTF funds on transit to cover the entire proposed concept cost outright.

Strategies may be employed to reduce the cost of the service, which are detailed in the matrix on the following page. However, the project team recommends fully funding the concepts, as all cost reduction strategies come with trade-offs that are likely to reduce ridership and system effectiveness.

Image: City of Lathrop

Other Potential Funding Sources and Cost Sharing

Both the City of Lathrop and RTD could apply for a variety of Federal, State, and local grants to provide additional funding for a service pilot and/or operating and capital expenditures. Regular transit funding is also dispersed from statewide agencies, including CalSTA. RTD receives local funding through San Joaquin Council of Governments (SJCOG) Measure K as well. As an independent city under 75,000 residents, Lathrop is eligible to apply for additional bus transit operations funding through this measure for local transit connecting commuters and serving seniors and people with disabilities.

The San Joaquin Valley Air Pollution Control District provides a funding source to cities to develop public transportation programs under the Public Transportation Subsidy and Park & Ride Lots program. This program provides up to $30,000 per agency to subsides transportation services that encourage commuter rideshare travel and reduce single occupant vehicle commutes for daily long distance travel. Given the proposed concept's connections to longer-distance commuter services such as ACE this may be a good source for additional funding.

Partnerships can be explored to further augment and expand funding sources. These may include:

- Cost-sharing with the San Joaquin Regional Rail Commission/ACE for providing feeder service to ACE commuter rail stations
- Cost-sharing and subsidized transit passes with major area employers
- Agreements with commercial property owners, including industrial and warehousing businesses along D'Arcy Parkway, Camino Real Mobile Home Estates, and Lathrop Marketplace for cost sharing agreements for new stop improvements and/or bus stop and sidewalk construction
- Further cooperation with the City of Manteca to coordinate and integration transit investment and operations as both cities continue to grow

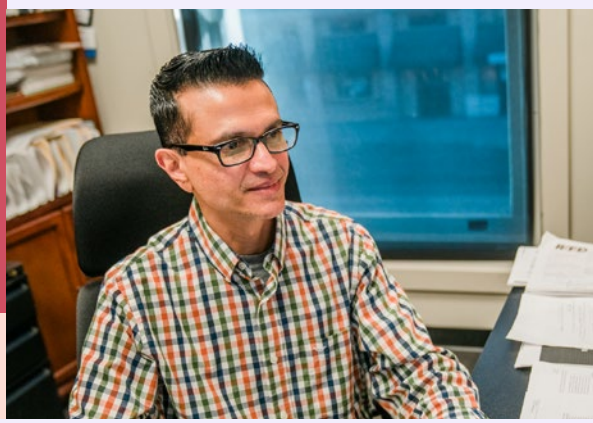
Table 12 Potential Cost Savings Trade-offs Matrix

Strategy to Reduce Cost	Description	Potential Cost Reduction
Operate fixed-route services at a deviated fixed-route, similar to Stockton Hopper Routes.	Operating the fixed-route concepts as deviated fixed route services would satisfy the ADA paratransit requirement, so complimentary paratransit would not be required. However, deviations may add substantial time to trips reducing the competitiveness of transit and adding delay for riders. Headways may need to be reduced as a result.	Approximately $450,000 annually
Reduce service span on Red Route to serve school hours.	The Red Route could reduce span of service to more align with High School bell times, running 8am to 4pm. This would save revenue hours but also reduce the ability for other residents to use the route for commuting purposes or appointments, as well as high school students with before or after school commitments.	Approximately $230,000 annually
Eliminate Green Route service midday in River Islands, operating Purple Route service only.	The City could begin the pilot without operating the Green Route, thus only operating the Purple Route with peak hour service in River Islands to save revenue hours. This would, however, eliminate transit service for River Islands residents in the middle of the day, reducing the availability of transit service for shopping and appointments. RTD operator contracts may require payment during split shift as well, reducing savings.	Approximately $490,000 annually

Section 5

Metrics for Success

Pre-Service Launch



City of Lathrop RTD Not Agency-Specific

- [x] Operational agreements in place — Not Agency-Specific
- [x] RTD Board approval of study — RTD
- [x] Near-term bus stop improvements complete — City of Lathrop, RTD
- [x] Operators hired and trained — RTD
- [x] Fleet identified and/or procured if needed — RTD
- [x] Quarterly check-in with Manteca and Banta School Districts for coordination and promotion purposes — City of Lathrop
- [x] Service launch advertised through giveaways, various forms of media, and in person events — City of Lathrop, RTD
- [x] Lathrop City Council approval of study — City of Lathrop
- [x] Quarterly/bi-monthly updates with elected leaders including board members, city council, and the city managers office and a call to action to help with service promotion — City of Lathrop, RTD
- [x] Quarterly check-in with SJRRC/ACE staff for coordination and promotion purposes — City of Lathrop
- [x] Determine feasibility & investment of re-routing county hoppers and/or Route 150 to serve the new Lathrop Marketplace transfer point — Not Agency-Specific
- [x] Prepare schedules and update GTFS feeds — RTD

Images: RTD

Initial Post-Launch Period

Three to Six Months

- City of Lathrop
- RTD
- Not Agency-Specific

- Monitor post-launch period for any teething problems that need to be rectified regarding operations, passenger experience
- Continue promotional efforts with stakeholders and partner organizations, with focused and honest conversations if ridership is below expectations on certain markets to try to increase awareness
- Gather initial feedback from riders through onboard survey
- Provide up to three months of free fares to make it as easy and seamless as possible for first time transit riders to try the new routes
- Promote new transit service on connecting routes, like route 90 and 150
- Evaluate crowding concerns, especially at school bell times. Run a tripper or sub in a 40 foot spare bus if load factor are consistently at 100% and operators indicate they are leaving passengers behind

After Year One

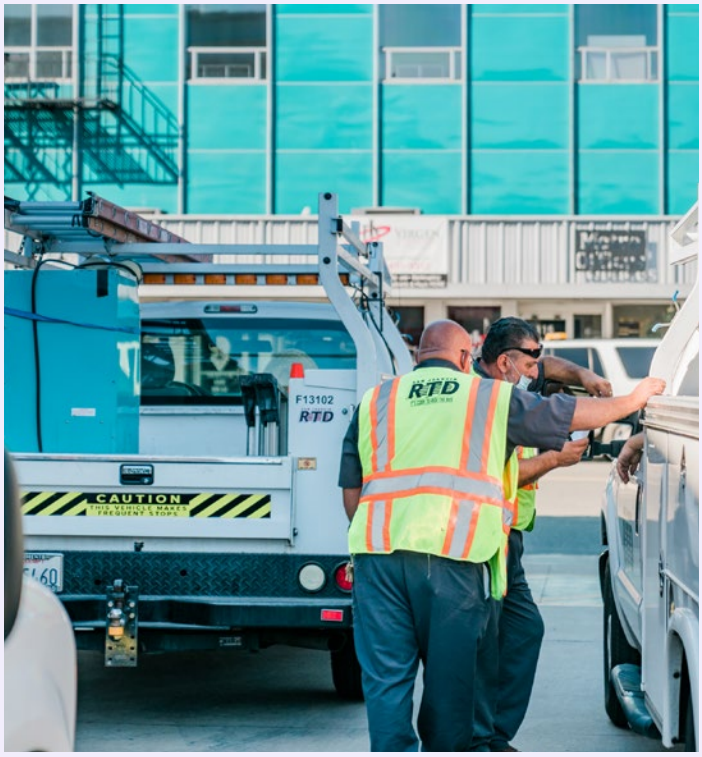
Evaluate ridership on routes

- If entire system is seeing less than three riders per revenue hour, consider discontinuing and pivoting to a public dial-a-ride service or similar instead
- If certain trips/routes are seeing less than three riders per revenue hour, consider reducing or reallocating service to busy trips and times.
- If school-based and commute services are routinely at 100% or greater load factor, purse procurement of dedicated 30 or 35 foot transit fleet to operate these routes

If pilot system is made permanent

- Add transit amenities at the Lathrop Marketplace transfer point to begin to develop a hub for the system
- Begin pursuing agreements or capital grant funding for new bus stop and sidewalk construction for longer-term stop location such as along D'Arcy Parkway
- Consider a bus stop amenities program to prioritize adding features such as benches, bus shelters, real-time information displays

- Evaluate survey and public feedback and make route modifications as necessary
- Evaluate connectivity with regional transit service schedule updates to ensure transfers remain convenient where feasible
- Evaluate school bell time coordination with route schedules to ensure trips remain competitive for school travel times



Images: RTD

Growth & Expansion Opportunities

Consider weekend service on the Red and Green Routes. Saturday service connecting to the River Islands farmers market is a priority

Increase frequency on the Red and Green Routes by adding an additional vehicles

Evaluate adding an additional morning and evening trip on the Purple Route to connect to more ACE trains

Consider new opportunities to enhance regional connectivity, including more frequent service to Manteca and service to healthcare facilities in French Camp and Stockton

Expand Purple Route service as more ACE trains are added through the Valley Rail project, connecting Lathrop ACE station to Sacramento/ Natomas, Ceres, and Merced

Consider serving new destinations within Lathrop, including the new Lathrop North ACE station, Stonebridge, and communities in western River Islands as the neighborhood becomes further built out

Evaluate the impacts of traffic congestion on service speed and reliability, adding bus queue jumps or transit signal priority if appropriate

Image: RTD