



Short-Range Transit Plan 2020-2024

Turlock Transit

February 2020

TURLOCK
TRANSIT



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Part 1: Taking Stock



1 INTRODUCTION AND SUMMARY

This plan will take Turlock Transit to the next level.

The Short-Range Transit Plan (SRTP) is a five-year roadmap for Turlock Transit. It identifies strengths, challenges, and opportunities associated with service today, and uses this information to establish strategies over the next five years.

Underpinning this effort is a series of community engagement activities. These will help to ensure that the plan balances shared community priorities.

The SRTP is made up of two parts: Part I: Taking Stock and Part II: Taking Action. Taking Stock examines the current state of Turlock Transit, and sets the stage for recommended strategies identified in Taking Action.

This chapter explains (1) why we're undertaking this SRTP effort; (2) why transit is important in Turlock; and (3) how this report is organized. It also presents (4) a summary of key findings and opportunities from Part I: Taking Stock, as well as (5) a summary of recommended strategies from Part II: Taking Action.

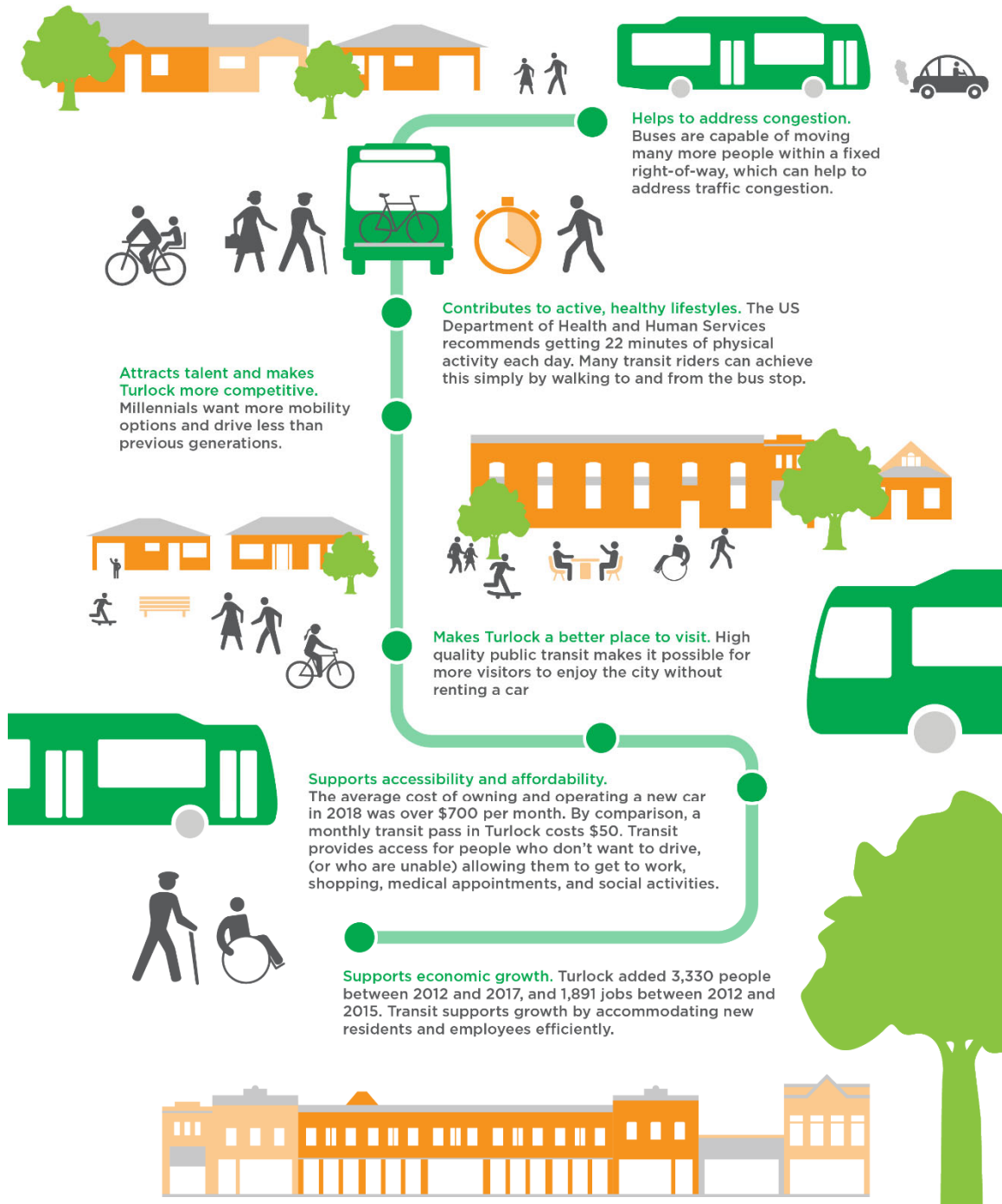
WHY AN SRTP?

The purpose of this SRTP is to make Turlock Transit even better. A series of major changes in 2017 boosted ridership and established a new baseline for the level of service that Turlock expects. This plan will build on the successes of the last two years, and set sights on new opportunities.

For example, this SRTP will help to:

- Create a more seamless experience for transit riders
- Enhance bus routes, schedules, and frequencies
- Fine-tune internal workflows, staffing, and operations
- Take steps toward better regional integration
- Define a plan for future capital investments, including technology and infrastructure improvements

WHY IS TRANSIT IMPORTANT?



HOW IS THIS REPORT ORGANIZED?

Part	Chapter	Title	What questions does the chapter answer?
Part I: Taking Stock	2	Document and Policy Review	<ul style="list-style-type: none"> How does this plan fit into other Turlock and regional planning efforts?
	3	Transit Demand Analysis	<ul style="list-style-type: none"> What conditions create demand for transit? Where is transit demand located? Are there gaps or redundancies?
	4	Fixed-Route System Evaluation	<ul style="list-style-type: none"> Where and when does the system currently run? What patterns does ridership reveal? How does Turlock Transit fit into regional transit systems?
	5	Route Profiles	<ul style="list-style-type: none"> Where does each route have high ridership? Low ridership? How often are buses on time for each route?
	6	Dial-A-Ride Services Analysis	<ul style="list-style-type: none"> How does on-demand Dial-A-Ride work? What patterns does ridership reveal?
	7	Peer Review	<ul style="list-style-type: none"> How does Turlock compare to its peers?
	8	Community Engagement	<ul style="list-style-type: none"> What does the community want to see for Turlock Transit in the next five years?
Part II: Taking Action	9	Service Plan	<ul style="list-style-type: none"> What operational changes should be made to transit service over the next five years?
	10	Capital Improvement Plan	<ul style="list-style-type: none"> What changes should Turlock Transit make to capital assets over the next five years?
	11	Marketing Plan	<ul style="list-style-type: none"> How should Turlock Transit encourage awareness, support, and ridership?
	12	Staffing Plan	<ul style="list-style-type: none"> What staff capacities and resources are needed to provide the current and anticipated level and quality of service?
	13	Financial Plan	<ul style="list-style-type: none"> What do the next 10 years look like for Turlock Transit finances?
Appendices	A	On-Board Survey	<ul style="list-style-type: none"> How do existing riders use and perceive Turlock Transit?
	B	Fare Analysis	<ul style="list-style-type: none"> What effects do changes in the fare structure have on ridership and farebox recovery ratio?

1. There is broad geographical transit coverage, with some opportunities for improvement

Most key destinations are located within one-quarter mile of a transit stop. However, there are some exceptions.

- Destinations that are close to or just beyond one-quarter mile from a bus stop include: Turlock Irrigation District, Turlock Public Library, Village Fresh Market, and Turlock Sales Yard.
- Service to the Amtrak station in Denair is not currently available through fixed-route transit. However, it is available via Dial-A-Ride service.

2. Service levels don't always match demand

Route 5 Lander and Route 4 Colorado account for 43% of the system's ridership – nearly double that of routes 3 and 6 combined (23%). Yet all routes have the same spans and frequencies.

3. All routes meet for seamless transfers, but schedules are difficult to remember because they do not operate on clock face headways

Turlock Transit schedules do not operate on clock face headways, making it difficult to remember departure times at stops. Clock face headways result in schedules that are simple to understand and memorize at a glance.

4. All routes have substantial one-way segments

All Turlock Transit routes have major one-way segments. One-way segments make two-way travel challenging. They can provide a greater level of coverage, but in reality, they can reduce ridership by adding complexity to return trips.

5. Ridership is low during evenings, but increased spans of service are widely desired among riders

Turlock Transit must strike a balance between two contradictory findings:

- Ridership starts dropping after 4:00 p.m. on weekdays and Saturdays. On weekdays, 87% of ridership occurs between 7 a.m. and 6 p.m.
- The rider survey indicated a clear desire for Sunday service, more Saturday service, and earlier/later weekday service.

Therefore, while frequency may have a greater effect on ridership, extended spans are what riders appear to prioritize.

6. Ridership is growing and rider satisfaction is high, but productivity is lower than peer agencies

After changing from BLAST to Turlock Transit, ridership increased, and rider satisfaction is now very high.

However, relative to its peers, Turlock Transit fixed-route service has lower productivity. This is not related to fare prices, service spans, or operating costs per revenue hour – each of which is comparable among peers.

7. Reliability is generally good, but early departures at scheduled timepoints are an issue

On average, routes are on time 91% of the time. However, early departures from timepoints are an issue on all routes except for Route 1 Countryside.

When riders miss the bus because of an early departure from a timepoint, they must wait 30 – 35 minutes for the next bus. This is more inconvenient than a late bus.

It is also worth pointing out that Route 4 Colorado has worse on-time performance than all other routes.

8. Typical rider: carfree student with a smartphone

According to the rider survey, a typical Turlock Transit rider is a student, with a smartphone, without access to a private vehicle, traveling to school or shopping. They make several transit trips per week, and use Facebook and Instagram.

At the same time, just over half of riders are *not* students, and fewer than one in five trips are for work trips.

9. Dial-A-Ride service is difficult to understand

Turlock Transit offers generous demand-response service in Turlock, Denair, and some other surrounding areas. Despite simplifying Dial-A-Ride service in 2018, it remains challenging to understand exactly who is eligible for which trips, in each zone.

10. Several important regional transit efforts are underway

Several regional transit planning efforts are underway in and around Turlock. Examples include Amtrak improvements in Denair and transit planning work in Stanislaus County.

Further, some regional initiatives, such as MOVE Stanislaus, have already been successful at streamlining intra-regional transit services.

Nonetheless, there are certain challenges associated with regional-local transit planning. For example:

- Regional routes that operate in Turlock do not have consistent alignments. For example, StaRT routes serving Turlock are pervasive and have different alignments within the city, which are in turn different from that of the Merced The Bus.
- Fares and fare payment systems are largely uncoordinated, which has the potential to result in a confusing rider transition from local to regional transit and vice versa.

WHAT ARE THE RECOMMENDED STRATEGIES?

This SRTTP recommends several strategies in chapters 9 through 13. This section provides an overview of the strategies. The individual chapters in question provide more contextual information and details.

Chapter 9: Service Plan Strategies

Service Goal	Strategy
1. Reliability	1.1 Adjust schedules to better reflect travel times
	1.2 Use interlining to accommodate driver breaks without increasing headways in the public-facing schedule
	1.3 Evaluate potential to improve service frequency to 30 minutes while maintaining on-time performance
2. Ridership	2.1 Maintain current alignment for routes 1, 2, 3, and 5
	2.2 Extend Route 6 to Orange St
3. Coverage	3.1 Adjust Route 4 to serve Turlock Public Library
	3.2 Evaluate transit-on-demand options to serve key destinations where fixed route transit is not yet cost-effective
4. Service Span	4.1 Lengthen the span on more productive routes and shorten it on less productive routes

Chapter 10: Capital Improvement Plan Strategies

- Consider electric vehicle purchase timing with other capital funding needs

- Invest in and test electric bus charging equipment at the maintenance facility and other locations to facilitate efficient service delivery
- Support technology investments with policies such as operations requirements, service disruption resolution, and customer privacy to ensure the most efficient and effective use of investments
- Continue to invest in bus stop infrastructure and active transportation infrastructure to ensure safe transit access and egress

Chapter 11: Marketing Plan Strategies

Marketing Priority	Strategy
1. Build awareness and support	1.1 Establish regular communication among key stakeholders
	1.2 Evaluate the effectiveness of promotional campaign strategies
	1.3 Develop specialized transit guides and training
	1.4 Further harness utility bill inserts
2. Improve the Transit Rider Experience	2.1 Rebuild the Turlock Transit website
	2.2 Activate Roger K. Fall Transit Center Note: “Activate” refers to establishing programmed activities to make the Transit Center feel safer and more pedestrian friendly, such as a farmers market, food carts, or other pop-up events/retail. More information is available in Chapter 11.
	2.3 Refresh information materials
	2.4 Invest in bus and stop amenities

Chapter 12: Staffing Plan Strategies

- Develop in-house GIS capacity
- Invest pragmatically in design
- Invest in technical training and workshops

Chapter 13: Financial Plan Strategies

- Consider grant programs for vehicle replacement
- Explore new funding sources, including carbon credits
- Purchase vehicles off cycle—this means purchasing vehicles incrementally, when possible and given funding availability
- Explore additional partnerships
- Extend the useful life of vehicles

- Coordinate paratransit contracting with other Stanislaus County transit agencies

2 DOCUMENT AND POLICY REVIEW

This chapter puts this SRTP into context based on other local and regional planning documents.

The purpose of this review is to identify and summarize planning documents that relate to transit in the City of Turlock and Stanislaus County at large. It will ultimately help to inform recommendations for the SRTP.

This review examines the following four documents:

- StanCOG Regional Transportation Plan (2018)
- Turlock Short Range Transit Plan (2015)
- Turlock Active Transportation Plan (2015)
- Turlock General Plan (2012)

CHAPTER 2 KEY POINTS

- Transit is a central component of the 2018 StanCOG RTP. The RTP dedicates 35% of its \$7.3 billion multimodal transportation expenditures to transit programs and providers.
- This 2019 SRTP builds upon the success of the 2015 SRTP, which when implemented increased ridership and established a new baseline for local transit in Turlock.
- The 2015 Turlock Active Transportation Plan recommends a series of pedestrian and bicycle improvements, five of which connect with existing Turlock Transit routes. This helps to underscore the critical relationship between active transportation and transit.
- The 2012 Turlock General Plan provides transit guidance in its recommendations related to land use, economic development, circulation, city design, and the environment.

STANCOG REGIONAL TRANSPORTATION PLAN (2018)

The Stanislaus Council of Governments (StanCOG) developed the 2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to identify regional transportation goals and priorities.

Together, the RTP and SCS coordinate transportation and land use decisions that support the growth of communities across the county. The RTP/SCS prioritizes \$7.3 billion in multimodal transportation expenditures through 2042. The plan includes 10 overarching goals:

- Mobility and accessibility
- Social equity
- Economic and community vitality
- Sustainable development pattern
- Environmental quality
- Health and safety
- System preservation
- Smart infrastructure
- Reliability and congestion
- Project delivery

Relevant Objectives and Policies

The RTP dedicates roughly \$2.5 billion (35%) to transit, including expanding transit and rail services, bus replacement, reducing transit headways (increasing frequency), and improving transit support facilities (transit stations and parking facilities). The Tier I rail and transit projects include:

1. **Bus Rapid Transit:** Install bus rapid transit improvements and increase transit services and frequencies.
2. **Rail:** Extend Altamont Corridor Express (ACE) rail services from Ceres to Modesto with new stations.
3. **Rail:** Improve Modesto Area Express (MAX) facilities and operations.

The plan describes the funding sources for its investment plan, some of which directly benefit transit programs and providers. One key source is Measure L (Local Roads First), a half-cent sales tax referendum, passed in November 2016.

Approximately \$13.4 million (1.4%¹) of the measure's funds are dedicated to regional transit providers. Transit-specific funds are also included in Senate Bill 1, Congestion Mitigation and Air Quality (CMAQ) Improvement Program, State Transit Assistance, Local Transportation Funds (LTF) and Federal Transit Funding Programs.

The RTP explicitly discusses transit in three chapters of the plan:

- *Chapter 3: Regional Transportation System*, highlighting the intraregional, interregional, and transit assistance services.
- *Chapter 6: System Preservation*, emphasizing the need to maintain a state of good repair, improve travel time reliability, and develop travel demand management programs.
- *Chapter 7: Environmental Justice* emphasizes the need for transit-oriented development. Accordingly, it includes transit in a handful of its performance indicators that look at the percent of low-income housing/minority population within a half-mile of transit.

TURLOCK SHORT RANGE TRANSIT PLAN (2015)

The 2015 Turlock Short Range Transit Plan (S RTP) reimagined Turlock's transit system with the goal of improving local bus service.

Relevant Objectives and Policies

Turlock Transit developed a set of service recommendations for Turlock Transit, then known as Bus Line Service of Turlock (BLaST), after a comprehensive service evaluation and community engagement effort. Accordingly, the 2015 S RTP outlined the following strategies to improve transit in Turlock:

- Add two additional routes and reduce the number of one-way loop routes.
- Provide later service and shorter headways.
- Streamline Stanislaus Regional Transit (StaRT) service in Turlock.
- Offer discounted rates through passes and encourage the use of fare cards as opposed to cash.
- Redraw Dial-A-Ride boundaries for ADA-compliant services.
- Obtain newer vehicles.

¹ Roughly 7% of Measure L funds go to transportation programs, of which 7% goes directly to transit providers. This is equivalent to 1.4% of the overall Measure L funding.

- Add additional amenities at popular bus stops.
- Develop a new brand and information materials.

Since implementation, ridership has increased substantially. A rider survey in February 2019 revealed a high level of satisfaction with the system.

TURLOCK ACTIVE TRANSPORTATION PLAN (2015)

The Turlock Active Transportation Plan was prepared for the City of Turlock to improve pedestrian and bicycle connectivity and encourage residents, workers, and visitors to use non-motorized transportation.

Relevant Objectives and Policies

The plan recommends ten pedestrian and bicycle infrastructure improvements, five of which connect with transit routes. Since the plan was released in 2015, the transit network has been restructured. As a result, the connecting transit routes for the six projects have changed. The list of relevant infrastructure recommendations below includes the connecting Turlock Transit route(s) as well as the former BLAST route(s) from the 2015 report.

1. Main Street and Canal Drive Intersection
 - Turlock Transit Route 4 Colorado; former BLAST routes A and B
2. Berkeley Avenue, Canal Drive to Golden State Boulevard
 - Turlock Transit Route 4 Colorado; former BLAST Route D
3. Berkeley Avenue at Hawkeye Avenue
 - Near Turlock Transit Route 4 Colorado; former BLAST routes A, B, and D
4. Golden State Boulevard
 - Roger K. Fall Transit Center and Route 5 Lander; former BLAST Route B
5. Main Street
 - Turlock Transit routes 5 Lander and 6 Soderquist; former BLAST routes A and D

TURLOCK GENERAL PLAN (2012)

The 2012 Turlock General Plan establishes a long-term vision to guide growth in the City of Turlock over 20 years. To achieve this vision, the plan puts forth a set

of policies to foster growth and development, while also maintaining the city's agricultural history, and an economically and socially diverse population.

Relevant Objectives and Policies

The Turlock General Plan discusses transit in four of its elements: (1) land use and economic development, (2) circulation, (3) city design, and (4) air quality and greenhouse gases. The following sections list the transit-related policies that are included each of these four elements.

Land Use and Economic Development

- **Locations for high density development.** Maintain the highest residential development intensities Downtown, along transit corridors, near transit stops, and in new neighborhood centers.
- **Transit and pedestrian accessibility from housing.** Work with developers of affordable and multifamily housing to encourage the construction of transit-oriented and pedestrian-oriented amenities and appropriate street improvements that encourage walking and transit use.
- **Incentives for public amenities.** Offer added incentives to industrial projects in the TRIP that contribute to the pedestrian, bicycle, or transit networks and/or public amenities and open space.

Circulation

- **Improve local transit operations.** Continue the present course of expanding its fixed route service and improving operations.
- **Improvements to demand-responsive transit.** Improve the City's dial-a-ride system. Aggressively pursue transit grant funds in order to continue funding operations.
- **Consistency with the Stanislaus Congestion Management System.** Monitor the frequency, routing and coordination of local transit services for consistency with the requirements of the Stanislaus County Congestion Management Plan (CMP).
- **Stop spacing.** Transit stops should be spaced no farther than 1,000 feet apart, if spaced for continuous service on city streets. Spacing may deviate from the general standard in the Westside Industrial Specific Plan area where individual businesses occupy large parcels (greater than 20 acres) and where stops should serve employee entrances directly.

- **Turlock Regional Transit Center.** Continue to pursue the development of the Turlock Regional Transit Center, located at Dels Lane and Golden State Boulevard.
- **Funding for transit services.** Continue to pursue federal and state funds to cover capital and operating costs associated with Turlock's transit operation. If federal funds are reduced and capital needs are not being met, transit may be added to the Capital Facilities Fee (CFF) through a Nexus Study.
- **Transit usability.** Situate transit stops at locations that are convenient for transit users, and promote increased transit ridership through the provision of shelters, benches, bike racks on buses, and other amenities.
- **Regional rail.** Support regional efforts to provide regional passenger train services, via commuter rail and/or high speed rail. As necessary, engage in Station Area planning efforts to examine and coordinate land uses surrounding a future train station in Turlock.
- **Transit services marketing.** Encourage ridership on public transit systems through marketing and promotional efforts. Provide information to residents and employees on transit services available for local and regional trips.
- **Transportation for seniors.** Require new community care facilities and senior housing projects with over 25 beds to provide accessible transportation services for the convenience of residents.
- **Development that supports transit.** Ensure that new development is designed to make transit a viable transportation choice for residents. Design options include:
 - Have neighborhood centers or focal points with sheltered bus stops;
 - Locate medium and high density development on or near streets served by transit wherever feasible; and
 - Link neighborhoods to bus stops by continuous sidewalks or pedestrian paths.
- **Support existing regional transit services.** Continue to support the StaRT service provided by Stanislaus County and THE BUS service provided by Merced County.

- **Correspondence between local and regional transit.** As Turlock's local transit system continues to be developed, services should be oriented to link with potential future commuter and/or high-speed rail.
- **Regional Transit Agency.** Support efforts to improve the coordination and efficiency of bus service on a regional level and, if appropriate, the regionalization of transit service delivery.
- **Denair Amtrak Station.** Continue to support the operation of the Amtrak station in Denair. Expand bus service to serve the train station. It should be noted that BLAST served Denair from 2002-2003.

City Design

- **Neighborhood centers.** Establish new neighborhood centers as high-quality mixed-use pedestrian-friendly environments, without excluding the automobile. These will be required in new growth areas.
- **Support transit.** Ensure that neighborhoods are designed to support transit stops in proximity to neighborhood centers and/or clusters of higher density residences.
- **Multi-modal access and movement.** Require new projects to facilitate pedestrian and bicycle movement and aid transit.
 - Planning should anticipate and provide for future local and regional transit service even if the service is not feasible at the time of project plan preparation.

Air Quality and Greenhouse Gases

- **Establish land use pattern that supports trip reduction.** Establish land use pattern that enables alternatives to automobile use and reduces trip lengths, including transit-oriented, mixed use development and neighborhood commercial areas.
- **Reduce trips by city government.** Take the lead in implementing a trip-reduction program for City employees. The program may include carpooling and ridesharing; reimbursement of transit costs; encouragement of flexible work schedules, telecommuting, and teleconferencing.
- **Support employer-based trip reduction.** Support the Air District's requirement that companies and organizations with 100 or more employees establish ride-sharing programs, and provide incentives to

companies with 25 to 100 employees that do the same. Ridesharing programs may include market-based incentives such as cash for ridesharing, preferential parking for carpools, transit subsidies, cash allowances in lieu of parking spaces, telecommuting and flexible work schedules.

- **Pedestrian-oriented site design.** Orient development to encourage pedestrian and transit accessibility. Strategies include locating buildings and primary entrances adjacent to public streets; placing parking at the rear of sites or in structures above retail; and providing clear and direct pedestrian paths across parking areas.

3 TRANSIT DEMAND ANALYSIS

Transit is about getting from A to B. But what are the “A”s and “B”s, and why are they important?

This chapter focuses on demand for transit trips, and specifically the origins and destinations that affect this demand. In terms of origins – the “A”s – we focus on demographics that tend to correlate with increased transit use. In terms of destinations – the “B”s – we identify employment and other locations, such as major retail, that tend to attract transit trips.




























Data Sources and Geographic Units

Data used in this report is based on US Census 2017 ACS 5-Year Estimates for most variables and is presented at the block group level. The two exceptions are disability status, which is presented at the tract level, and employment, which is based on LEHD data from 2015, and presented at the block level.

It’s All About Density

All demographic variables are described in terms of *density per acre*, because higher concentrations of people benefit transit in two ways: (1) density increases the likelihood of transit use, and (2) transit is able to serve dense areas much more efficiently than lower density areas. Figure 3-1 illustrates the relationship between density and the level of transit service that is considered viable.

Figure 3-1 Land Use and Transit Demand

LAND USE			TRANSIT	
Land Use Type	Residents per Acre	Jobs per Acre	Appropriate Types of Transit	Frequency of Service
 Downtowns & High Density Corridors	>45	>25	    Light Rail BRT Rapid Bus Local Bus	 10 mins or better
 Urban Mixed-Use	30-45	15-25	   BRT Rapid Bus Local Bus	 10-15 minutes
 Neighborhood & Suburban Mixed-Use	15-30	10-15	 Local Bus	 15-30 minutes
 Mixed Neighborhoods	10-15	5-10	  Local Bus Micro-transit	 30-60 minutes
 Low Density	2-10	2-5	   Micro-transit Rideshare Volunteer Driver Pgm	 60 mins or less or On Demand
 Rural	<2	<2	  Rideshare Volunteer Driver Pgm	 On Demand

Source: Thresholds based on research by Nelson\Nygaard.

How This Chapter Is Organized

Following the summary of key points, this chapter is organized into four sections:

- **Demographics** presents densities of population, employment, low-income households, university students, youth, older adults, people with disabilities, renters, and zero-vehicle households.
- **Transit Propensity** combines several demographic characteristics to identify locations that have a higher combined likelihood of transit usage.
- **Demographic Trends.** This section outlines recent demographic changes in Turlock.
- **Major Activity Centers.** Major activity centers are important in understanding what the “B”s are in transit demand: where are transit riders mostly likely trying to go?

CHAPTER 3 KEY POINTS

- Turlock Transit serves high-density areas well. There are some gaps in service east of Berkeley Avenue and at the northern edge of the city.
- Turlock Transit serves nearly all major activity centers within a five-minute walk (one-quarter mile). However, service is not currently available to certain retail and entertainment destinations west of SR-99, e.g., Costco and Regal Cinemas 14. In addition, some destinations are either close to or immediately beyond the limit of a five-minute walk to the nearest stop on Route 4 Colorado: Turlock Irrigation District, Turlock Public Library, Village Fresh Market, and the Turlock Sales Yard are each approximately one-quarter mile from the nearest stop.
- The number of zero-vehicle households and older adults grew rapidly between 2012 and 2017 – 23.7% and 18.7% respectively. The overall population grew by 4.9% over the same period.

DEMOGRAPHICS

Figure 3-2 provides details on various demographic indicators in Turlock. For each indicator, the table lists the citywide total number of people, areas with higher densities, and potential gaps in transit service provision. Maps of each indicator are available on subsequent pages.

Figure 3-2 **Demographic Details**

Indicator	City Total	High Density Areas	Potential Service Gaps
Population <small>Figure 3-3</small>	71,900 <small>Population, 2013-2017 ACS</small>	<ul style="list-style-type: none"> ▪ Between Canal Drive, Golden State Boulevard, Tuolumne Road and Berkeley Avenue ▪ North of the CSU Stanislaus campus 	<ul style="list-style-type: none"> ▪ Both sides of Canal Drive east of Johnson Road ▪ Between Pedras Road and Tuolumne Road between Geer Road and Golden State Boulevard
Employment <small>Figure 3-4</small>	25,900 <small>Employment, 2015 LEHD</small>	<ul style="list-style-type: none"> ▪ Downtown Turlock ▪ CSU Stanislaus ▪ Lander Avenue ▪ Geer Road ▪ Olive Avenue ▪ Countryside Drive 	<ul style="list-style-type: none"> ▪ East Main Street between Canal Drive and Golden State Boulevard ▪ Canal Drive between Geer Road and Olive Avenue ▪ West Main Street west of CA-99

Indicator	City Total	High Density Areas	Potential Service Gaps
Low-income households <small>Figure 3-5</small>	20,500 <small>Households with incomes below 150% of poverty level, 2013-2017 ACS</small>	<ul style="list-style-type: none"> ▪ South of Canal Street and west of 5th Street ▪ Between Golden State Boulevard, Canal Street, Colorado Avenue, North Avenue, Geer Road, Monte Vista Avenue, Andre Lane and Tuolumne Road 	<ul style="list-style-type: none"> ▪ No notable gaps
University students <small>Figure 3-6</small>	NA	<ul style="list-style-type: none"> ▪ CSU Stanislaus campus ▪ Within one-half mile of campus in all directions ▪ Northeast of downtown Turlock, in the area near Canal Drive and Olive Avenue 	<ul style="list-style-type: none"> ▪ East of Colorado Avenue ▪
Youth (<18) <small>Figure 3-7</small>	18,400 <small>People aged 0-17, 2013-2017 ACS</small>	<ul style="list-style-type: none"> ▪ South of Canal Drive and east of Main Street and Lander Avenue ▪ North of Christofferson Parkway ▪ Several high density areas between downtown and CSUS, and west of Golden State Boulevard 	<ul style="list-style-type: none"> ▪ East of Berkeley Avenue, and particularly south of Canal Drive and east of Johnson Road
Older adults (65+) <small>Figure 3-8</small>	9,600 <small>People aged 65+, 2013-2017 ACS</small>	<ul style="list-style-type: none"> ▪ Between Monte Vista Avenue, East Avenue, Geer Road and Colorado Avenue ▪ Between Fulkerth Road and South Avenue, west of Golden State Boulevard 	<ul style="list-style-type: none"> ▪ East of Quincy Road between Canal Drive and Hawkeye Avenue ▪ Between Monte Vista Avenue and Tuolumne Road east of Colorado Avenue
People with disabilities <small>Figure 3-9</small>	9,400 <small>People with a disability; 2013-2017 ACS</small>	<ul style="list-style-type: none"> ▪ Northeast of Canal Drive and Geer Road ▪ Between Monte Vista Avenue, Golden State Boulevard and Geer Road ▪ Southwest of Lander Avenue and Main Street 	<ul style="list-style-type: none"> ▪ No notable gaps

Indicator	City Total	High Density Areas	Potential Service Gaps
Renters <small>Figure 3-10</small>	11,800 <small>Households in renter-occupied units, 2013-2017 ACS</small>	<ul style="list-style-type: none"> Between Golden State Boulevard, Canal Drive, Colorado Avenue and North Avenue/Pedras Road Between Canal Drive, Soderquist Road, South Avenue, and Lander Avenue 	<ul style="list-style-type: none"> No notable gaps
Zero-vehicle households <small>Figure 3-11</small>	2,100 <small>Households without access to a vehicle, 2013-2017 ACS</small>	<ul style="list-style-type: none"> Canal Drive, Colorado Avenue, Monte Vista Avenue and Andre Lane/Geer Avenue Between Canal Drive, Soderquist Road, South Avenue, and Lander Avenue 	<ul style="list-style-type: none"> East of Quincy Road between Hawkeye Avenue and Canal Drive

Figure 3-3 Population Density

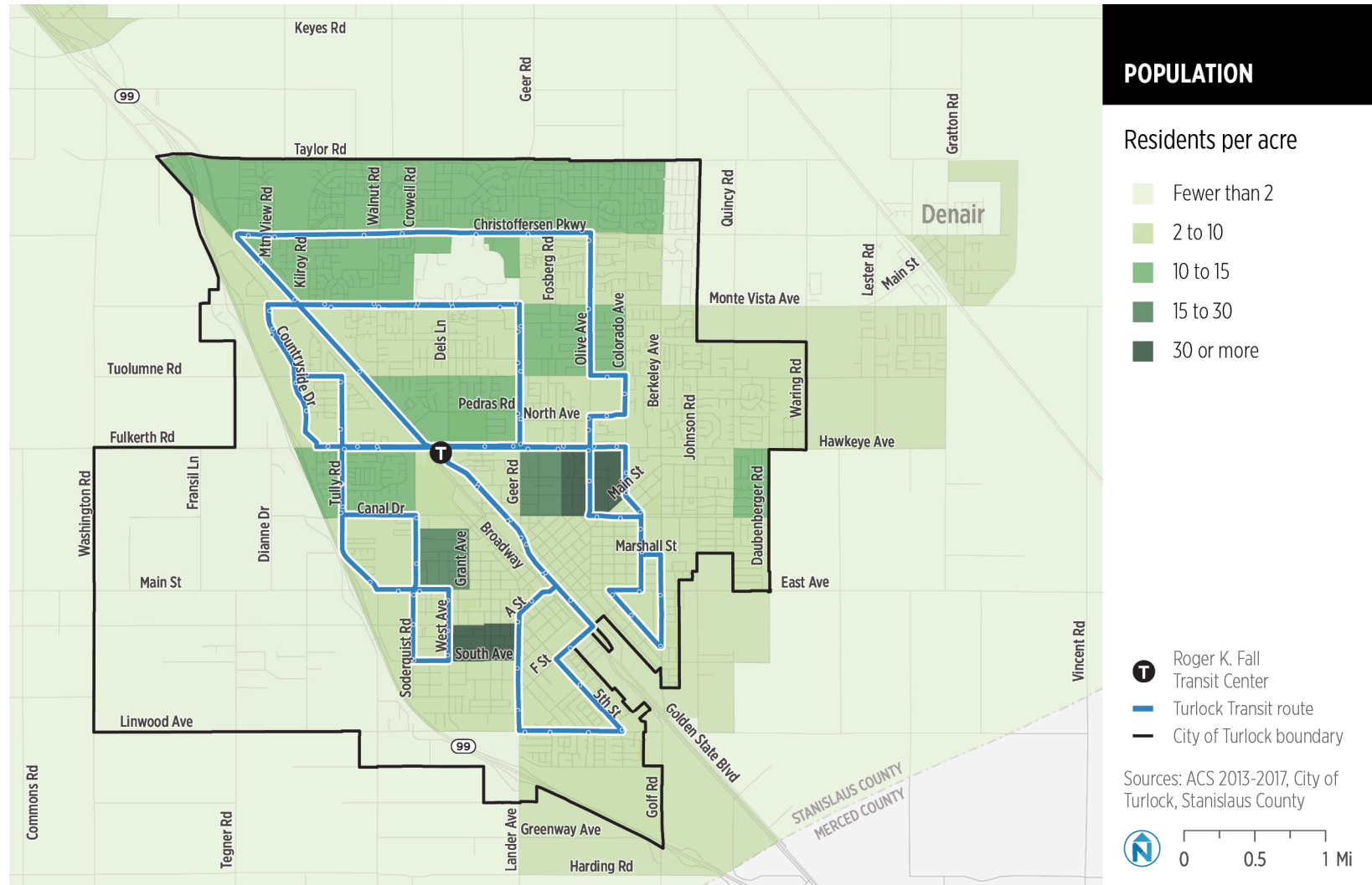


Figure 3-4 Employment Density

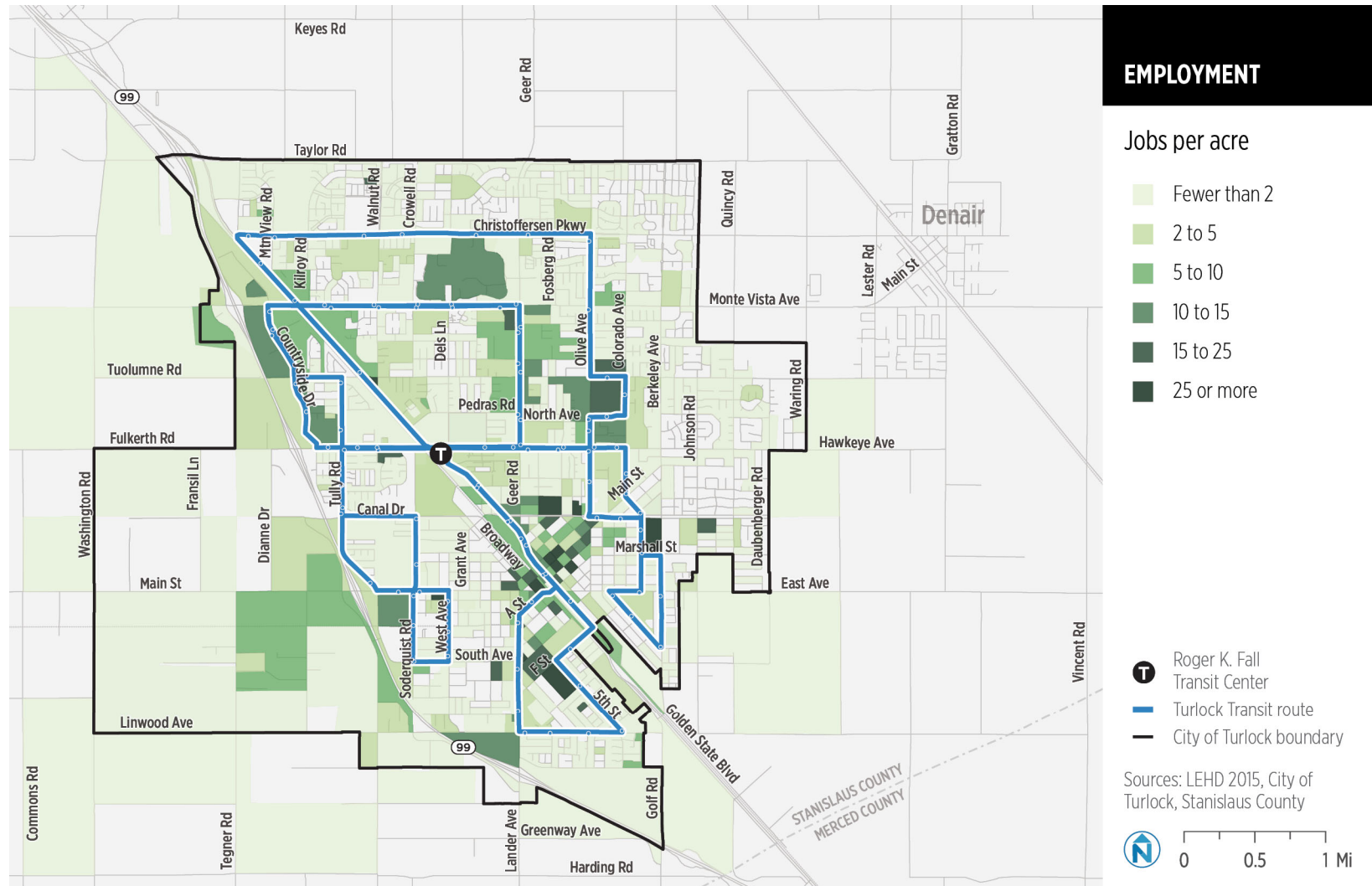
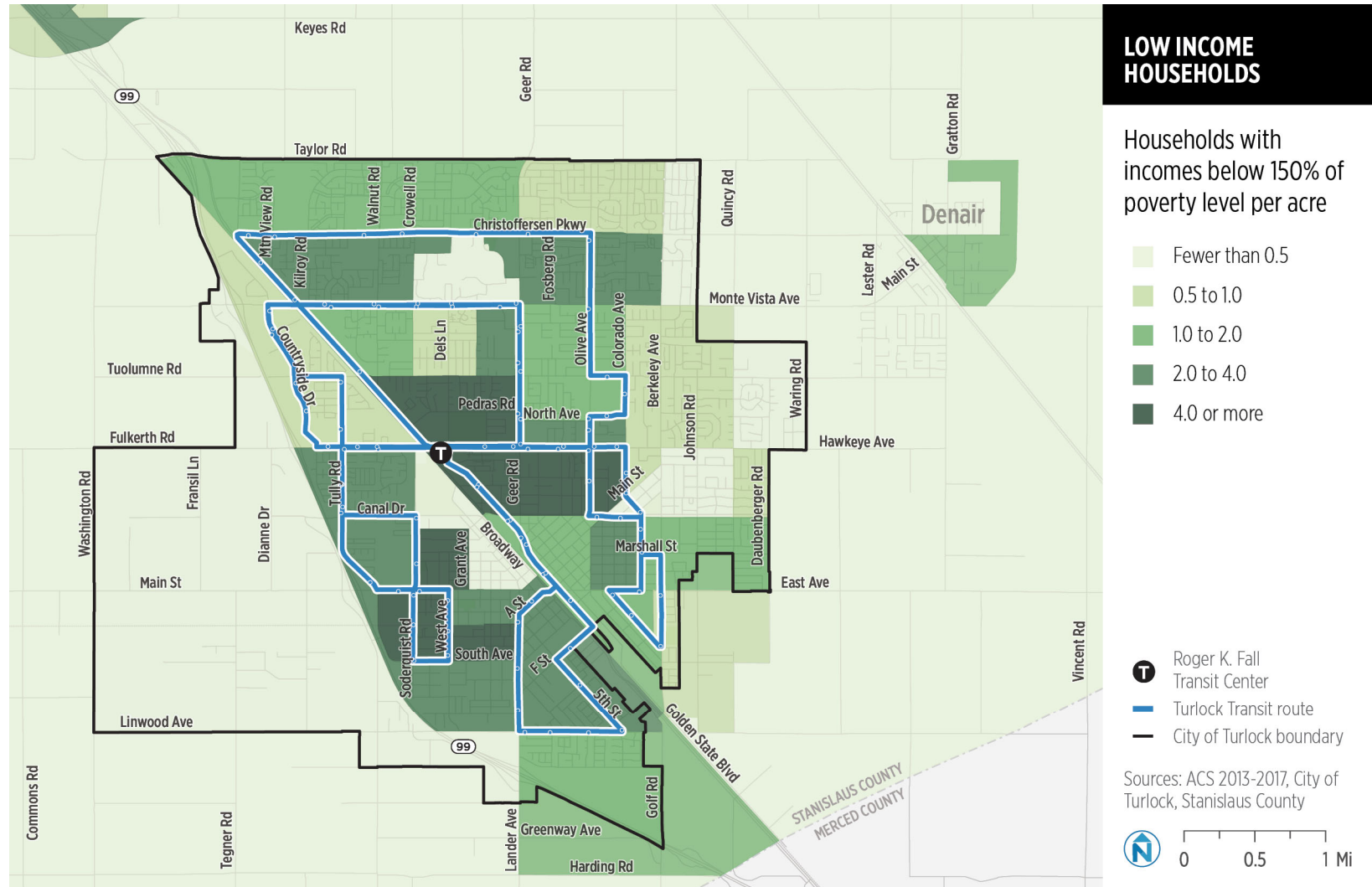
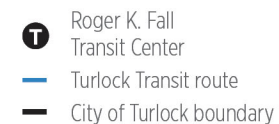
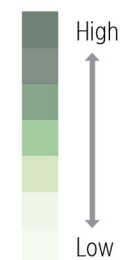
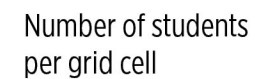


Figure 3-5 Density of Low-Income Households



**CSU STANISLAUS
STUDENTS**



Sources: CSU Stanislaus, City of Turlock, Stanislaus County

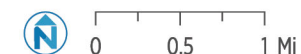


Figure 3-7 Density of People Aged 17 or Younger

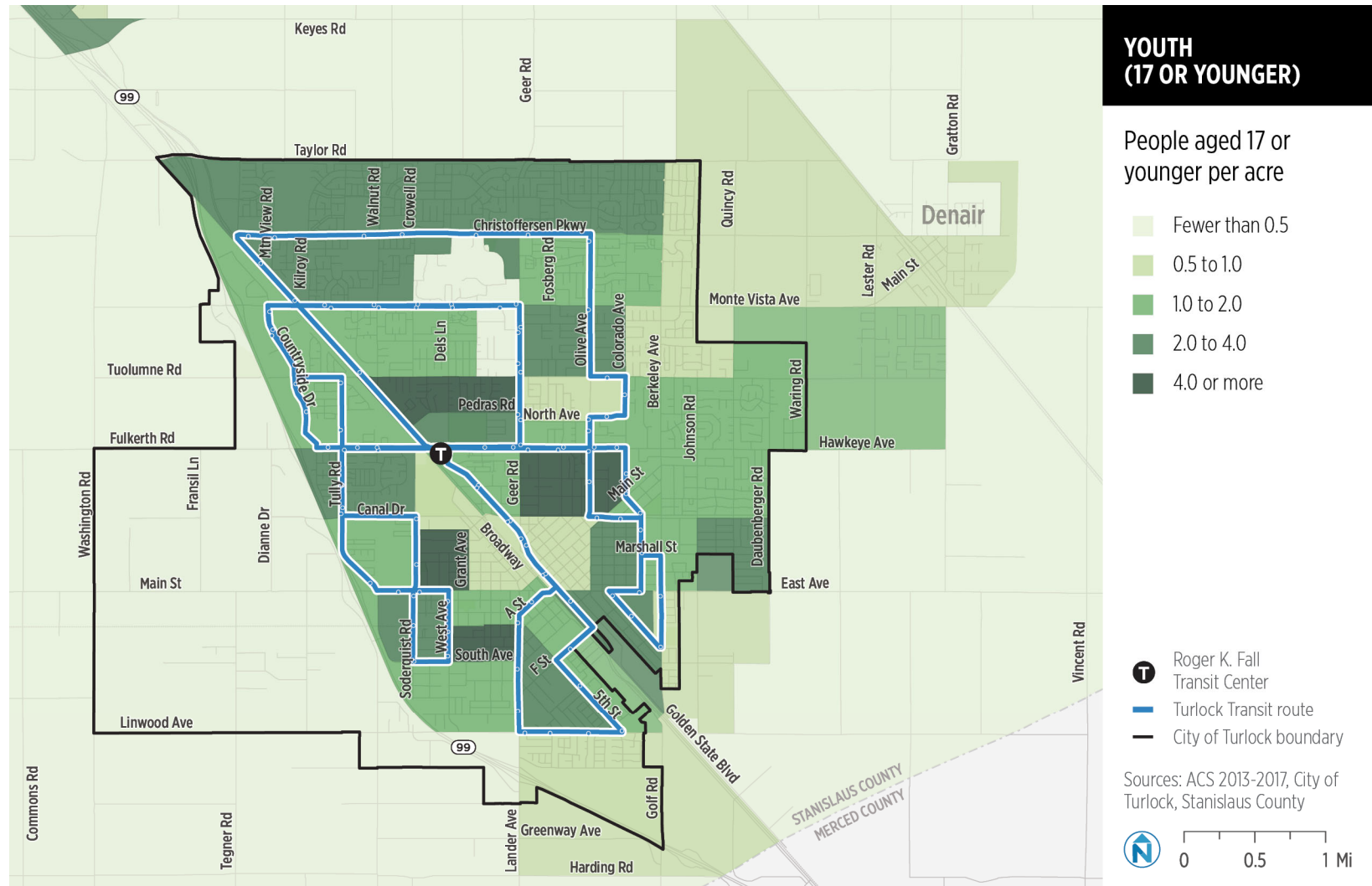


Figure 3-8 Density of People Aged 65 or over

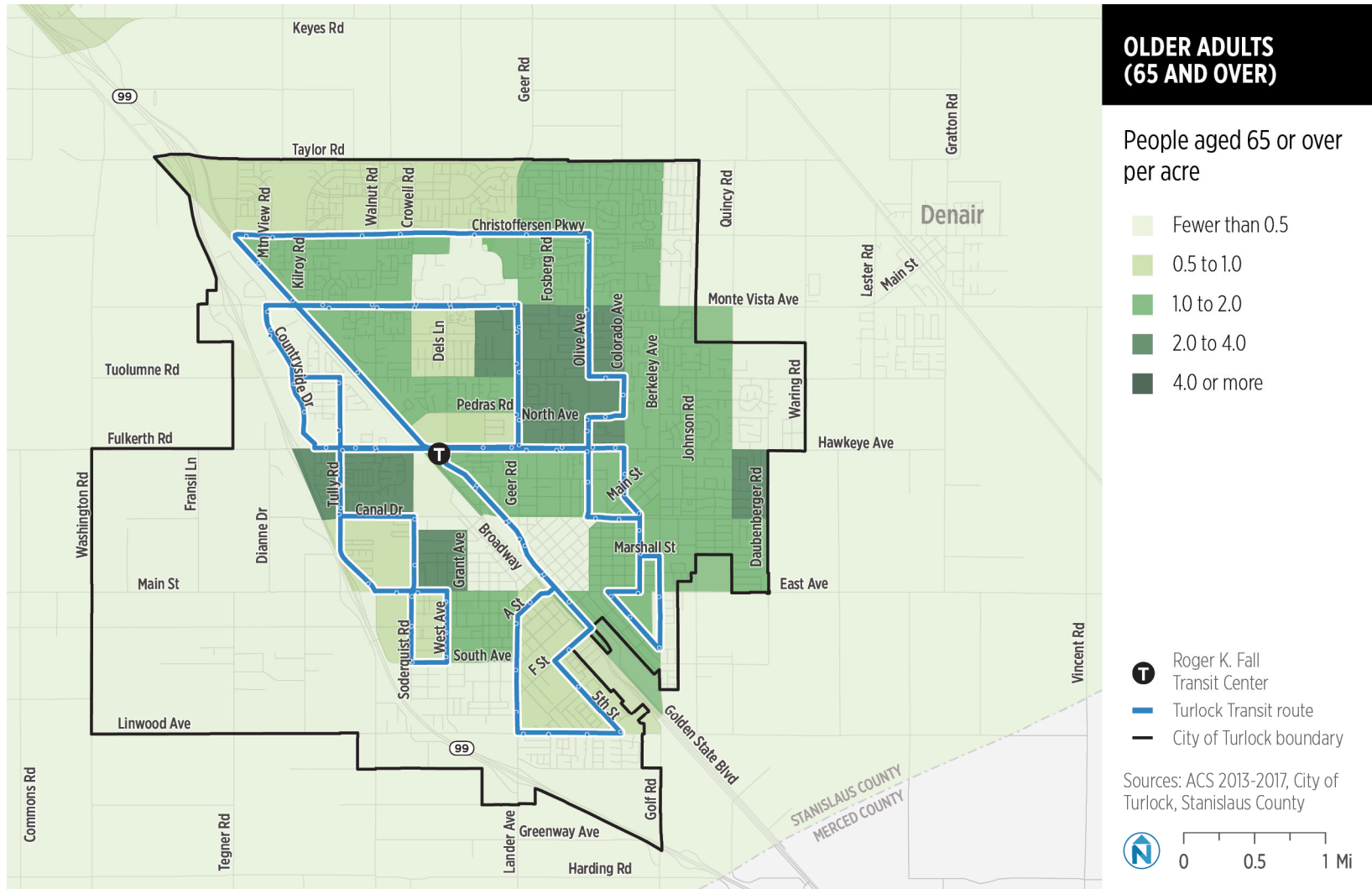


Figure 3-9 Density of People with a Disability

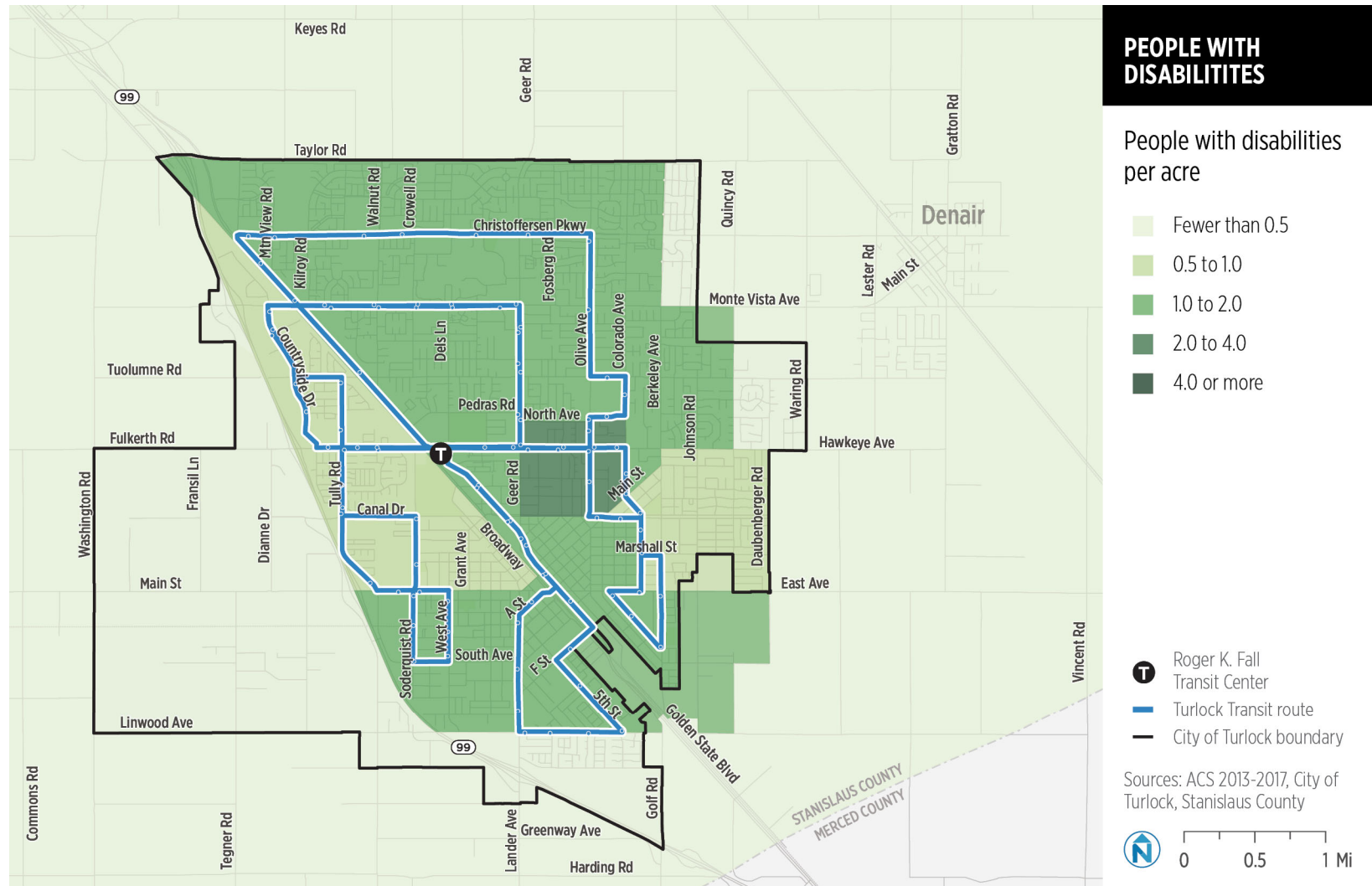
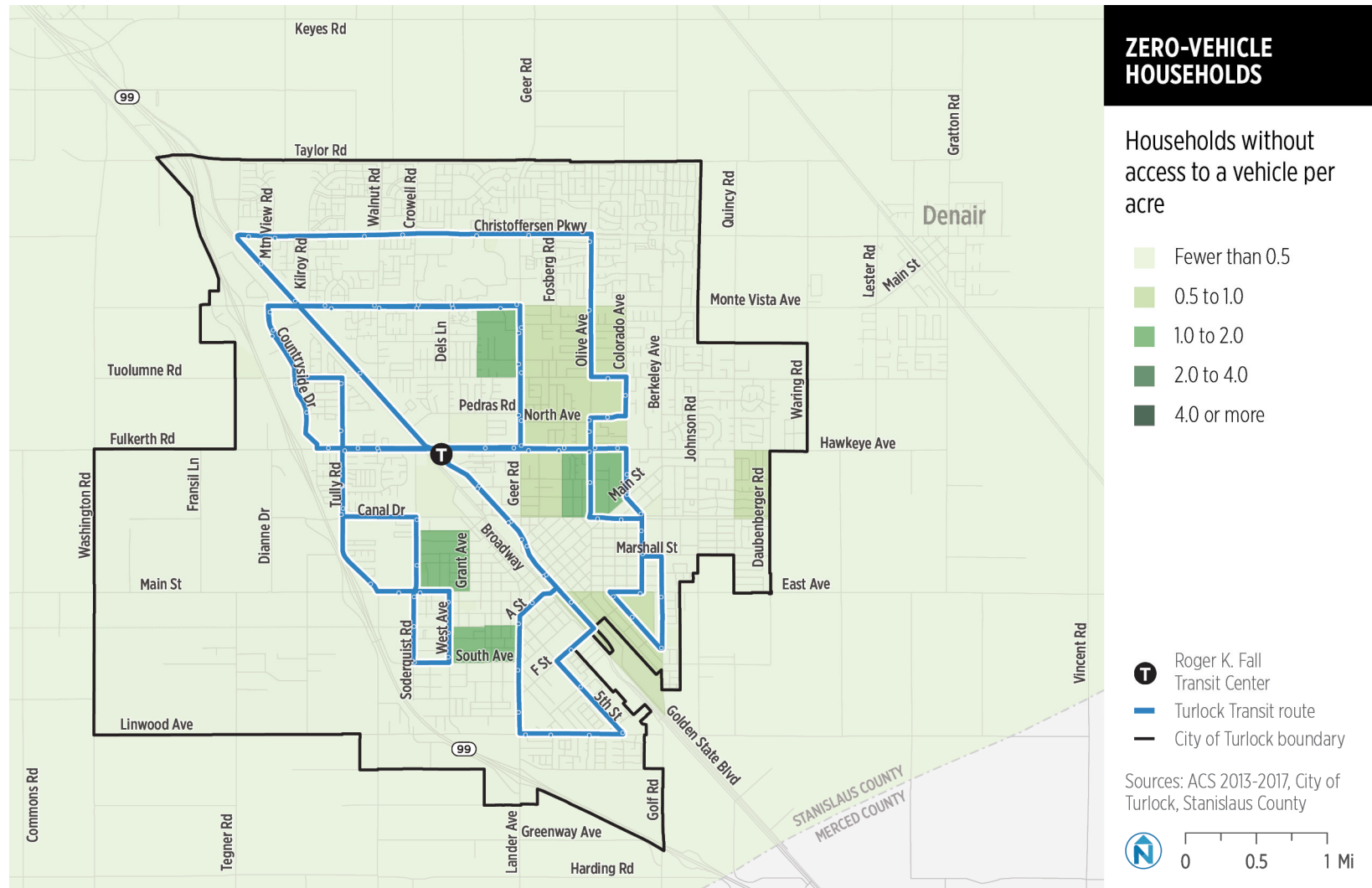


Figure 3-10 Density of Renters



Figure 3-11 Density of Zero-Vehicle Households



TRANSIT PROPENSITY

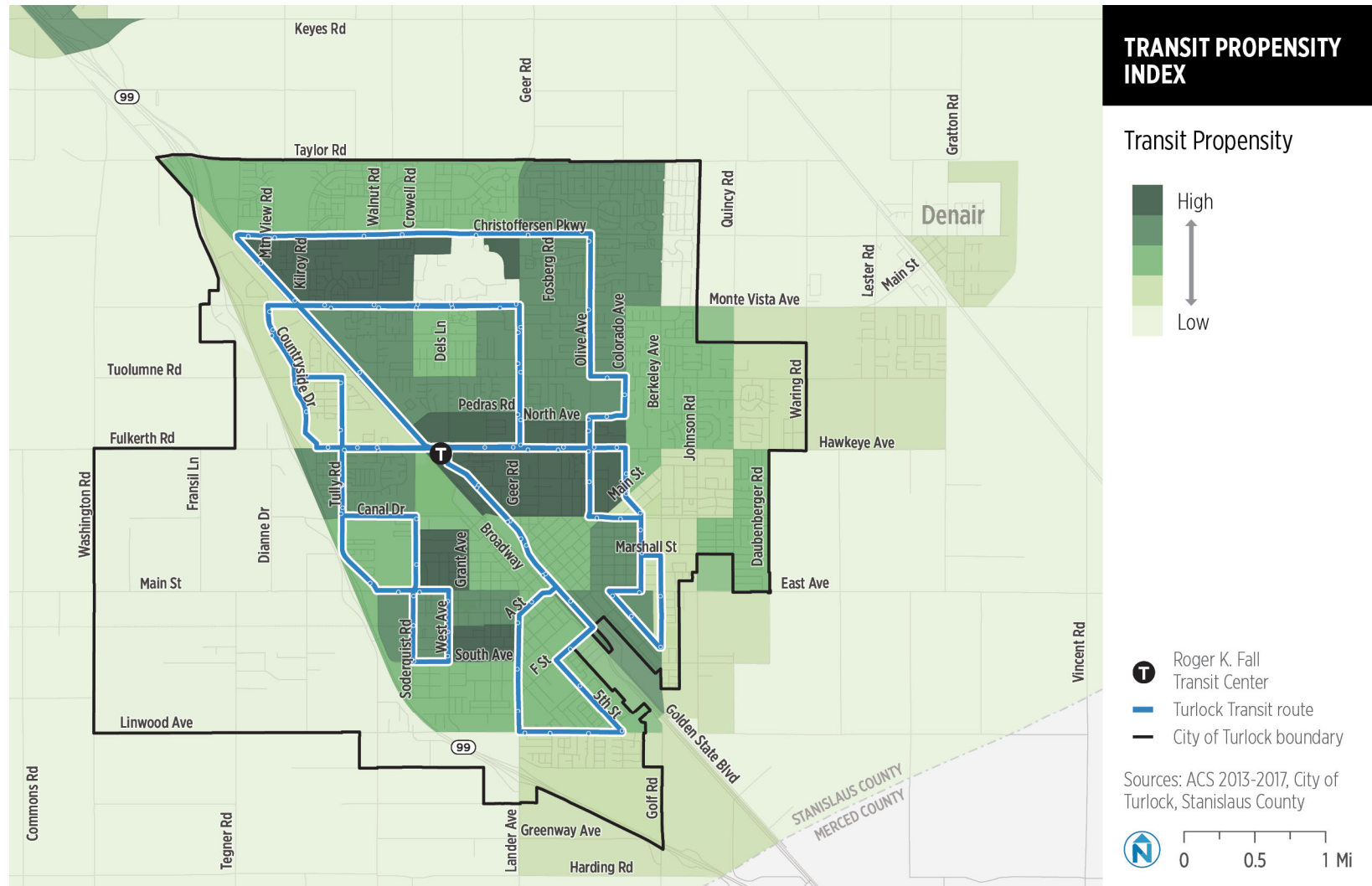
The combination of the demographic variables presented above indicate locations where transit demand is expected to be highest.¹ Certain factors may play a more dominant role in an individual's decision to use transit, though the variables are all weighted equally in this analysis for simplicity.

The areas with highest demand are primarily near CSUS between Christoffersen Parkway and Monte Vista Avenue west of Geer Road, between Canal Drive, Golden State Boulevard, Pedras Drive/North Avenue and Colorado Avenue, and in the southwest part of the city between Canal Drive, Soderquist Road, South Avenue, and Lander Avenue.

In general, these areas are all served by transit. However, there are areas with modest levels of transit demand but without transit within a five-minute walk. This includes the areas east of Berkeley Avenue between Monte Vista Avenue and Hawkeye Avenue, and east of Johnson Road between Hawkeye Avenue and East Avenue.

¹ The Transit Propensity Index is based on densities of low-income households, people less than 18 years old, people aged 65 or over, people with a disability, renters, and zero-vehicle households.

Figure 3-12 Transit Propensity Index



DEMOGRAPHIC TRENDS

Trends in demographic indicators help to understand changes over time, and changes to anticipate in the future. Figure 3-13 lists each of the demographic indicators, with values from 2012 and 2017. All indicators have increased over the five-year period.

The indicators that increased the most, and at rates higher than the growth in population, are: zero-vehicle households, older adults, and people with disabilities. Employment and renter-occupied households also increased more than the change in population, but these changes were not as large.

Figure 3-13 Change in Demographic Indicators

Indicator	2012	2017	Change	Percent Change	Average Annual Change
Population	68,576	71,906	3,330	4.9%	1.0%
Employment	23,986	25,877 ^[A]	1,891	7.9%	2.6%
Low-income households	18,578	18,837	259	1.4%	0.3%
Youth	18,061	18,426	365	2.0%	0.4%
Older adults	8,057	9,560	1,503	18.7%	3.7%
People with disabilities	8,074	9,384	1,310	16.2%	3.2%
Renter-occupied households	10,451	11,761	1,310	12.5%	2.5%
Zero-vehicle households	1,693	2,095	402	23.7%	4.7%

Note: [A] Employment is based on 2015 values. No data from 2016 or 2017 are available.

Source: 2008-12 and 2013-17 ACS 5-Year Estimates; 2012 and 2015 LEHD

MAJOR ACTIVITY CENTERS

Transit serves as a means for people to access job sites, commercial centers, medical facilities, schools, recreational sites, and to meet with friends or family. This section describes where activity centers are located, and the travel patterns of transit riders.

Activity Centers

These destinations are distributed throughout Turlock, yet some individual destinations have high levels of demand and tend to be near some of the busiest transit stops in the city.

Some of these major destinations include educational facilities like CSU-Stanislaus, Turlock High School, and Pitman High School, and commercial and shopping centers like Walmart, Target, Safeway, and Walmart Neighborhood Market. Downtown Turlock and the Salvation Army are also popular destinations. Turlock Transit serves most of these major activity centers (see Figure 3-14).

Some destinations, like the public library, Sales Yard, Turlock Irrigation District (TID), and Village Fresh Market, are located at or immediately beyond one-quarter mile of Route 4 Colorado.

Transit Rider Travel Patterns

Based on stated trip origins and destinations from an on-board survey administered from February 11 through 13, 2019, roughly one-third of responses provided sufficient information to geocode origins and destinations (84 out of 237, or 35%). Figure 3-15 presents origin-destination pairs. Noteworthy origins and destinations include:

- **CSU Stanislaus.** There were several trips either to or from CSU Stanislaus, including Target, the Roger K. Fall Transit Center, downtown Turlock, and the Walmart on Fulkerth Road.
- **Turlock High School.** Several trips started or ended at Turlock high School, from a variety of locations in Turlock, including the Roger K. Fall Transit Center.
- **Route 5.** Several trips began or ended along Route 5 – particularly the segments along Lander Avenue and Golden State Boulevard.
- **Target and Walmart.** Several trips either started or ended at Walmart on Fulkerth Road or Target on Countryside Drive.
- **Roger K. Fall Transit Center.**² Many trips either started or ended at the Roger K. Fall Transit Center.

² This is likely the result of a misunderstanding of the intent of the question, which asks where the overall trip begins and ends – not just the segment of the trip in question. Given that there are very few destinations at or near the transit center, besides connections to other routes, it is highly unlikely to be a meaningful trip generator in itself.

Figure 3-14 Major Activity Centers

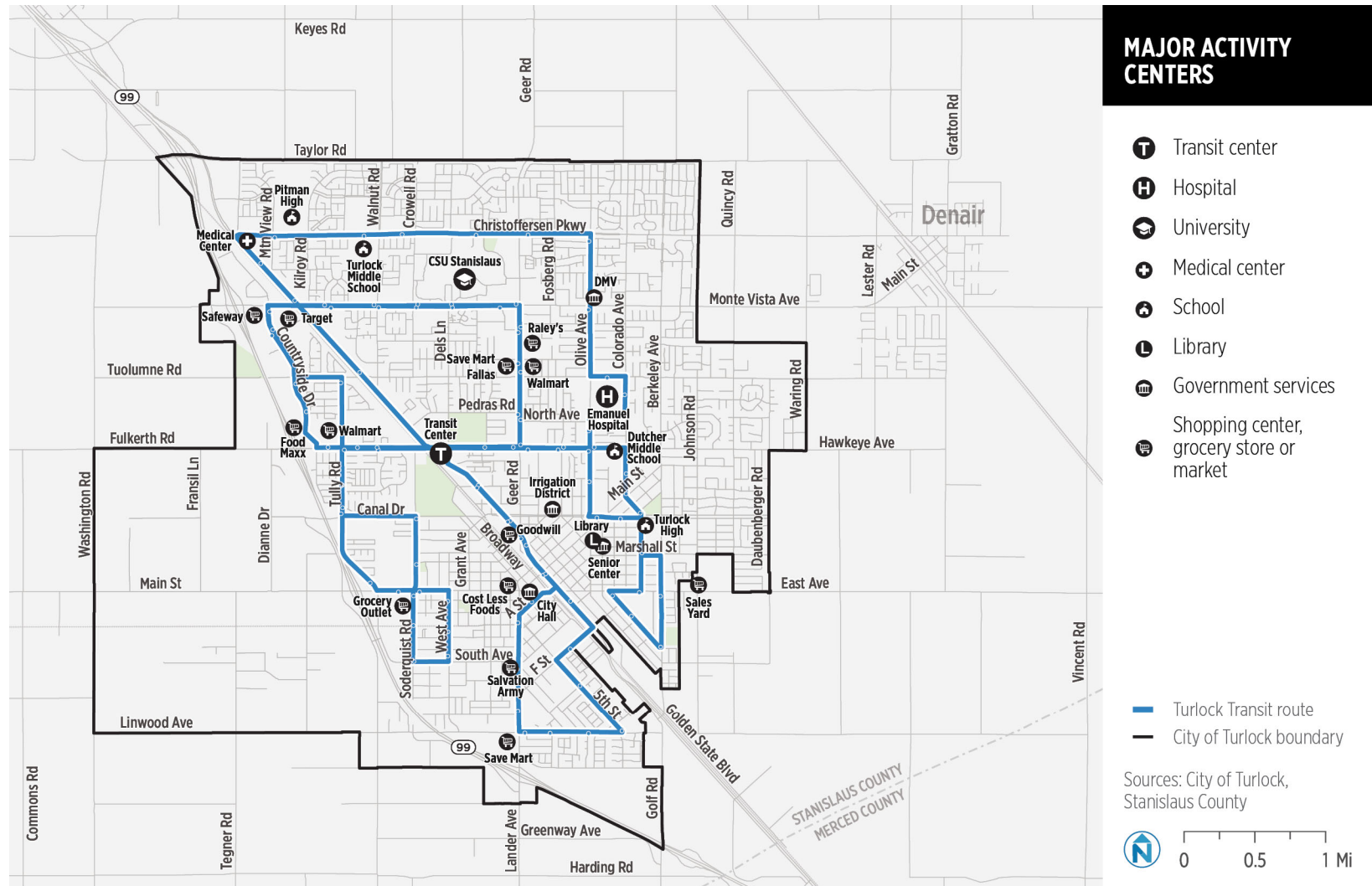
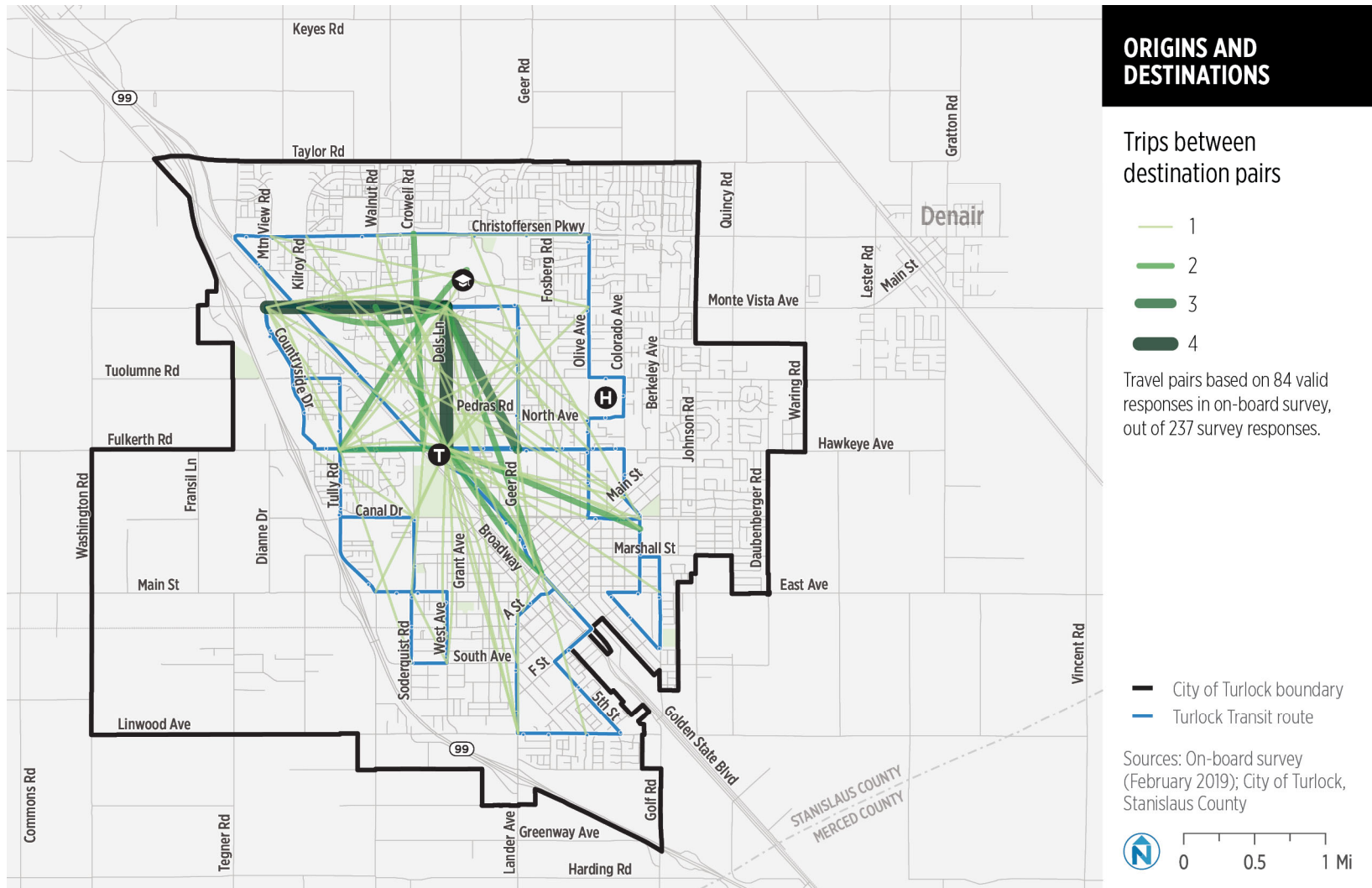


Figure 3-15 Transit Origins and Destinations of Transit Riders, February 11-13, 2019



4 EXISTING FIXED-ROUTE TRANSIT SERVICE

This chapter describes Turlock Transit's existing fixed-route service: How does it operate and how is it used?

This chapter is organized into four sections, each of which examines a different aspect of the Turlock Transit system:

- **System Description.** The system description provides a basic overview of Turlock Transit. It explains what routes are available, at which times, and how much it costs to ride.
- **Performance.** Performance metrics look at trends of ridership and the extent to which Turlock Transit delivers service as advertised.
- **Productivity.** This section examines ridership relative to the quantity of service available.
- **Regional Connections.** This section examines how Turlock Transit fits into the regional transit context.

CHAPTER 4 KEY POINTS

Figure 4-1 Chapter 4 Summary of Key Points

Topic	Key Points
System Description	<ul style="list-style-type: none"> Turlock Transit does not operate on clock-faced headways, but instead every 35 minutes during most of the day. All routes have long one-way segments except for the combined Route 1 and Route 2, which only has a small set of one-way segments on Countryside Drive, W Tuolumne Road, and N Tully Road.
Performance	<p>Ridership:</p> <ul style="list-style-type: none"> Ridership increased gradually between 2009-2010 and 2016-2017, and then relatively quickly following the service changes in 2017 (+23%). Ridership generally increases when school is in session. In 2018 ridership also spiked in July due to promotional measures during the Stanislaus County Fair (free transit, more frequent buses, later span of service). On weekdays and weekends, ridership drops steadily after 4:00 p.m. Roughly 9 in 10 boardings occur before 6 p.m. Routes 3 and 6 have substantially lower ridership than all other routes, on weekdays and weekends. <p>Reliability:</p> <ul style="list-style-type: none"> Route 4 has consistent on-time performance issues (84% on time), with buses often late or early at timepoints. In general, early departures from timepoints (7% systemwide) are a greater concern than late departures (3% systemwide).
Productivity	<ul style="list-style-type: none"> From highest to lowest, average weekday productivity for each route in 2018 was: <ul style="list-style-type: none"> – 5 Lander: 4.9 boardings per trip – 4 Colorado: 4.4 boardings per trip – 1 Countryside: 3.6 boardings per trip – 2 Geer: 3.5 boardings per trip – 3 Olive: 2.7 boardings per trip – 6 Soderquist: 2.3 boardings per trip On weekends, the number of boardings per trip drops for all routes except for Route 1 Countryside, where it increases, and Route 2 Geer, where it does not change. Farebox recovery ratio has hovered around 15-16% with the help of local revenue sources

SYSTEM DESCRIPTION

This section provides a high-level overview of the Turlock Transit system, including its routes, span, and fare structure.

Routes

Turlock Transit consists of six fixed routes that each start and end at the Roger K. Fall Transit Center. All routes are managed by the City of Turlock and operated by a private contractor, Storer Transit Systems.

Turlock Transit’s six routes are a combination of a bidirectional loop (Route 1 and Route 2, together), a one-way loop (Route 3), and three bidirectional linear routes, each with some one-way segments (routes 4, 5, and 6).

System Span

All six routes complete 27 trips on weekdays, from 6:00 a.m. to 8:55 p.m., operating every 30 to 35 minutes. All trips, including for bidirectional routes, start and end at the Roger K. Fall Transit Center.

On Saturdays, all routes run from 9:10 a.m. to 6:55 p.m. with 30 to 35 minute headways. Turlock Transit does not operate on Sundays. Figure 4-2 summarizes these system characteristics. A system map is shown in Figure 4-3.

Figure 4-2 System Trips, Span, and Headways

Characteristic	Weekday	Saturday
Number of trips	27	17
Span	6:00 a.m. – 8:55 p.m.	9:10 a.m. – 6:55 p.m.
Headways (8 a.m. to 6:30 p.m.)	35	35
Headways (early/late)	30	NA

Figure 4-3 Turlock Transit 2018-2019 System Map



Fare Structure

Riders can pay for transit using any of the following options:

- Single Trip Pass
- Day Pass
- 31-Day Pass
- Stored value card
- Cash
- CSU Stanislaus student ID
- Turlock Transit transfer
- StaRT transfer
- Token Transit (mobile ticketing)

Figure 4-4 outlines Turlock Transit's fare structure for fixed-route service. For information on the relative usage of different fare types, see Figure 4-4.

Figure 4-4 Turlock Transit Fare Structure

Rider Category	Single Trip	Day Pass	31-Day Pass
Regular	\$1.50	\$3.50	\$50.00
Discount, applies to: <ul style="list-style-type: none"> ▪ Seniors 65 and over ▪ Persons with disabilities ▪ Medicare cardholders ▪ Honorably-discharged military veterans 	\$0.75	\$1.75	\$25.00
Student K-12 students with a valid student ID	\$1.50	\$3.50	\$40.00
Student (<i>purchased via Token Transit</i>) K-12 students with a valid student ID	\$1.20	\$2.80	NA
Children Ages 0-5, limited to two per paid adult	Free	-	-
Transfers Valid for 60 minutes from time of ticket purchase	Free	-	-

In addition, 20-trip passes are available through Token Transit for each rider categories. There is no discount for purchasing a 20-trip pass.

PERFORMANCE

This section builds on the system description by explaining how Turlock Transit performs: It covers ridership, reliability—i.e., on-time performance—and average speeds. Further detail on each individual route is available in Chapter 5: Route Profiles.

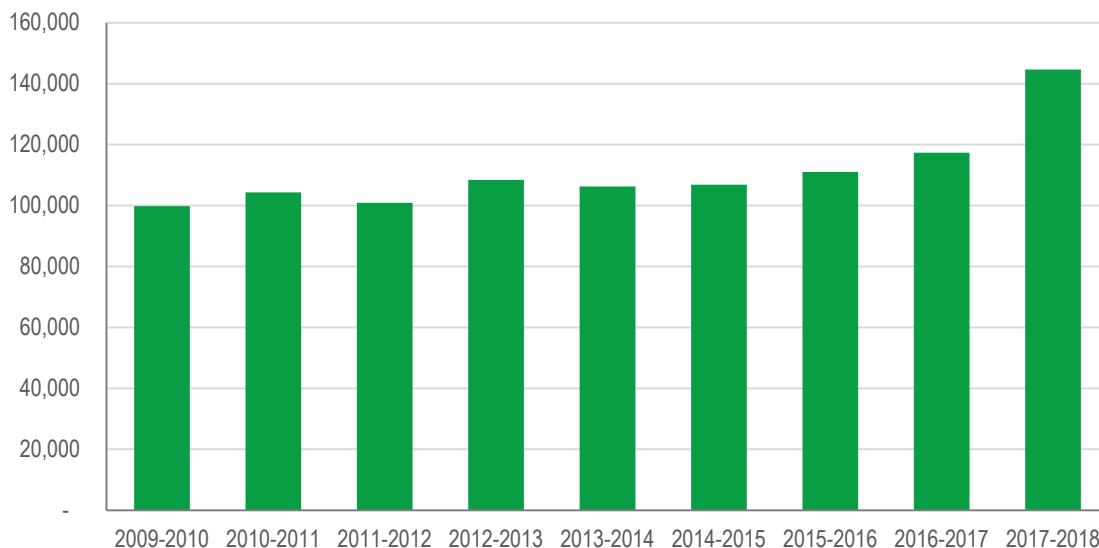
Ridership

The purpose of transit is to help people get where they need to go. This section explains how people use Turlock Transit, both today and in the past. It presents ridership information through five different frames of reference: (1) historical annual ridership, (2) ridership by month, (3) ridership by time of day, (4) ridership by route, and (5) ridership by stop.

Historical Annual Ridership

Ridership was relatively flat between Fiscal Year (FY) 2009-10 and FY2016-17. During this period, Turlock Transit was called BLAST and included four one-way loops. Starting in 2017, Turlock Transit's routes were restructured to their current configuration, with a large increase in levels of service. Total annual ridership increased by 23% between FY2016-17 and FY2017-18. Figure 4-5 presents total annual ridership for the past ten years.

Figure 4-5 Annual Boardings, FY2009-10 to FY2017-18



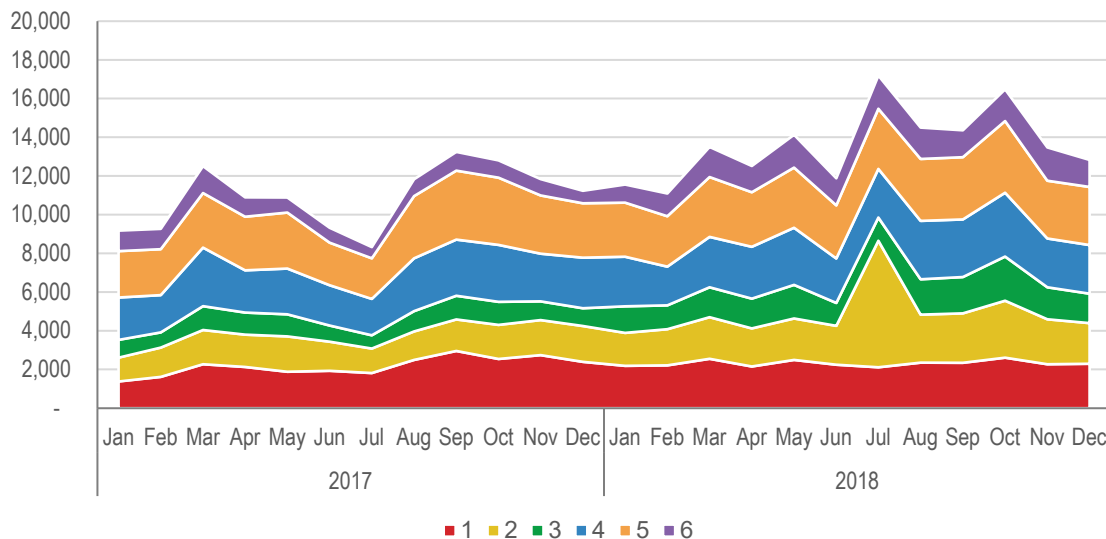
Source: Turlock Transit, fiscal year ridership

Ridership by Month

In general, ridership increases when CSU Stanislaus and high schools are in session, and decreases when they are not. Figure 4-6 presents total monthly boardings in 2017 and 2018.

In July 2018, ridership increased dramatically. This was largely due to promotional measures taken by Turlock Transit during the 2018 Stanislaus County Fair, when service on Route 2 Geer (yellow) came twice as often (approximately every 15 minutes), remained running later at night, and was free to use.

Figure 4-6 Total Monthly Boardings, By Route, Calendar Year 2017 and 2018



Source: Turlock Transit GenFare boarding data, January 1, 2017 through December 31, 2018

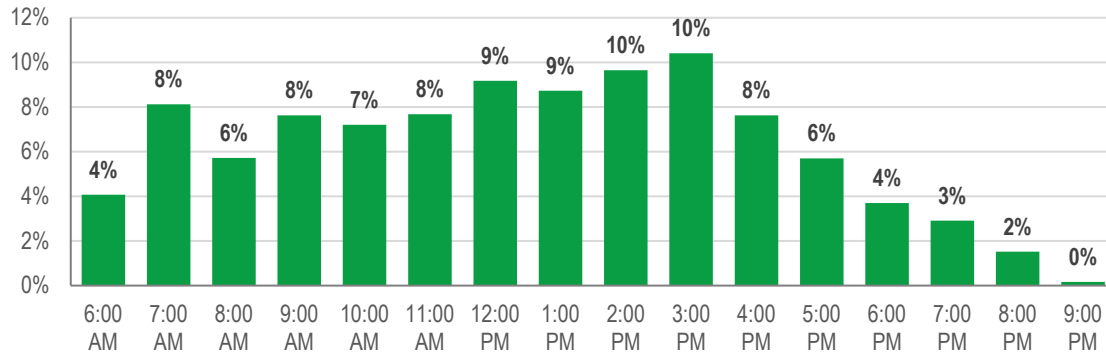
Ridership by Time of Day

During weekdays (Figure 4-7), ridership is highest between 3:00 p.m. and 4:00 p.m. After a brief increase between 7:00 a.m. and 8:00 a.m., it rises gradually throughout the day, then begins dropping at 4:00 p.m. Nearly to nine out of 10 rides (87%) occur between 7:00 a.m. and 6:00 p.m.

On Saturdays (Figure 4-8), ridership is relatively flat between 9:00 a.m. and 4:00 p.m. Then, as on weekdays, ridership drops in the evening. More than nine out of 10 (94%) boardings occur before 5:00 p.m.

It is worth pointing out that each hour interval—represented as a bar in the bar chart below—includes two departures per route (12 total), except for 11:00 a.m. and 6:00 p.m., which both have one departure per route (6 total).

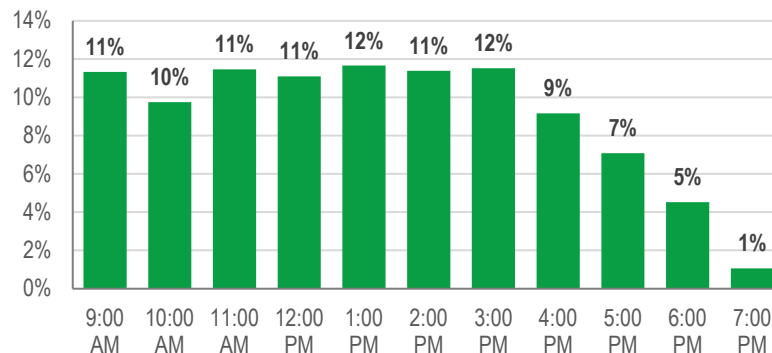
Figure 4-7 Boardings by Time of Day, Weekdays, 2018



Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018

Note: Each hour refers to the full clock hour. For example, "6:00 AM" refers to boardings between 6:00 a.m. and 6:59 a.m.

Figure 4-8 Boardings by Time of Day, Saturdays, 2018



Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018

Ridership by Route

This subsection presents ridership at the route level, for all days combined, as well as weekdays and Saturdays separately.

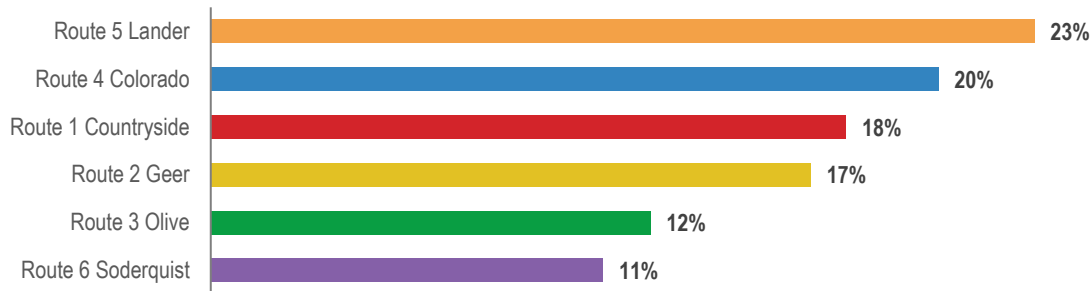
In all charts, numbers refer to the 2018 calendar year, excluding July, because of the special promotional circumstances during the Stanislaus County Fair and additional revenue hours during that month.

Total Ridership

- Overall, the share of 2018 boardings is highest on Route 5 Lander (23%), followed by Route 4 Colorado (20%). Together, these two routes make up nearly half (43%) of systemwide boardings.
- Routes 1 and 2 have a mid-range share of total ridership (18% and 17% respectively).
- Routes 3 and 6 capture a relatively low share of overall ridership (12% and 11% respectively).

Figure 4-9 presents the percent of boardings by route in 2018.

Figure 4-9 Percent of Total Boardings by Route, 2018

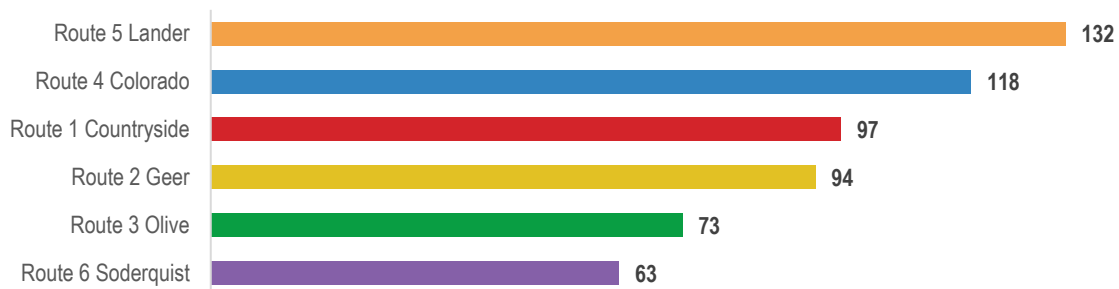


Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018, excluding July

Weekdays

On weekdays, of 577 average daily boardings, the routes with the highest ridership are, in order, Route 5 Lander, Route 4 Colorado, Route 1 Countryside, and Route 2 Geer. Figure 4-10 presents each route's average daily weekday boardings in 2018.

Figure 4-10 Average Daily Boardings by Route, Weekdays, 2018

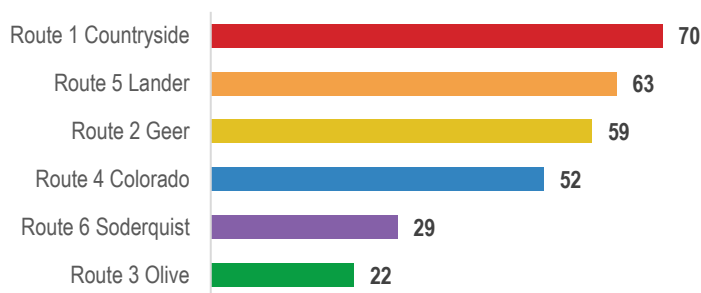


Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018, excluding July

Saturdays

On Saturdays, the number of average boardings is about half (51%) of weekday boardings, at 294. Route 1 Countryside, the third most popular route on weekdays is the most popular route on Saturdays. Routes 3 Olive and 6 Soderquist continue to lag behind the all other routes. Figure 4-11 presents average Saturday boardings for each route in 2018.

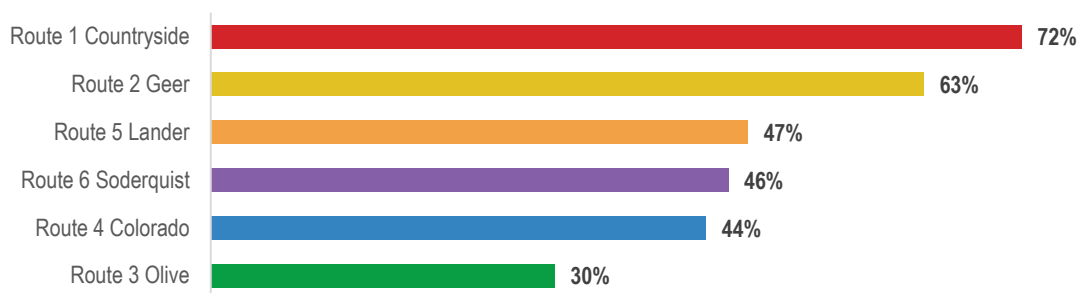
Figure 4-11 Average Daily Boardings by Route, Saturdays, 2018



Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018, excluding July

Comparing weekdays with Saturdays, Route 1 and Route 2 maintain higher levels of Saturday ridership relative to weekdays (72% and 63% respectively). By contrast, routes 4, 5, and 6 have less than half of their average weekday ridership on Saturdays. Route 3 Saturday ridership is less than one-third of its average weekday level. Figure 4-12 presents the percent of average Saturday boardings relative to average weekday boardings, by route.

Figure 4-12 Percent of Average Saturday Boardings Relative to Average Weekday Boardings, by Route, 2018



Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018, excluding July

Ridership by Stop

This subsection presents ridership at the stop level, based on a manual, systemwide ridership count from February 11 through 13, 2019. Figure 4-13 summarizes ridership hotspots as well as areas with relatively low ridership.¹ Figure 4-14 presents a map of average daily boardings by stop.

Further information on ridership by stop, for each route, is available in Chapter 5: Route Profiles.

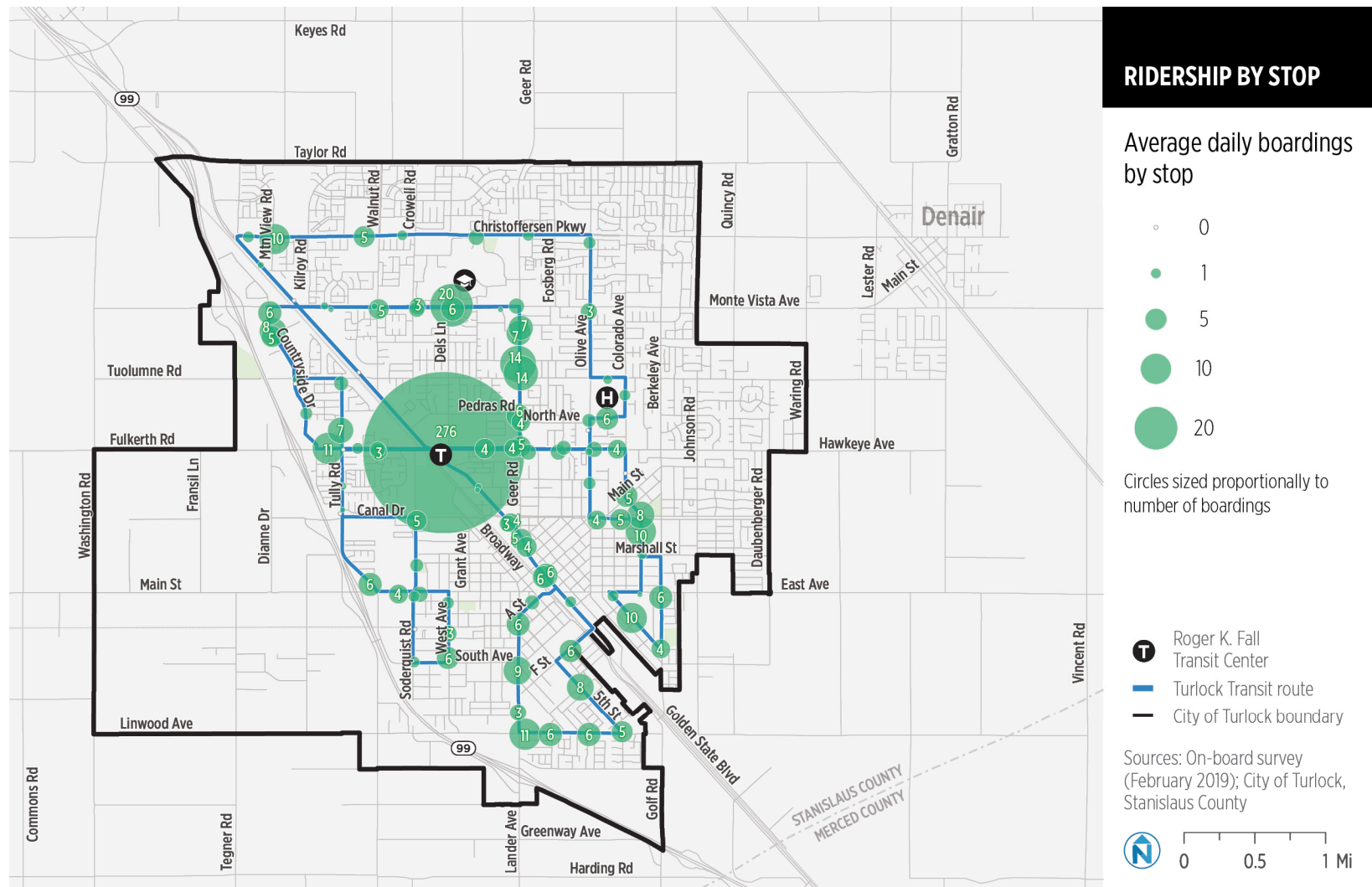
Figure 4-13 Ridership Hotspots and Lower Ridership Areas

Route	Ridership Hotspots	Lower Ridership Areas
Route 1 Countryside and 2 Geer	<ul style="list-style-type: none"> On Geer Road, particularly near Tuolumne Road At Monte Vista Avenue and Dels Lane (CSU Stanislaus) Near Countryside Drive and Monte Vista Avenue (Target) Near Tully Road and Fulkerth Road (Walmart) 	<ul style="list-style-type: none"> On Tully Road at Tuolumne Road At Geer Road and Monte Vista Avenue at Monte Vista Avenue between Crowell Road and Golden State Boulevard
Route 3 Olive	<ul style="list-style-type: none"> At Pitman High School At Emanuel Medical Center 	<ul style="list-style-type: none"> All other segments
Route 4 Colorado	<ul style="list-style-type: none"> Near Turlock High School At Alpha Road and Cottonwood Street 	<ul style="list-style-type: none"> Segments north of Main Street East Avenue at Alpha Road and Colorado Avenue
Route 5 Lander	<ul style="list-style-type: none"> On Golden State Boulevard north of Marshall Street On Lander Avenue, south of South Avenue On Linwood Avenue On 5th Street 	<ul style="list-style-type: none"> Golden State Boulevard south of Marshall Street
Route 6 Soderquist	<ul style="list-style-type: none"> On West Avenue at and near South Avenue On West Main Street between Tully Road and Soderquist Road (including Days Inn stop) 	<ul style="list-style-type: none"> All other segments

On-board ride check, February 11-13, 2019

¹ We do not use a formal definition of “high” and “low” ridership for this analysis. However, in general, ridership hotspots refer to stops – or groupings of nearby stops – with 10 or more average daily boardings.

Figure 4-14 Average Daily Ridership by Stop, February 11-13, 2019



Reliability: On-Time Performance

Reliability, or “on-time performance”, measures the extent to which buses depart at the intended time from each scheduled timepoint. Departures (or arrivals for the end of a trip at Roger K. Fall Transit Center) can be on time, early, or late.

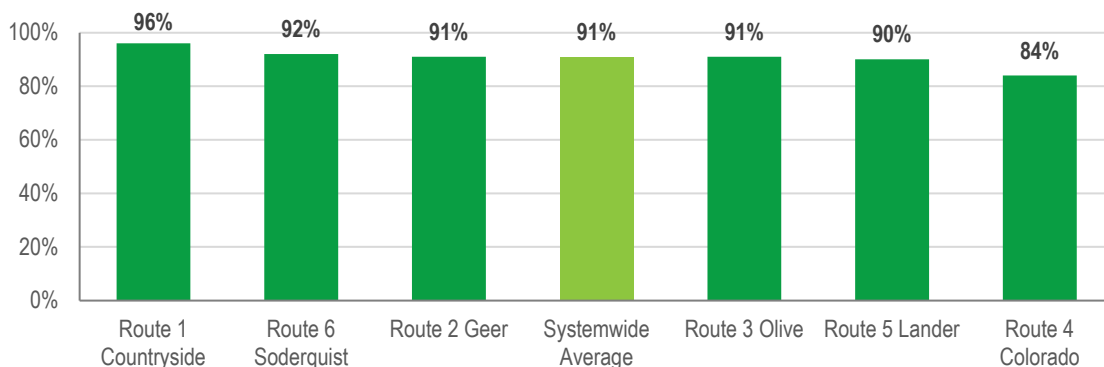
- **On time** refers to instances when a bus departs from a given timepoint between 1 minute before and 5 minutes after the scheduled time. For the last timepoint, i.e., the return to Roger K. Fall Transit Center, early arrivals are considered on time.
- **Late** refers to instances when a bus departs from a given timepoint more than 5 minutes after the scheduled time. For the last timepoint, (return to Roger K. Fall Transit Center), “late” refers to arrival time rather than departure time.
- **Early** refers to instances when a bus departs from a given timepoint more than 1 minute before the scheduled time. For the last timepoint (return to Roger K. Fall Transit Center), an early arrival is considered on time, not early.

The charts in this section present on-time performance, based on a manual time check at scheduled timepoints on February 11-13, 2019. Route averages are based on two measurements per trip, over the course of the three days.

On Time

All routes except Route 4 Colorado were on time for 90% of the measured timepoints (Figure 4-15). Route 1 Countryside had the highest on-time performance (96%), while Route 4 Colorado had the lowest on-time performance (84%).

Figure 4-15 Percent On Time, By Route, February 11-13, 2019

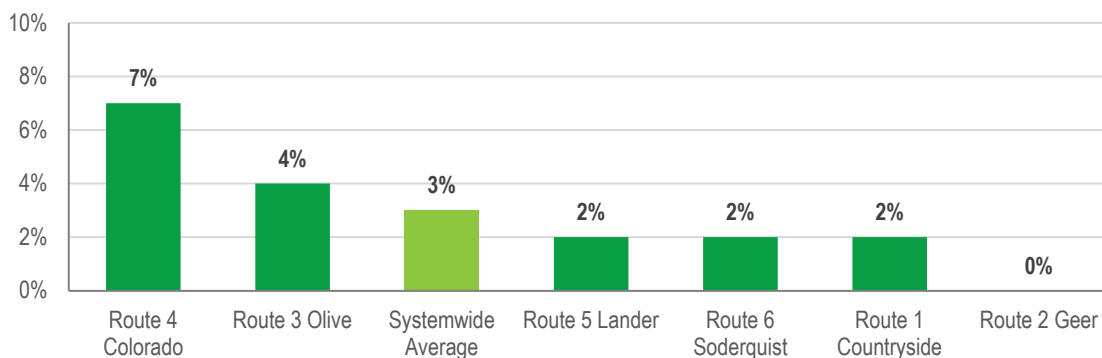


Source: On-board ride check, February 11-13, 2019

Late

Systemwide, the bus was late relative to the schedule 3% of the time (Figure 4-16). For Route 4 Colorado and Route 3 Olive, this number was 7% and 4% respectively. For all other routes, it was 2% or less.

Figure 4-16 Percent Late, By Route, February 11-13, 2019

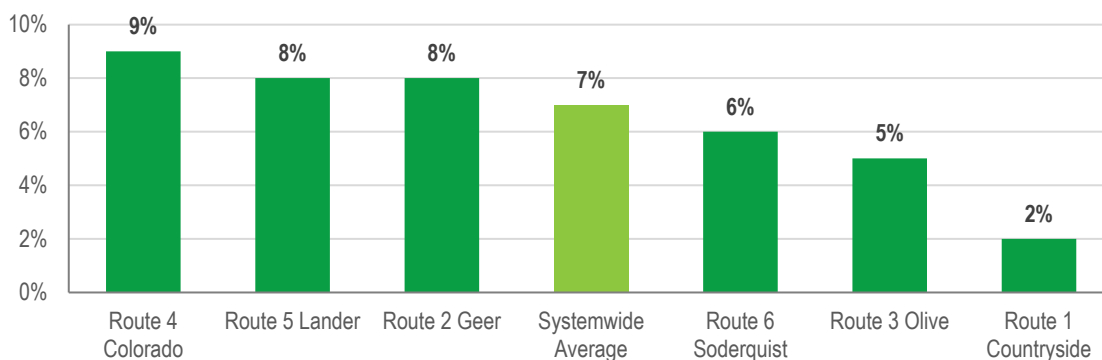


Source: On-board ride check, February 11-13, 2019

Early

Excluding the Roger K. Fall Transit Center, buses departed early from timepoints 7% of the time systemwide (Figure 4-17). Route 4 Colorado was most often early (9%), followed by Route 5 Lander and Route 2 Geer (8% each).

Figure 4-17 Percent Early, By Route, February 11-13, 2019



Source: On-board ride check, February 11-13, 2019

More detailed on-time performance information is available in Chapter 5: Route Profiles.

Average Speeds

Turlock Transit routes achieve average speeds between 11 and 19 mph according to scheduled times. Figure 4-18 summarizes Turlock Transit route patterns, lengths, and average speeds, and Figure 4-3 presents the current system map.

Figure 4-18 Route Patterns, Lengths, and Average Speeds

Route	Pattern	Miles	Avg Mph Early/Late	Avg Mph 8 a.m. to 6:30 p.m.
1 Countryside	Clockwise loop Bidirectional loop when combined with Route 2 Geer	5.6	13.4	11.2
2 Geer	Counterclockwise loop Bidirectional loop when combined with Route 1 Countryside	5.5	13.2	11.0
3 Olive	Clockwise loop	7.9	19.0	15.8
4 Colorado	Bidirectional with some one-way segments	6.2	14.9	12.4
5 Lander	Bidirectional with some one-way segments	6.0	14.4	12.0
6 Soderquist	Bidirectional with some one-way segments	5.9	14.2	11.8

Spotlight: Travel Delay by Segment

Average speeds are a measure used to contextualize how competitive a transit trip might be to a car trip. They are also a way to show how external forces impact service. However, using average speed must be done cautiously.

For example, Turlock Transit strives to serve as many people as possible. This can be in conflict with individual riders' goals of getting from point A to point B as quickly as possible. A route that goes directly from a person's home to work with no stops could be fast, but would not serve the general public.

An analysis of travel delay by segment could help Turlock Transit uncover where routes may be slow due to reasons that can be addressed and fixed. This would help identify places where:

- Transit signal priority would be most useful
- Bus stop placement should be adjusted
- Bus stop spacing should be adjusted
- Street design could be updated



Example travel-delay-by-segment analysis in Tacoma, WA.
Source: Nelson\Nygaard

PRODUCTIVITY

Productivity refers to how well utilized transit service is in the service area. There are multiple ways to measure productivity. Figure 4-19 shows that although ridership grew between FY2013-14 and FY2017-18, boardings per vehicle revenue hour and cost per boarding trended negatively. Figure 4-20 illustrates that with increases in service, ridership has also grown, although at a slower pace. Ridership is not expected to grow at the same rate as vehicle revenue hours. However, ridership increases indicate that the public is responding favorably to the service changes.

Figure 4-19 Summary Performance Statistics

Fiscal Year	Boardings	Revenue Hours	Operating Cost	Boardings per Vehicle Revenue Hour	Operating Cost per Boarding	Operating Cost per Vehicle Revenue Hour
2013-14	106,256	11,495	\$741,707	9.2	\$6.98	\$64.52
2014-15	106,831	12,033	\$713,119	8.9	\$6.68	\$59.26
2015-16	111,040	12,894	\$846,490	8.6	\$7.62	\$65.65
2016-17	117,370	18,653	\$916,062	6.3	\$7.80	\$49.11
2017-18	144,648	24,964	\$1,704,210	5.8	\$11.78	\$68.27

Source: Annual State Controller's Reports

Figure 4-20 Increase in Ridership and Vehicle Revenue Hours

Fiscal Year	Vehicle Revenue Hours	Annual Change in Hours	Boardings	Annual Change in Ridership
2013-14	11,495	-	106K	-
2014-15	12,033	4.7%	107K	0.5%
2015-16	12,894	7.2%	111K	3.9%
2016-17	18,653	44.7%	117K	5.7%
2017-18	24,964	33.8%	145K	23.5%

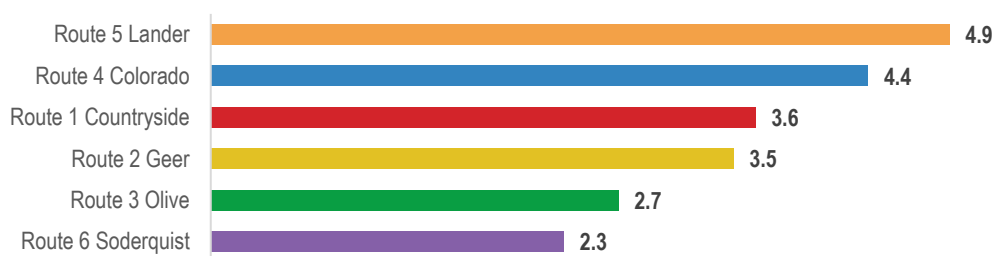
Source: Annual State Controller's Reports

Average Boardings per Trip

Because the number of trips and cycle time for each route is identical, we use the number of boardings per trip to measure productivity of routes against each other.

On weekdays, routes 5 Lander and 4 Colorado are the most productive with more than 4 average boardings per trip. Routes 1 Countryside and 2 Geer have slightly lower boardings per trip (3.6 and 3.5 respectively), and routes 3 Olive and 6 Soderquist have fewer than three average boardings per trip. Figure 4-21 presents average boardings per trip on weekdays.

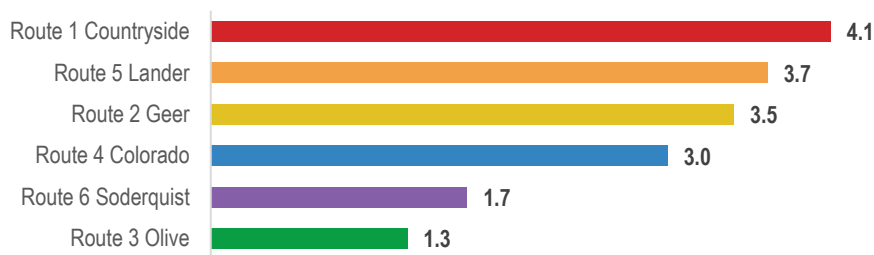
Figure 4-21 Average Boardings per Trip, By Route, Weekdays, 2018



Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018, excluding July

On Saturdays, productivity increases for Route 1 Countryside, stays the same for Route 2 Geer, and drops for all other routes. Figure 4-22 presents average boardings per trip on Saturdays.

Figure 4-22 Average Boardings per Trip, by Route, Saturdays, 2018



Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018, excluding July

Farebox Recovery Ratio

The farebox recovery ratio for Turlock Transit was 16.3% in FY2017-18 (Figure 4-23). Note that this chapter—and all other instances in the SRTP except for Chapter 7: Peer Review—refers to the farebox recovery ratio as reported to the

state of California for funding requirements. This is different from the number reported to the National Transit Database (NTD), which does not factor in local revenue counted towards farebox recovery, such as advertising revenue and Measure L.

Figure 4-23 Farebox Recovery Ratio

Fiscal Year	Operating Cost	Fares Collected	Farebox Recovery Ratio	Local Revenue Used for Farebox Recovery
2013-14	\$741,707	\$112,855	15.2%	None reported
2014-15	\$713,119	\$107,184	15.0%	None reported
2015-16	\$846,490	\$137,527	16.2%	Advertising revenue
2016-17	\$916,062	\$148,398	16.2%	Advertising revenue
2017-18	\$1,704,210	\$277,847	16.3%	Advertising revenue, Measure L

Source: Annual State Controller's Reports

REGIONAL CONNECTIONS

Turlock Transit provides fixed-route service within Turlock only. Other transit agencies provide regional services for residents, students and employees who are traveling between Turlock and other communities.

Stanislaus Regional Transit (StaRT)

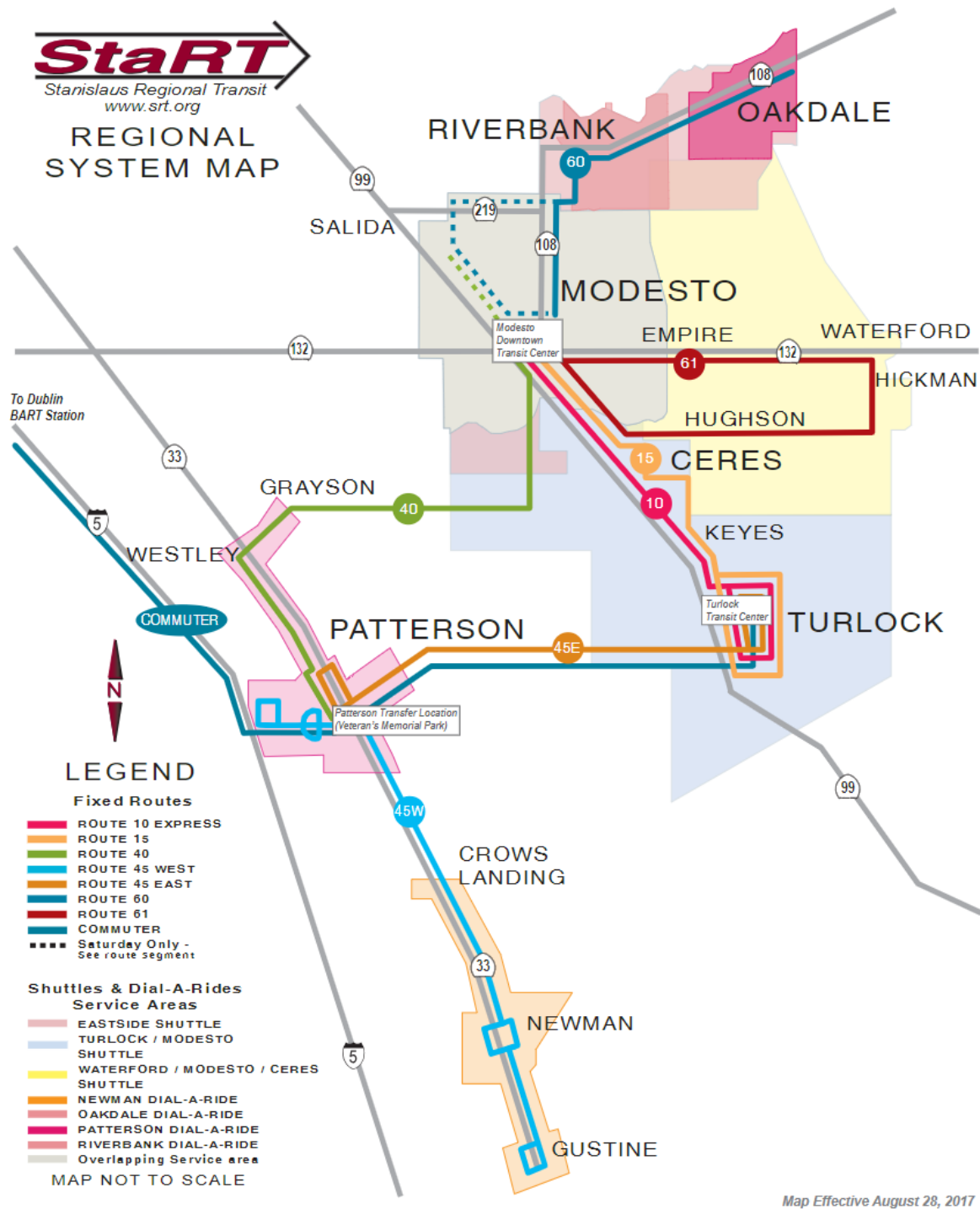
StaRT is the regional transit agency for Stanislaus County. Four of StaRT's fixed-routes serve Turlock (10, 15, 45E and the Commuter Route), and the area is also served by the Turlock/Modesto Shuttle, a general public demand-response service that operates at select times each day. All routes provide service Monday through Friday, with fewer trips on Saturdays, and no service on Sundays.

Figure 4-24 StaRT Service in Turlock

Route	Cities	Monday-Friday	Saturday
Route 10	Turlock – Modesto via CA-99	16 roundtrips	-
Route 15	Turlock – Ceres – Modesto	12 roundtrips	8 roundtrips
Route 45E	Turlock – Patterson	8 roundtrips	4 roundtrips
Commuter	Turlock – Patterson – Dublin/Pleasanton BART	1 roundtrip	-

Turlock/Modesto Shuttle	Modesto, Ceres, Keyes, Turlock and Denair	4 roundtrips	3 roundtrips
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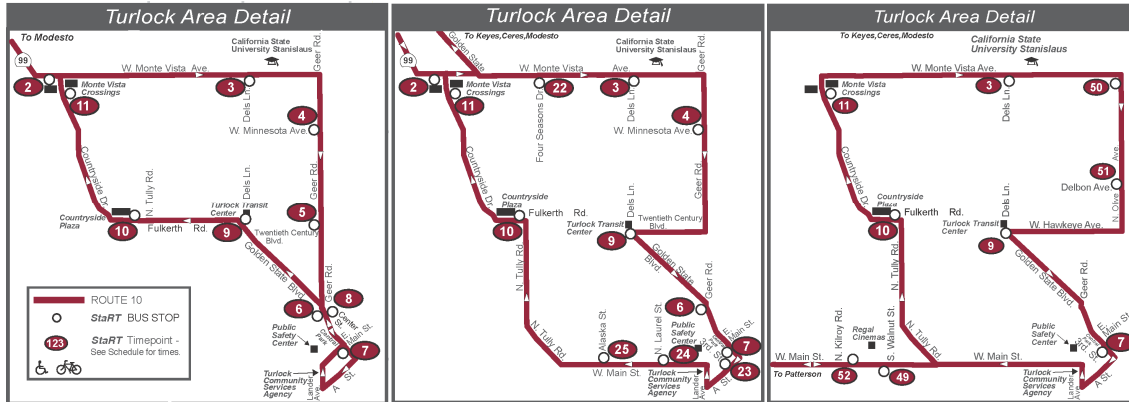
Figure 4-25 StaRT System Map



Source: Stanislaus Regional Transit

Each StaRT route has a different alignment in Turlock. Figure 4-26 displays the alignments for routes 10, 15, and 45.

Figure 4-26 Turlock Route Alignments, StaRT Routes 10 (Left), 15 (Center), and 45 (Right)



Merced Regional Transit System (Merced The Bus)

The Merced Regional Transit System (“The Bus”) provides regional transit within Merced County – south of Turlock. In addition to providing local service within several of the county’s cities, The Bus operates several intercity routes.

One of those routes – known as the Turlock Commuter - provides service between Merced and Turlock, with service through Atwater, Livingstone and Delhi. Service operates seven days a week, approximately every hour. On Saturdays and Sundays, there are four trips to Turlock and three trips to Merced. The Turlock Commuter serves four stops in Turlock:

- Monte Vista Avenue and Countryside Drive (Target)
- Monte Vista Avenue and Crowell Road (near CSU Stanislaus)
- Roger K. Fall Transit Center
- Fulkerth Road and Countryside Drive (Walmart)

Figure 4-27 Merced The Bus Turlock Commuter Schedule

ROUTE: T Turlock Commuter						Turlock / Delhi / Livingston / Atwater / Merced				Effective/ Efectivo: 08/07/2017			
Monday-Friday To Turlock						Lunes-Viernes A Turlock				To Merced			
①	②	③	④	⑤	⑥	④	③	②	①	④	③	②	①
Merced Transpo (Depart)	Atwater Transpo	Across Walnut Ave. & Franci St.	Veterans Memorial Bldg. (Delhi)	Rite Aid Monte Vista (Turlock)	Turlock Transpo Center	Across Veterans Memorial Bldg. (Delhi)	Walnut Ave. & Franci St. (Church Side) (Livingston)	Atwater Transpo	Merced Transpo (Arrive)	Across Veterans Memorial Bldg. (Delhi)	Walnut Ave. & Franci St. (Church Side) (Livingston)	Atwater Transpo	Merced Transpo (Arrive)
---	---	---	---	6:03 AM	6:15 AM	6:36 AM	6:53 AM	7:05 AM	7:20 AM	6:36 AM	6:53 AM	7:05 AM	7:20 AM
6:30 AM	6:45 AM	6:58 AM	7:14 AM	7:38 AM	7:50 AM	8:11 AM	8:28 AM	8:40 AM	8:55 AM	8:11 AM	8:28 AM	8:40 AM	8:55 AM
7:30 AM	7:45 AM	7:58 AM	8:14 AM	8:38 AM	8:50 AM	9:11 AM	9:28 AM	9:40 AM	9:55 AM	9:11 AM	9:28 AM	9:40 AM	9:55 AM
8:30 AM	8:45 AM	8:58 AM	9:14 AM	9:38 AM	9:50 AM	10:11 AM	10:28 AM	10:40 AM	10:55 AM	10:11 AM	10:28 AM	10:40 AM	10:55 AM
9:30 AM	9:45 AM	9:58 AM	10:14 AM	10:38 AM	10:50 AM	11:11 AM	11:28 AM	11:40 AM	11:55 AM	11:11 AM	11:28 AM	11:40 AM	11:55 AM
10:30 AM	10:45 AM	10:58 AM	11:14 AM	11:38 AM	11:50 AM	12:11 PM	12:28 PM	12:40 PM	12:55 PM	12:11 PM	12:28 PM	12:40 PM	12:55 PM
11:30 AM	11:45 AM	11:58 AM	12:14 PM	12:38 PM	12:50 PM	1:11 PM	1:28 PM	1:40 PM	1:55 PM	1:11 PM	1:28 PM	1:40 PM	1:55 PM
12:30 PM	12:45 PM	12:58 PM	1:14 PM	1:38 PM	1:50 PM	2:11 PM	2:28 PM	2:40 PM	2:55 PM	2:11 PM	2:28 PM	2:40 PM	2:55 PM
1:30 PM	1:45 PM	1:58 PM	2:14 PM	2:38 PM	2:50 PM	3:11 PM	3:28 PM	3:40 PM	3:55 PM	3:11 PM	3:28 PM	3:40 PM	3:55 PM
2:30 PM	2:45 PM	2:58 PM	3:14 PM	3:38 PM	3:50 PM	4:11 PM	4:28 PM	4:40 PM	4:55 PM	4:11 PM	4:28 PM	4:40 PM	4:55 PM
3:30 PM	3:45 PM	3:58 PM	4:14 PM	4:38 PM	4:50 PM	5:11 PM	5:28 PM	5:40 PM	5:55 PM	5:11 PM	5:28 PM	5:40 PM	5:55 PM
4:30 PM	4:45 PM	4:58 PM	5:14 PM	5:38 PM	5:50 PM	6:11 PM	6:28 PM	6:40 PM	6:55 PM	6:11 PM	6:28 PM	6:40 PM	6:55 PM
5:30 PM	5:45 PM	5:58 PM	6:14 PM	6:38 PM	6:50 PM	7:11 PM	7:28 PM	7:40 PM	7:55 PM	7:11 PM	7:28 PM	7:40 PM	7:55 PM
6:30 PM	6:45 PM	6:58 PM	7:14 PM	7:38 PM	7:50 PM	8:11 PM	8:28 PM	8:40 PM	8:55 PM	8:11 PM	8:28 PM	8:40 PM	8:55 PM
7:30 PM	7:45 PM	7:58 PM	8:14 PM	8:38 PM	8:50 PM								
Weekend To Turlock						Fin de semana A Turlock				To Merced			
①	②	③	④	⑤	⑥	④	③	②	①	④	③	②	①
Merced Transpo (Depart)	Atwater Transpo	Across Walnut Ave. & Franci St.	Veterans Memorial Bldg. (Delhi)	Rite Aid Monte Vista (Turlock)	Turlock Transpo Center	Across Veterans Memorial Bldg. (Delhi)	Walnut Ave. & Franci St. (Church Side) (Livingston)	Atwater Transpo	Merced Transpo (Arrive)	Across Veterans Memorial Bldg. (Delhi)	Walnut Ave. & Franci St. (Church Side) (Livingston)	Atwater Transpo	Merced Transpo (Arrive)
9:00 AM	9:15 AM	9:28 AM	9:44 AM	10:08 AM	10:15 AM	10:36 AM	10:53 AM	11:05 AM	11:20 AM	10:36 AM	10:53 AM	11:05 AM	11:20 AM
11:40 AM	11:55 AM	12:08 PM	12:24 PM	12:48 PM	12:55 PM	1:16 PM	1:33 PM	1:45 PM	2:00 PM	1:16 PM	1:33 PM	1:45 PM	2:00 PM
2:45 PM	3:00 PM	3:13 PM	3:29 PM	3:53 PM	4:00 PM	4:21 PM	4:38 PM	4:50 PM	5:05 PM	4:21 PM	4:38 PM	4:50 PM	5:05 PM
5:30 PM	5:45 PM	5:58 PM	6:14 PM	6:38 PM	6:45 PM								
<div> <div> \$3.00 Intercity Trip Viaje Interurbano </div> <div> \$1.50 Local Trips Viajes locales </div> </div> <div> Fixed Routes are FREE for qualifying Seniors, Veterans, and ADA Eligible Passengers. (Valid ID is REQUIRED) Las Rutas fijas son GRATIS para mayores de 62 años, Veteranos y Pasajeros Elegibles de ADA. (ID válida es REQUERIDO) </div> <div> All-Day Intercity passes are available. Interurbano de Todo-El Dia están disponibles. </div>													
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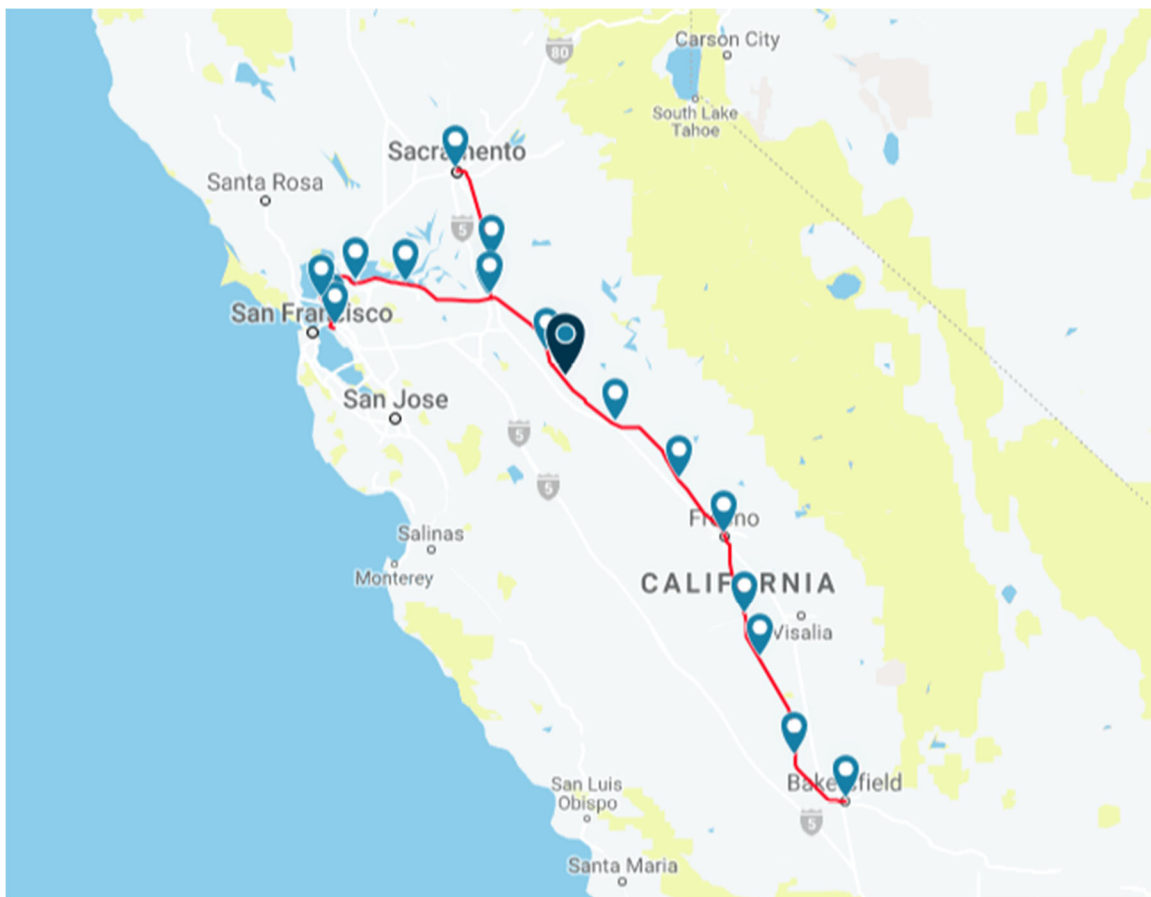
For automated assistance call / Para asistencia automatizado llame (209) 626-1414



Amtrak – San Joaquins

Amtrak provides passenger train service through the nearby town of Denair with seven round trips per day between Bakersfield and either Oakland or Sacramento on the San Joaquins Line. Denair station is served between 7:45 a.m. and 9:37 p.m., with a train approximately every two hours southbound and more sporadically northbound, from hourly to every 3 hours on weekdays. The San Joaquins line connects to Stockton, Modesto, Merced, Madera and Fresno. Trip times were changed in May 2019 to address poor on-time performance.

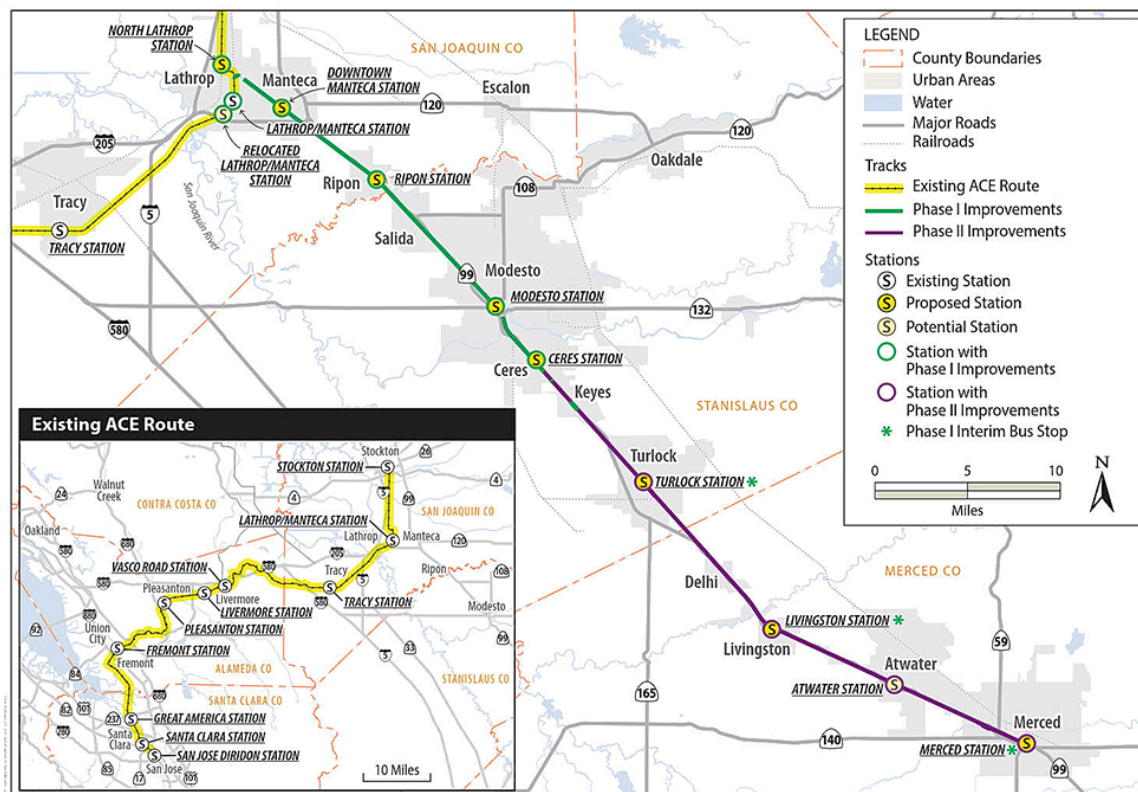
Figure 4-29 Amtrak San Joaquins Route Map



Altamont Corridor Express (ACE)

The Altamont Corridor Express is a commuter rail service that operates between Stockton, Tracy, Pleasanton, Fremont and San José. The service operates Monday through Friday, with four trips to San José in the morning, and four trips returning to Stockton in the afternoon/evening. The San Joaquin Regional Rail Commission is currently studying the expansion of ACE service farther south in the San Joaquin Valley, including to Modesto, Turlock and Merced. Initial plans suggest service will be expanded to Modesto and Ceres by 2023 and to Turlock and Merced by 2027.

Figure 4-30 ACE Extension Lanthrop to Ceres/Merced Map



5 ROUTE PROFILES

This chapter examines individual routes in more detail, including route profile information sheets and reliability by route.

ROUTE PROFILE INFORMATION SHEETS

Route profile information sheets are like dashboards for Turlock Transit routes. Each information sheet includes the indicators listed in Figure 5-1.

Figure 5-1 Information Included in Route Profile Information Sheets

Category	Indicator	Source
Routing Basics	Route length (mi)	Turlock Transit
	Number of turns per trip	
	Number of stops per trip	
	Average speed (mph, 30-minute cycles)	February 2019 ride check
	Average speed (mph, 35-minute cycles)	
Ridership	Average weekday boardings by trip	February 2019 ride check
	Average daily weekday boardings	
	Productivity: Average daily weekday boardings per trip	
	Average daily weekday boardings and alightings by stop (map)	
	Average Saturday boardings	GenFare farebox records, 2018 calendar year excluding July
	Productivity: Average Saturday boardings per trip	

Category	Indicator	Source
On-Time Performance <i>Weekday only</i>	Percent on time Percent of timepoints reached between 1 minute early and 5 minutes late	February 2019 ride check
	Percent late Percent of timepoint departures more than 5 minutes late, except for the final stop, which is based on arrival time	
	Percent early Percent of timepoint departures more than 1 minute early, excluding the final stop, for which early departures are considered on time.	
Analysis	Strengths	Nelson\Nygaard
	Challenges	

The ride check took place over three days between February 11 and 13. It included manual counts of boardings and alightings for two of each weekday trip, for each route. It also included recordings of the time the bus arrived and departed from each timepoint.

ROUTE RELIABILITY SUMMARIES

This section provides detailed on-time performance data for each route, including reliability for each route overall, as well as for individual timepoints.

Overall Route Reliability

Figure 5-2 summarizes reliability for each route in terms of percent on-time, late, and early, for all timepoints.

Figure 5-2 On-Time Performance by Route

Route	On-Time	Late	Early
1	96%	2%	2%
2	91%	0%	8%
3	91%	4%	5%
4	84%	7%	9%
5	90%	2%	8%
6	92%	2%	6%
System	91%	3%	7%

Route Timepoint Reliability

Figure 5-3 provides reliability information for each timepoint of each route, including 30-minute cycles and 35-minute cycles. Bold values indicate timepoints where buses were either early or late for at least 5% of trips.

Figure 5-3 On-Time Performance by Route and Timepoint

Timepoint	30-minute cycle			35-minute cycle		
	On-time	Late	Early	On-time	Late	Early
Route 1 Countryside						
Countryside & Monte Vista	100%	0%	0%	94%	4%	2%
Monte Vista & Dels	100%	0%	0%	94%	4%	2%
Geer & Minnesota	100%	0%	0%	91%	2%	7%
Turlock Transit Center (end)	100%	0%	0%	100%	0%	0%

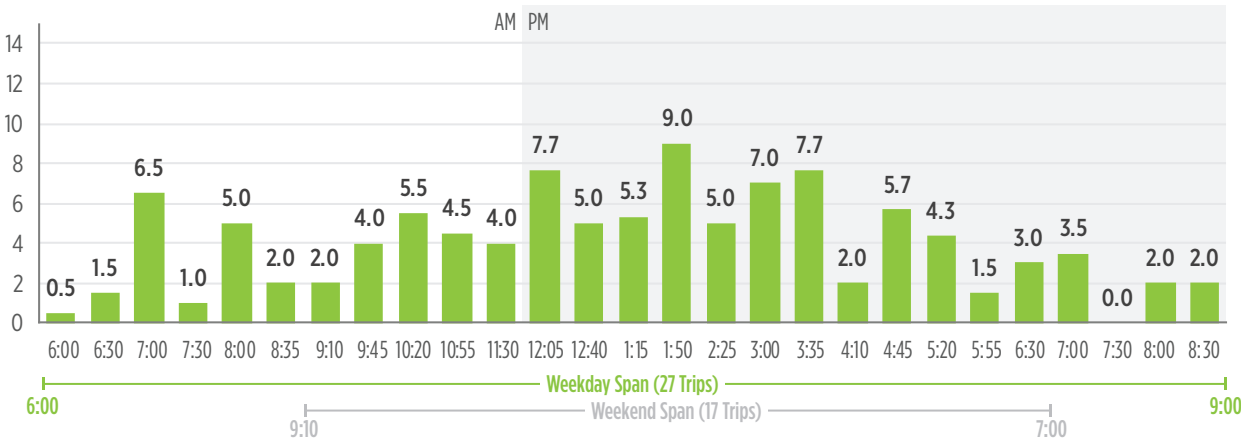
Timepoint	30-minute cycle			35-minute cycle		
	On-time	Late	Early	On-time	Late	Early
Route 2 Geer						
Geer & Tuolumne	100%	0%	0%	89%	2%	9%
Monte Vista & Dels	94%	0%	6%	87%	0%	13%
Countryside & Monte Vista Crossing	80%	0%	20%	84%	0%	16%
Turlock Transit Center (end)	100%	0%	0%	100%	0%	0%
Route 3 Olive						
Christoffersen & Mountain View	93%	7%	0%	93%	8%	0%
Christoffersen & Village Circle	93%	0%	7%	88%	5%	7%
Delbon at EMC	67%	7%	27%	90%	0%	10%
Turlock Transit Center (end)	93%	7%	0%	98%	2%	0%
Route 4						
Colorado & Lyons	100%	0%	0%	82%	7%	11%
Alpha & Cottonwood	100%	0%	0%	78%	9%	13%
Colorado & Canal	93%	7%	0%	64%	9%	27%
Turlock Transit Center (end)	88%	13%	0%	93%	7%	0%
Route 5						
Central Park	100%	0%	0%	96%	4%	0%
Linwood & Lander	88%	0%	12%	72%	4%	24%
Golden State & Minerva	94%	0%	6%	87%	0%	13%
Turlock Transit Center (end)	100%	0%	0%	98%	2%	0%
Route 6						
Tully & Main	88%	0%	12%	96%	0%	4%
West & South	100%	0%	0%	91%	2%	6%
Soderquist & Canal	88%	0%	12%	83%	2%	15%
Turlock Transit Center (end)	100%	0%	0%	96%	4%	0%

ROUTE 1: COUNTRYSIDE

Route 1 travels in a one-way clockwise loop along Fulkerth/Hawkeye, Countryside, Monte Vista and Geer. Major destinations include Countryside Plaza (Walmart), Monte Vista Crossings (Target and Safeway) and CSU-Stanislaus. Route 2 Geer provides service in the opposite direction.

Ridership

AVG DAILY WEEKDAY BOARDINGS BY TRIP



AVG DAILY WEEKDAY BOARDINGS

107

AVG DAILY WEEKDAY BOARDINGS PER TRIP



4.0

AVG SATURDAY BOARDINGS

65

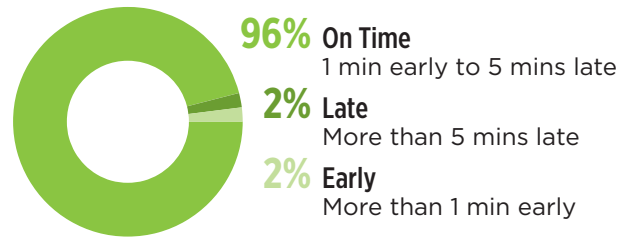
AVG SATURDAY BOARDINGS PER TRIP



3.8

On-Time Performance

PERCENT ON TIME



Analysis

STRENGTHS

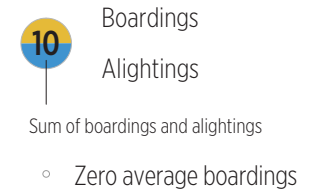
- Service available at most stops in reverse direction via Route 2, so riders do not have to travel out of direction
- High on-time performance

CHALLENGES

- Service not available in reverse direction on Countryside Drive, south of Tuolumne Road

ROUTE 1 RIDERSHIP BY STOP

Average daily boardings by stop

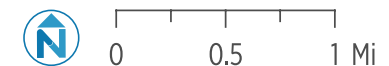


Circles sized proportionally to number of boardings and alightings.



City of Turlock boundary

Sources: On-board survey (February 2019); City of Turlock, Stanislaus County



Routing Basics

ROUTE LENGTH (MI)

5.6

NUMBER OF TURNS

4

NUMBER OF STOPS

18

AVG SPEED (MPH, 30-MIN)

15.0

AVG SPEED (MPH, 35-MIN)

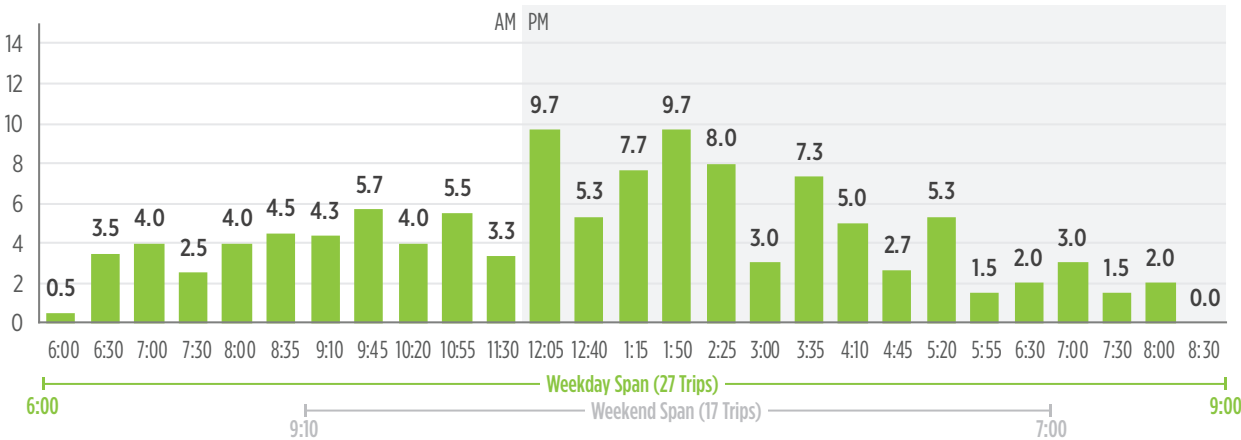
13.0

ROUTE 2: GEER

Route 2 travels in a one-way counterclockwise loop along Hawkeye/ Fulkerth, Geer, Monte Vista, Countryside, Tuolumne and Tully. Major destinations include CSU-Stanislaus, Monte Vista Crossings (Target and Safeway) and Countryside Plaza (Walmart). Route 1 Countryside provides service in the opposite direction.

Ridership

AVG WEEKDAY BOARDINGS BY TRIP



AVG DAILY WEEKDAY BOARDINGS

116

AVG DAILY WEEKDAY BOARDINGS PER TRIP



AVG SATURDAY BOARDINGS

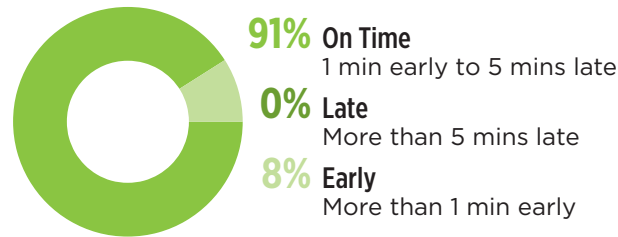
54

AVG SATURDAY BOARDINGS PER TRIP



On-Time Performance

PERCENT ON TIME



Analysis

STRENGTHS

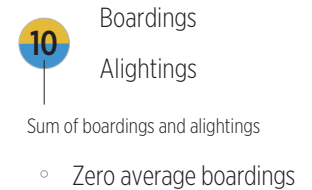
- Service available at most stops in the reverse direction via Route 1, so riders do not have to travel out of direction

CHALLENGES

- Route is consistently early at second and third timepoints, which suggests an opportunity to tighten the schedule
- Ridership at the Walmart stop on Route 2 is one-third that of Route 1 — 9 vs 26 average daily boardings — which suggests that the segments on Tully Road and Tuolumne Road may not be worth the deviation

ROUTE 2 RIDERSHIP BY STOP

Average daily boardings by stop

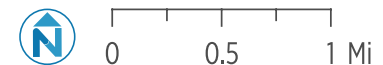


Circles sized proportionally to number of boardings and alightings.

Route 2
Other Turlock Transit routes

City of Turlock boundary

Sources: On-board survey (February 2019); City of Turlock, Stanislaus County



Routing Basics

ROUTE LENGTH (MI)

5.5

NUMBER OF TURNS

6

NUMBER OF STOPS

15

AVG SPEED (MPH, 30-MIN)

15.4

AVG SPEED (MPH, 35-MIN)

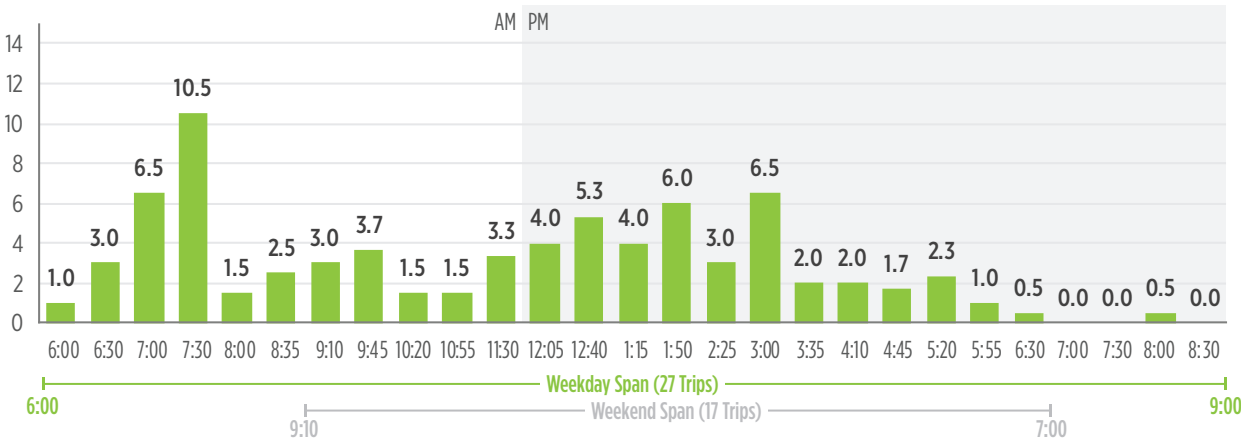
11.6

ROUTE 3: OLIVE

Route 3 provides one-way service along Golden State Boulevard, Christoffersen Parkway, Olive Avenue and Hawkeye Avenue. The route serves John Pitman High School, Turlock Junior High School, CSU-Stanislaus and Emanuel Medical Center.

Ridership

AVG WEEKDAY BOARDINGS BY TRIP



AVG DAILY WEEKDAY BOARDINGS

77

AVG DAILY WEEKDAY BOARDINGS PER TRIP



AVG SATURDAY BOARDINGS

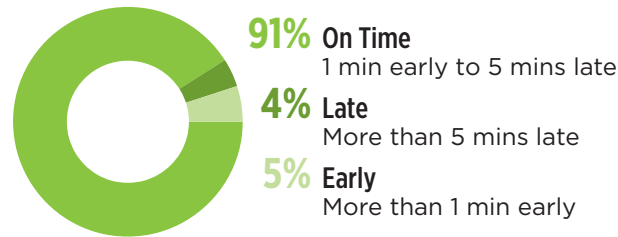
20

AVG SATURDAY BOARDINGS PER TRIP



On-Time Performance

PERCENT ON TIME



Analysis

STRENGTHS

- Only route with service to Emanuel Medical Center (EMC) and Pitman High School

CHALLENGES

- Service in one direction only, resulting in inconvenient out-of-direction travel
- Low productivity: 2.9 boardings per trip
- Low ridership on Colorado Avenue: deviation may not be warranted with enhanced pedestrian crossings on Olive Avenue
- No ridership on Golden State Boulevard
- On-time issues (early), particularly at EMC

ROUTE 3 RIDERSHIP BY STOP

Average daily boardings by stop



Boardings

Alightings

Sum of boardings and alightings

Zero average boardings

Circles sized proportionally to number of boardings and alightings.

Route 3

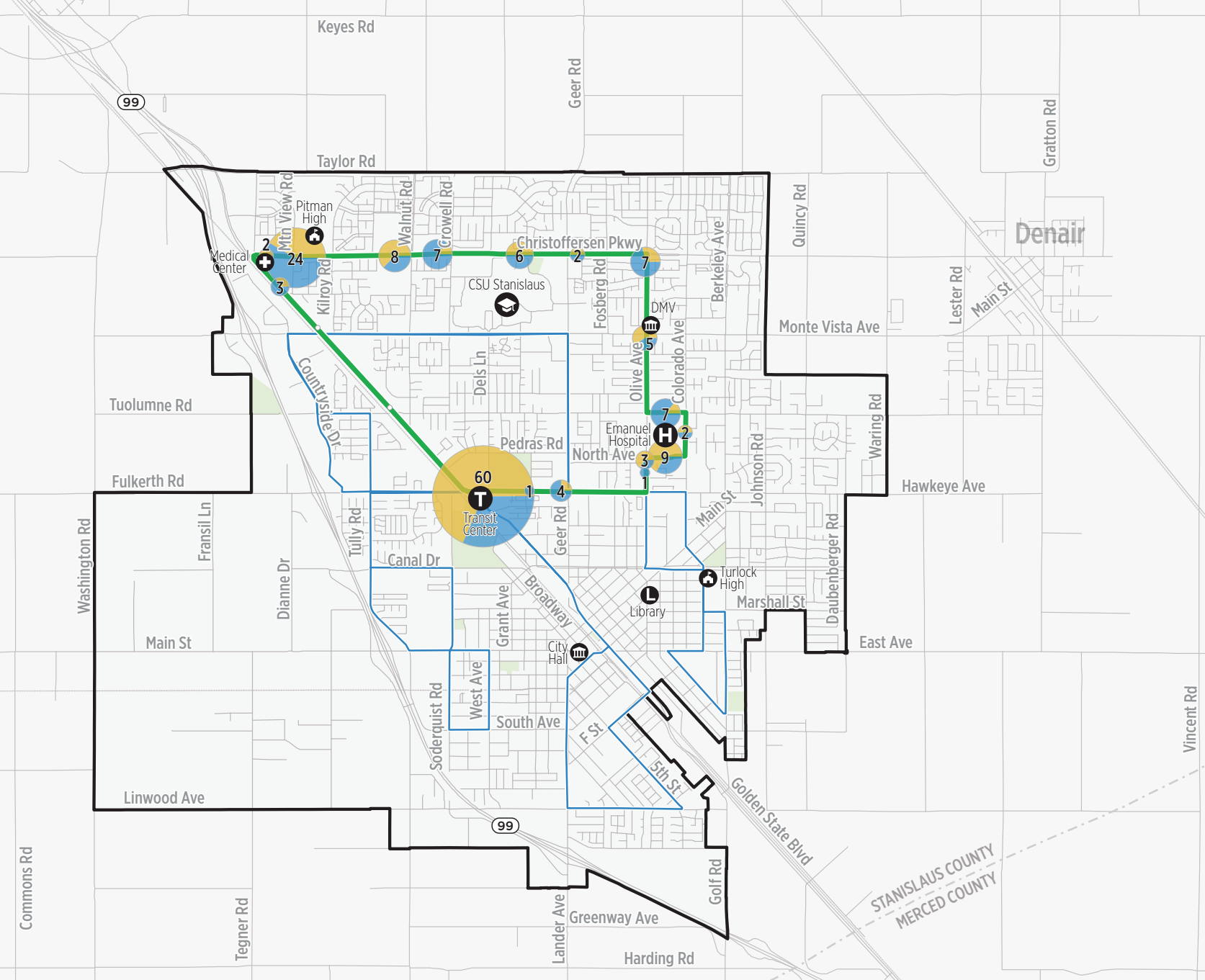
Other Turlock Transit routes

City of Turlock boundary

Sources: On-board survey (February 2019); City of Turlock, Stanislaus County



0 0.5 1 Mi



Routing Basics

ROUTE LENGTH (MI)

7.9

NUMBER OF TURNS

7

NUMBER OF STOPS

19

AVG SPEED (MPH, 30-MIN)

20.0

AVG SPEED (MPH, 35-MIN)

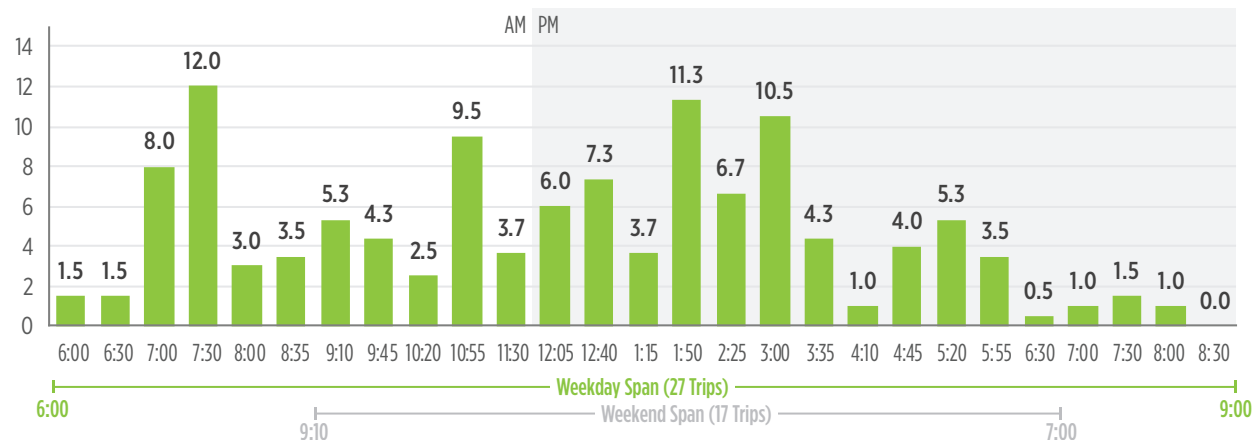
18.1

ROUTE 4: COLORADO

Route 4 provides service between Turlock Transit Center and Berkeley Ave and East Ave. It runs along Hawkeye Avenue and Colorado Avenue, and serves Dutcher Middle School, Turlock High School.

Ridership

AVG WEEKDAY BOARDINGS BY TRIP



AVG DAILY WEEKDAY BOARDINGS

123

AVG DAILY WEEKDAY BOARDINGS PER TRIP



AVG SATURDAY BOARDINGS

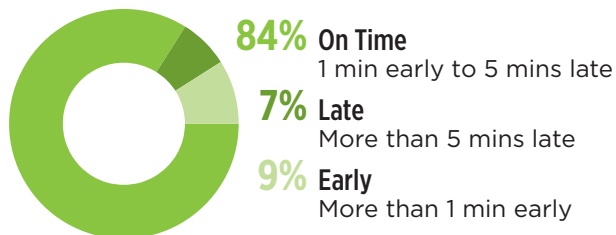
48

AVG SATURDAY BOARDINGS PER TRIP



On-Time Performance

PERCENT ON TIME



Analysis

STRENGTHS

- Higher productivity than systemwide average (4.6 boardings per trip)
- Bidirectional service on many segments makes two-way travel easy
- Very high level of demand to and from Turlock High School around school bell times

CHALLENGES

- Service on different north/south streets between Hawkeye Avenue and East Avenue makes two-way service unintuitive
- Service to Dutcher Middle school is always on the opposite side of the street, requiring students to cross a street to walk between the stop and the school
- Most challenging on-time performance, with service often either late or early at all timepoints

ROUTE 4 RIDERSHIP BY STOP

Average daily boardings by stop



Boardings

Alightings

Sum of boardings and alightings

○ Zero average boardings

Circles sized proportionally to number of boardings and alightings.

— Route 4

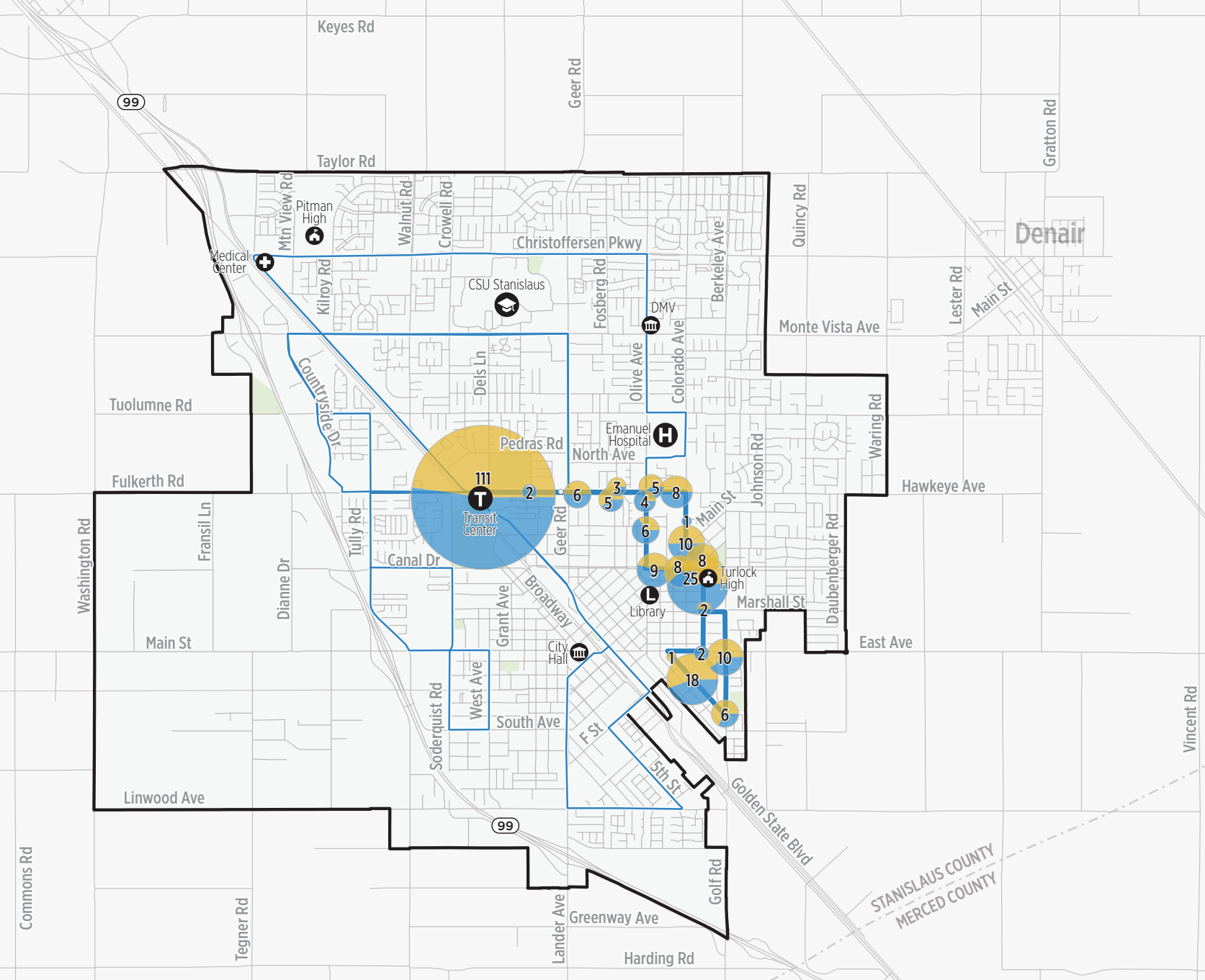
— Other Turlock Transit routes

— City of Turlock boundary

Sources: On-board survey (February 2019); City of Turlock, Stanislaus County



0 0.5 1 Mi



Routing Basics

ROUTE LENGTH (MI)

6.2

NUMBER OF TURNS

9

NUMBER OF STOPS

22

AVG SPEED (MPH, 30-MIN)

15.0

AVG SPEED (MPH, 35-MIN)

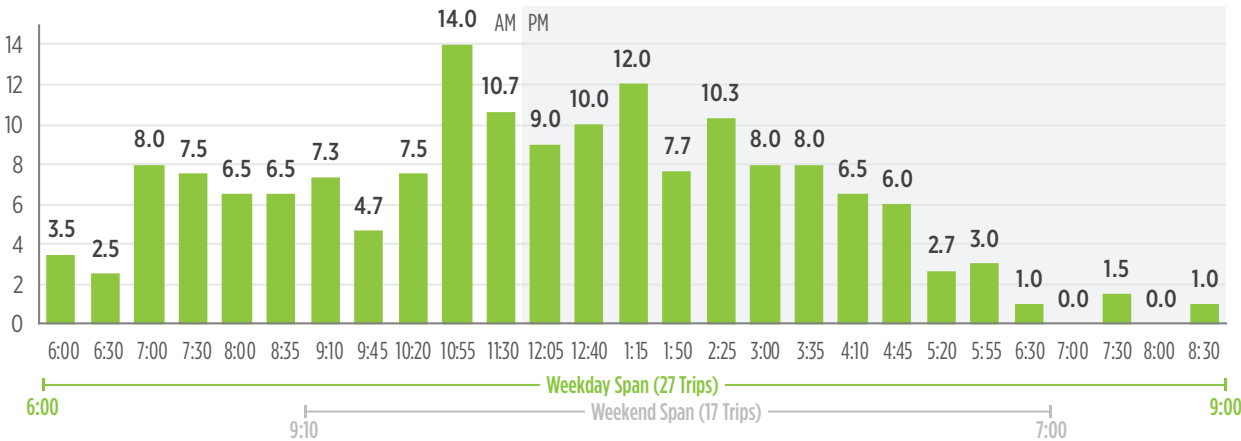
13.6

ROUTE 5: LANDER

Route 5 provides service to southern Turlock with bidirectional service along Golden State Boulevard between Roger K. Fall Transit Center and Downtown Turlock. It operates a one-way loop south of Downtown along Lander Avenue, Linwood Avenue, 5th Street and F Street.

Ridership

AVG WEEKDAY BOARDINGS BY TRIP



AVG DAILY WEEKDAY BOARDINGS

165

AVG DAILY WEEKDAY BOARDINGS PER TRIP



AVG SATURDAY BOARDINGS

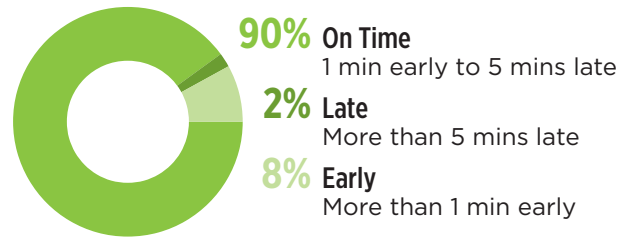
58

AVG SATURDAY BOARDINGS PER TRIP



On-Time Performance

PERCENT ON TIME



Analysis

STRENGTHS

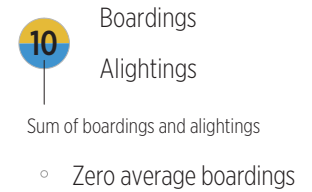
- Most productive route in the system (6.1 boardings per trip)
- Ridership distributed relatively evenly along the entire route

CHALLENGES

- On-time performance is an issue (early trips) for the second and third timepoints, which suggests an opportunity to tighten the schedule
- Limited ridership on one-way segments of Golden State Boulevard and F Street, indicating that two-way service on Lander may improve ridership

ROUTE 5 RIDERSHIP BY STOP

Average daily boardings by stop

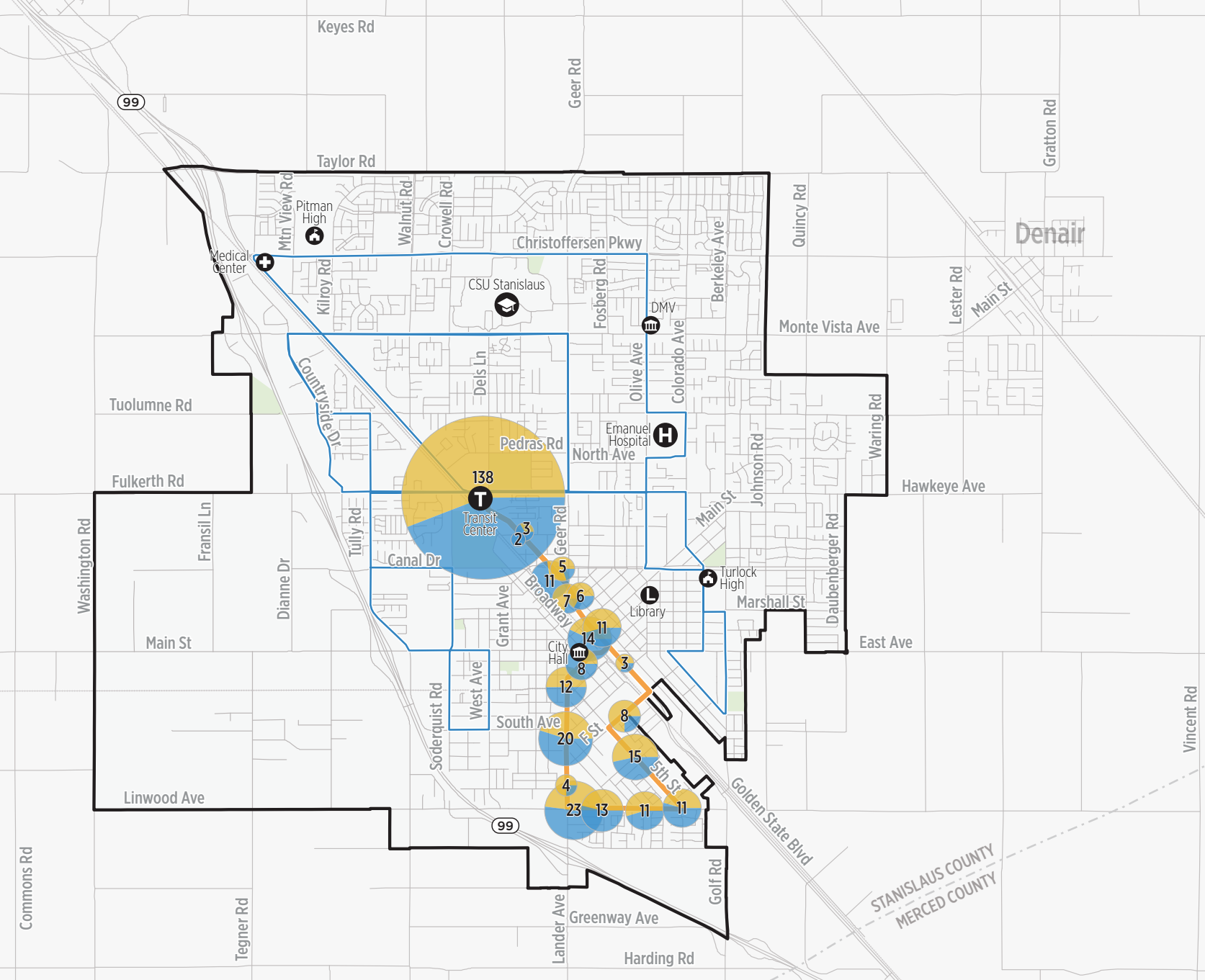
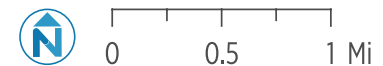


Circles sized proportionally to number of boardings and alightings.

Route 5
Other Turlock Transit routes

City of Turlock boundary

Sources: On-board survey (February 2019); City of Turlock, Stanislaus County



Routing Basics

ROUTE LENGTH (MI)

6.0

NUMBER OF TURNS

6

NUMBER OF STOPS

20

AVG SPEED (MPH, 30-MIN)

15.8

AVG SPEED (MPH, 35-MIN)

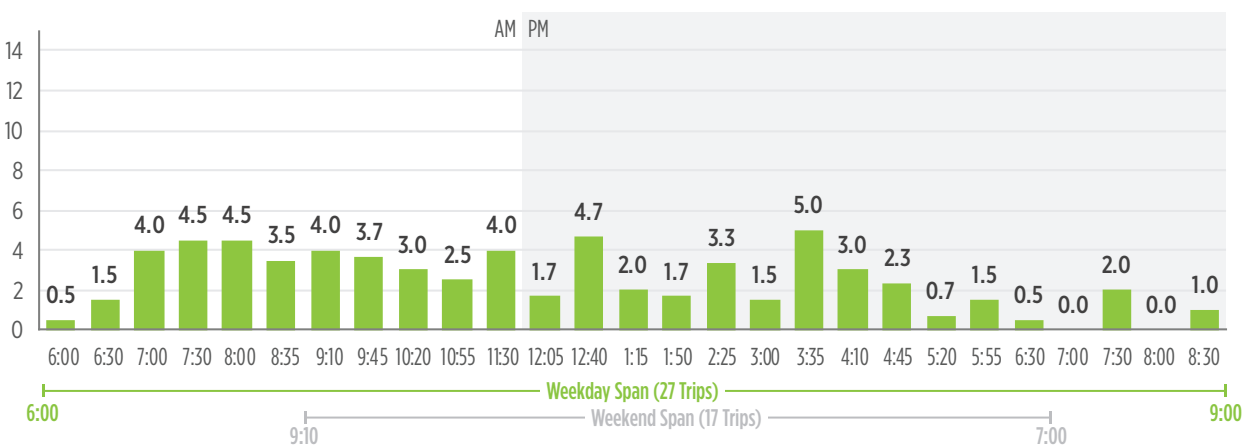
13.1

ROUTE 6: SODERQUIST

Route 6 serves southwest Turlock operating in an oddly shaped number eight formation. The route provides service on Tully Road, Main Street, West Avenue, Soderquist Road and Canal Drive.

Ridership

AVG WEEKDAY BOARDINGS BY TRIP



AVG DAILY WEEKDAY BOARDINGS

67

AVG DAILY WEEKDAY BOARDINGS PER TRIP



AVG SATURDAY BOARDINGS

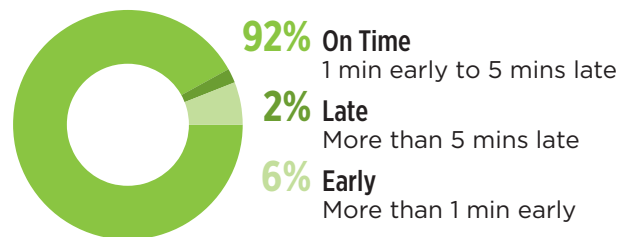
27

AVG SATURDAY BOARDINGS PER TRIP



On-Time Performance

PERCENT ON TIME



Analysis

STRENGTHS

- High ridership at the two ends of the route, suggesting a more direct path between them would benefit most existing passengers

CHALLENGES

- More than two minutes of slack time per trip, during both 30- and 35-minute cycles, indicating the potential to tighten schedules
- Lowest productivity of all routes (2.5 boardings per trip)
- Complex alignment — with multiple one-way segments — makes two-way travel challenging
- Low ridership north of Tully & Main stop, except at Roger K. Fall Transit Center

ROUTE 6 RIDERSHIP BY STOP

Average daily boardings by stop



Boardings

Alightings

Sum of boardings and alightings

○ Zero average boardings

Circles sized proportionally to number of boardings and alightings.

— Route 6

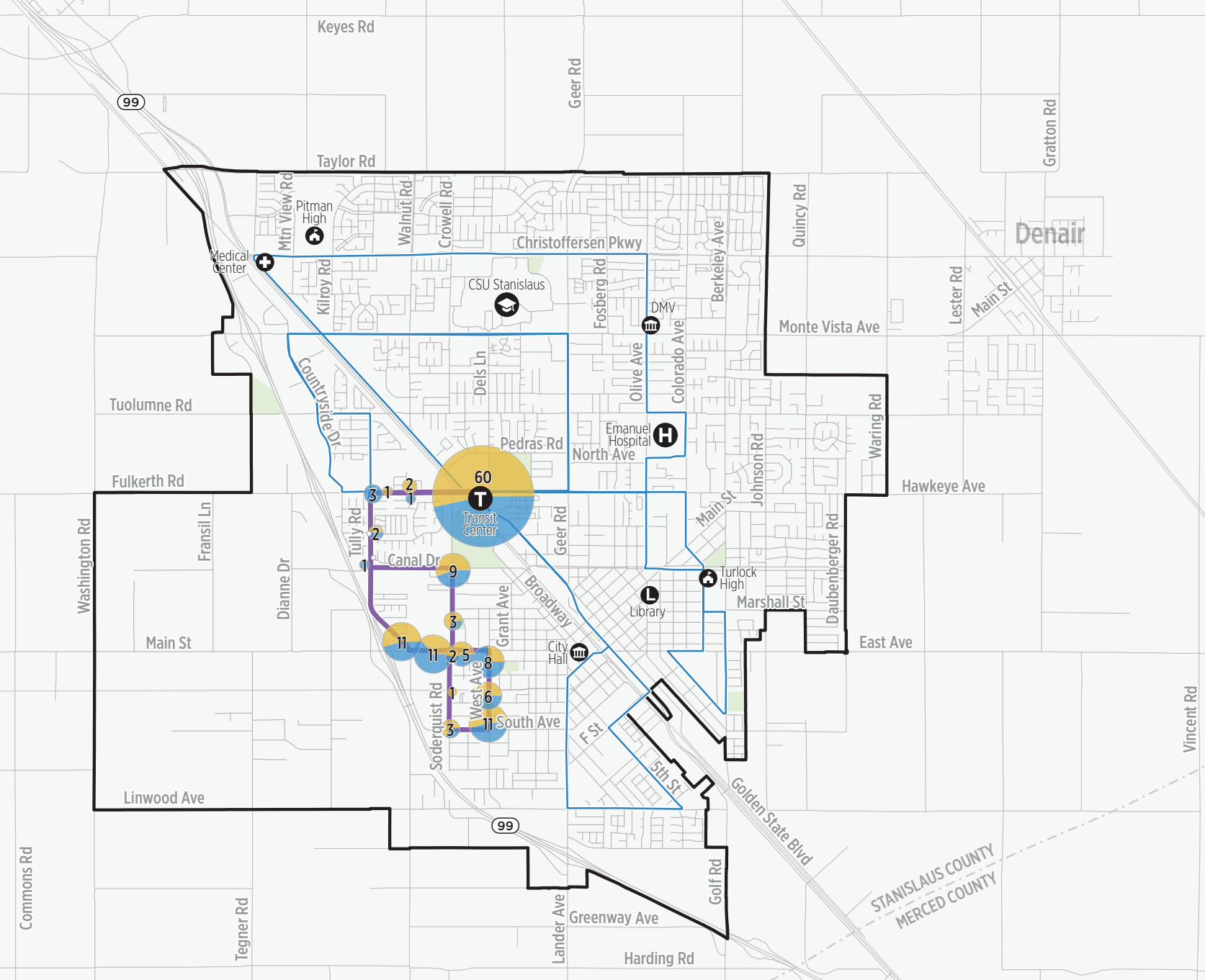
— Other Turlock Transit routes

— City of Turlock boundary

Sources: On-board survey (February 2019); City of Turlock, Stanislaus County



0 0.5 1 Mi



Routing Basics

ROUTE LENGTH (MI)

5.9

NUMBER OF TURNS

8

NUMBER OF STOPS

20

AVG SPEED (MPH, 30-MIN)

16.2

AVG SPEED (MPH, 35-MIN)

13.3

6 DIAL-A-RIDE SERVICES ANALYSIS

This chapter explains how Turlock Transit Dial-A-Ride service works and how it is used.

Dial-A-Ride is a demand-response service in Turlock and the surrounding area. It provides trips for people who are unable to use the fixed-route system, and for other individuals who meet eligibility requirements.

This chapter includes seven sections:

Section	Description
Eligibility	Who is able to use Dial-A-Ride and under what circumstances
Fares	What it costs to ride
Service Area	Where riders can use Dial-A-Ride
Service Availability	When riders can use Dial-A-Ride
Ridership	Trends in how many Dial-A-Ride trips are provided
On-Time Performance	How often paratransit trips arrive as scheduled
Trip Cancellations	How often trips are cancelled, and for what reasons

CHAPTER 5 KEY POINTS

- Ridership has been relatively stable over the past several years.
- Dial-A-Ride provides slightly more passenger trips per day in the winter and autumn than in the summer.
- Four out of five trips (80%) are made by 12% of unique passengers.
- ADA eligible riders make 80% of Dial-A-Ride trips.
- Ridership is concentrated in the morning and afternoon, with few trips in the middle of the day or at night. Approximately 73% of trips occur during the five busiest hours of the day.
- Most delivered trips occur within 15 minutes of the requested time (73%).

- A notably large share of scheduled trips (approximately 28%) result in cancellations or no-shows.

ELIGIBILITY

Turlock Transit fixed-route bus service is open to all. However, to use Dial-A-Ride, individuals must meet certain criteria. Individuals who qualify include:

- ADA paratransit eligible persons
- Medicare cardholders
- Adults aged 65 years or older
- Students in Kindergarten through 6th grade who live within the service area who are traveling to or from school

To determine ADA paratransit eligibility applicants must be approved by MOVE Stanislaus, a regional non-profit organization responsible for coordinating transportation programs for older adults, people with disabilities and low-income populations in Stanislaus County.

The eligibility application process includes an in-person assessment where the applicant is evaluated based on transit use skills, abilities and limitations. If determined to be eligible, an applicant may use paratransit services offered by Turlock Transit, Stanislaus Regional Transit, Modesto Area Express and Ceres Area Transit.

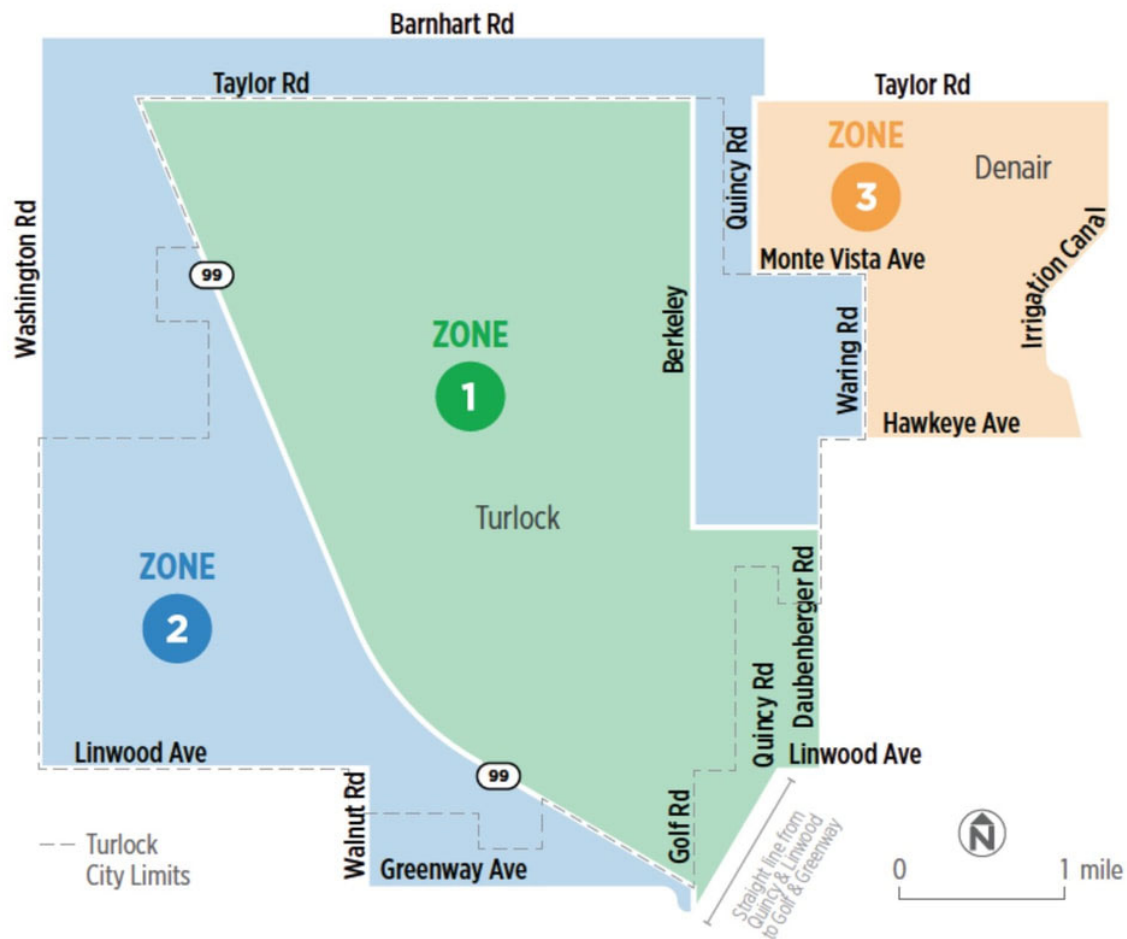
The general public is eligible to use Dial-A-Ride in certain circumstances, based on their origin and destination. This is described below.

SERVICE AREA

Turlock Transit's Dial-A-Ride services surpass the minimum federal requirement of offering a demand response option within three-quarters of a mile of all fixed-routes during the times that fixed-route service operates. The Dial-A-Ride service operates within Turlock city limits and in some of the outlying areas including north to Barnhart Road, west to Washington Road and in Denair between Hawkeye Avenue, the Irrigation Canal, and Taylor Road. Figure 6-1 provides a map of the service area, including the boundaries between the three zones.

Trips that start and end in Zone 1 are only available to people who meet the eligibility criteria identified above. Trips that start or end in Zones 2 or 3 are available to the same groups as Zone 1, as well as the general public.

Figure 6-1 Dial-A-Ride Service Area



Source: Turlock Transit

SERVICE AVAILABILITY

Dial-A-Ride operates Monday through Saturday year-round. There are six holidays throughout the year when no service operates.¹ There are five other holidays² – when they occur on a weekday – that operate Saturday levels of service. These are the same holidays as those of the fixed-route system.

Rides must be scheduled the day before a requested trip to guarantee availability, or at least two hours in advance of the trip on a space available basis. Service in Zones 1 and 2 runs from 6 a.m. to 9 p.m. on weekdays, and

¹ New Year's Day, President's Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day

² Dr. MLK Jr Day, Veterans' Day, day after Thanksgiving, Christmas Eve and New Year's Eve

from 9 a.m. to 7 p.m. on Saturdays. Service in Denair (Zone 3) is available from 7 a.m. to 8 p.m. on weekdays and 10 a.m. to 6 p.m. on Saturdays.

FARES

The Dial-A-Ride fare structure is based on two factors: the zone of travel and the type of passenger (Figure 6-2). The fares in Zones 1 and 2 are the same and the fare in Zone 3 is one dollar more. ADA eligible passengers, Medicare cardholders, older adults, and the general public have a standard fare for a one-way trip (\$2.50 or \$3.50 depending on origin and destination). Elementary school students pay \$3.00 regardless of zone.

In addition, fares are lower for groups of two or more people with the same trip origins and destinations: \$1.50 for a group of two, or \$1.00 for a group of three or more. All riders in a group must meet eligibility requirements.

Figure 6-2 Dial-A-Ride One-Way Fares

Passenger Type	Zones	Single Fare	Group of 2	Group of 3+
<ul style="list-style-type: none"> ADA eligible Medicare cardholders Older adults General public^[A] 	Zones 1 and 2	\$2.50	\$1.50	\$1.00
	Zone 3	\$3.50		
Elementary school students traveling to/from school	All zones	\$3.00		

Notes: A: The general public is not eligible for trips within Zone 1.

Source: Turlock Transit

RIDERSHIP

The following section provides an analysis of Dial-A-Ride ridership, in terms of trends over time, seasonal variation, and fluctuations by day and time.

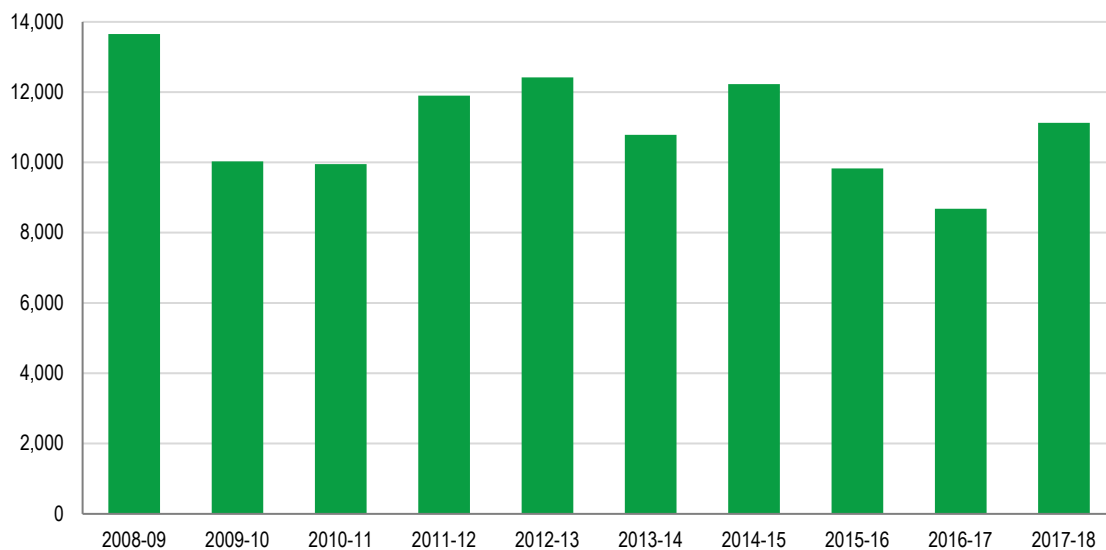
Did you know?

- In 2018, 80% of all Dial-A-Ride trips were made by 39 unique individuals (or 12% of unique passengers throughout the year).
- The average trip lasted 28 minutes in 2018, though the most common trip length was between 10 and 20 minutes – representing one-third of all trips.

Ridership Trends

Between FY 2009 and FY 2018, annual ridership on Turlock’s Dial-A-Ride has remained relatively stable, ranging between 10,000 and 12,000 boardings per year (Figure 6-3). Although the two lowest ridership years were recent (FY 2016 and FY 2017), ridership increased in FY 2018 back to levels experienced in prior years. This increase is partly due to an overhaul in the customer service environment and overall communication through a change in contractors. Fixed-route ridership over this same period increased, suggesting Dial-A-Ride trips represent a decreasing share of Turlock Transit’s overall system ridership.

Figure 6-3 Dial-A-Ride Annual Ridership (FY 2009 to FY 2018)



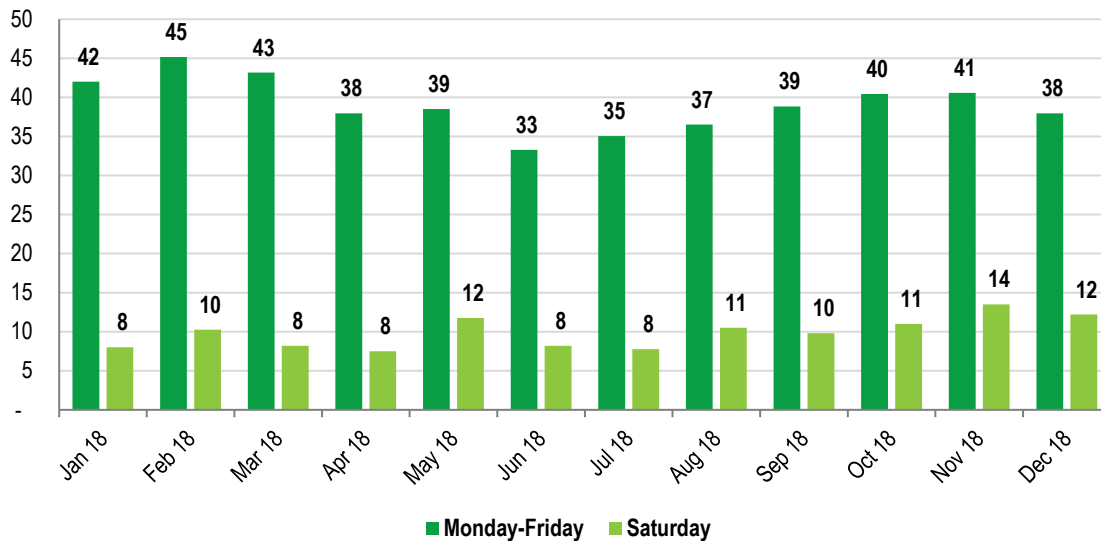
Source: Turlock Transit

Seasonal Ridership Variation

Ridership on Dial-A-Ride is relatively constant throughout the year, though is slightly higher at the beginning of the calendar year and in the autumn. An average weekday during the busier months tends to have 40 or more trips per day. Summer months (June through August) tend to have the fewest boardings – when there are approximately 30 to 40 trips per weekday. Figure 6-4 shows the average daily trips by month for weekdays and Saturdays in 2018.

Fixed-route services also experience less ridership during the summer, but the difference is much greater than for Dial-A-Ride.

Figure 6-4 Average Daily Dial-A-Ride Trips by Month (2018)



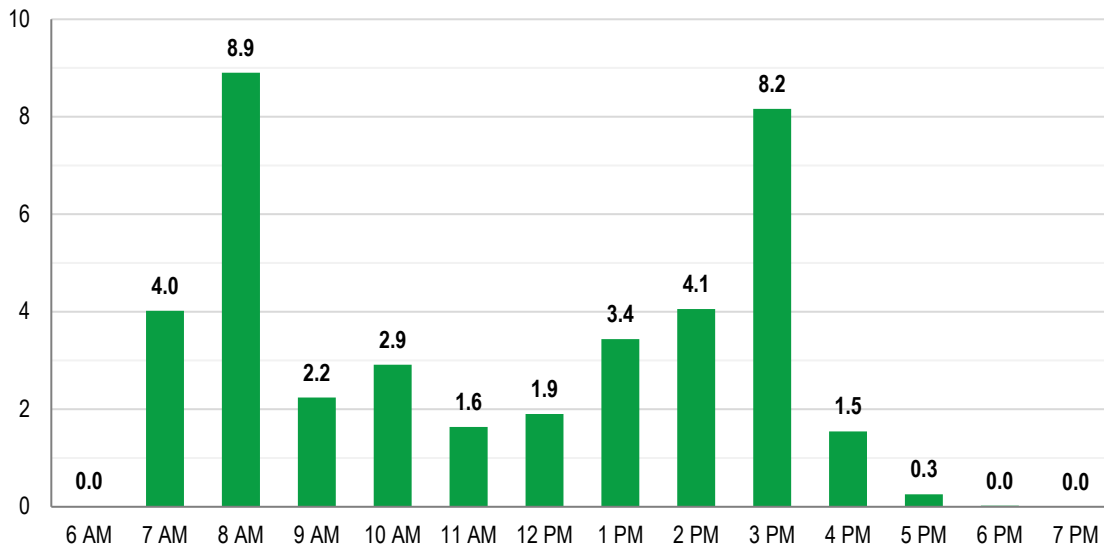
Source: Turlock Transit

Weekly and Daily Trends

The majority of Dial-A-Ride trips are delivered on weekdays. On a typical weekday in 2018, Dial-A-Ride provided between 35 and 45 trips. On Saturdays, approximately 10 trips were provided, on average.

The majority of weekday trips (73%) occurred in the morning (between 7 a.m. and 9 a.m.) and in the afternoon (between 1 p.m. and 4 p.m.). This suggests most trips are related to work or school schedules. During the two busiest hours – 8 a.m. and 3 p.m. – Dial-A-Ride provided more than eight trips each hour. During most other hours in the day, Dial-A-Ride provided approximately two trips each hour (Figure 66-5). Although service begins at 6 a.m. and extends to 9 p.m., there very few trips prior to 7 a.m. and few trips beginning after 5 p.m. There were no trips provided during the 8 p.m. hour in 2018.

Figure 66-5 Average Daily Weekday Trips by Hour of the Day

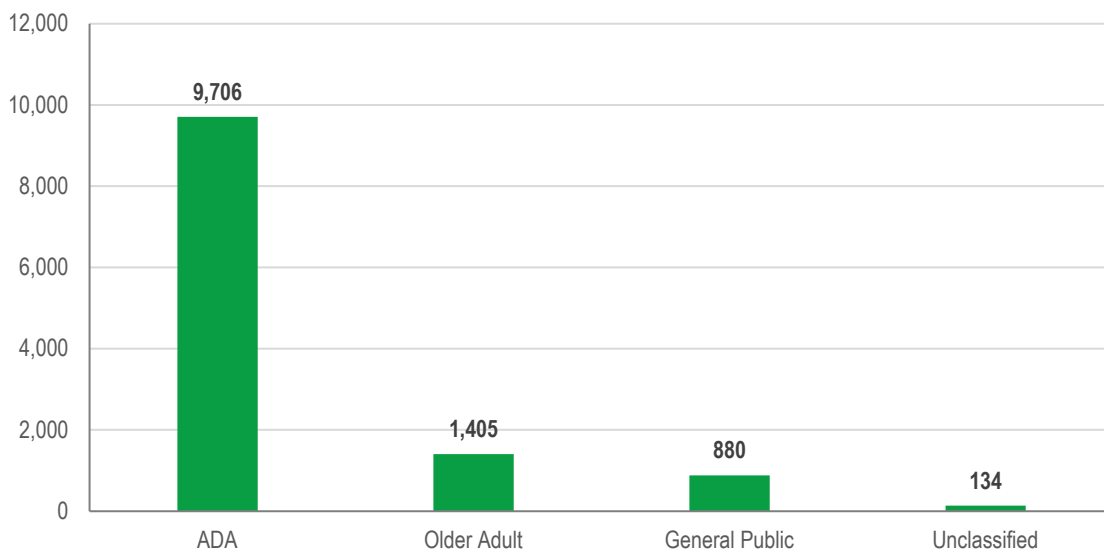


Source: Turlock Transit; January 2018 through December 2018

Ridership by Passenger Type

Between December 2017 and January 2019, four out of five (80%) of trips were for ADA eligible passengers. The remaining 20% were split among older adults (12%), the general public (7%), and unclassified trips (1%). Figure 6-6 breaks down Dial-A-Ride trips by passenger type.

Figure 6-6 Dial-A-Ride Trips by Passenger Type

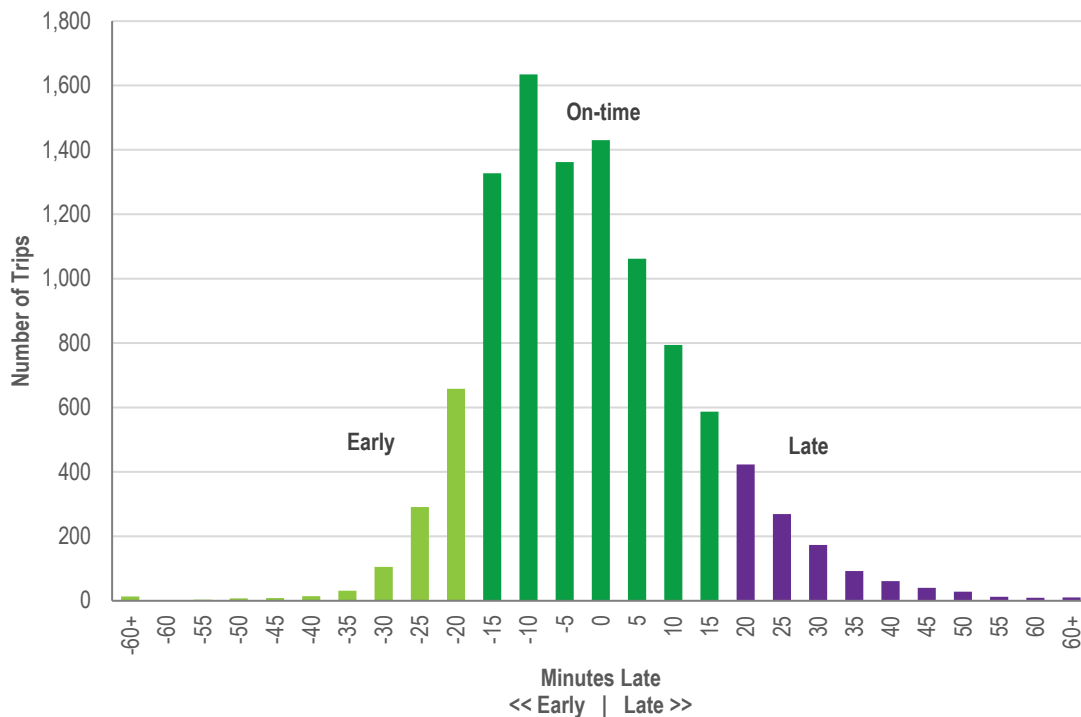


ON-TIME PERFORMANCE

Turlock Transit tracks the requested and actual pick-up times of each Dial-A-Ride trip. Trips that arrive more than fifteen minutes prior to the requested pick-up time are considered early, and trips that arrive more than fifteen minutes after the requested pick-up time are late.

Based on more than 10,000 trips in 2018, approximately 73% were considered on-time. Approximately 14% of trips arrived early, and 13% arrived late. Figure 6-7 shows the distribution of trip arrivals relative to the scheduled time (rounded to the nearest five minutes). It shows a slight skew toward early arrivals, with a very small number of trips arriving more than 30 minutes early or late. Approximately 96% of all trips arrived within 30 minutes of the scheduled pick-up time.

Figure 6-7 Dial-A-Ride On-Time Performance



Source: Turlock Transit; January 2018 through December 2018

TRIP CANCELLATIONS

Not all scheduled Dial-A-Ride trips end up delivering a ride. Some are cancelled by the passenger, and others involve passengers that don't show up. These no-shows and cancellations can disrupt scheduling and reduce the efficiency of Dial-A-Ride.

Across a 14-month period between December 2017 and January 2019, there were 4,240 trip cancellations and approximately 500 no-shows (Figure 6-8). No-shows, late cancellations and same-day cancellations together represent approximately 61% of trips that are not delivered. In relation to scheduled trips during this same period of time, there was approximately one no-show or cancelled trip for every two to three delivered trips.

Figure 6-8 Summary of No-Shows and Trip Cancels

Cancellation Type	Trips	% of Cancelled Trips	% of All Scheduled Trips
Cancellation	4,240	89%	25%
Advance	1,870	39%	11%
Same-day	767	16%	5%
Late	1,603	34%	10%
No-shows	499	11%	3%
Total	4,739	100%	28%

Source: Turlock Transit; December 1, 2017 through January 27, 2019

7 PEER REVIEW

This peer review compares Turlock Transit with four other transit systems in California.

The purpose of the review is to determine where Turlock Transit performs well, and where it can learn from other transit providers.

Data sources and notes

This review uses data from the National Transit Database (NTD) for 2017, as well as publicly available fare and schedule information. It focuses on fixed-route transit operations, *not* demand-response services (e.g. Dial-A-Ride or paratransit). It is worth pointing out that—for the purposes of comparison—this review does not use state-based data, which is why there may be differences between this review and any other chapters.

Four peer transit systems

The peers in this review are:

- City Coach in the City of Vacaville
- Lodi Transit (GrapeLine) in the City of Lodi
- Porterville Transit in the City of Porterville
- Redding Area Bus Authority (RABA) in the City of Redding

Peer systems were selected based on similarities across various characteristics, including service area population, ridership, location, and system type. Figure 7-1 provides demographic information for Turlock Transit and the four peer agencies.

Figure 7-1 Peer Review Agencies

System Name	City	Service Area Population	Service Area Square Miles	Population Density Persons per Square Mile
Turlock Transit	Turlock	87,867	22	3,994
City Coach	Vacaville	93,141	27	3,450
GrapeLine	Lodi	64,058	16	4,004
Porterville Transit	Porterville	75,691	49	1,545
RABA	Redding	117,731	71	1,658

Source: NTD 2017 Transit Agency Profiles

Note: All transit providers are in California.

How this chapter is organized

This chapter includes two main sections: service characteristics and productivity. Figure 7-2 lists the indicators examined in each section.

Figure 7-2 Peer Review Sections and Indicators

Section	Indicators
Service Characteristics	<ul style="list-style-type: none"> ▪ Service Span ▪ Fares
Productivity	<ul style="list-style-type: none"> ▪ Ridership ▪ Ridership per Revenue Hour ▪ Ridership per Capita ▪ Operating Cost per Passenger Trip ▪ Operating Cost per Revenue Hour ▪ Farebox Recovery

CHAPTER 7 KEY POINTS

Figure 7-3 summarizes the key findings from this chapter.

Figure 7-3 Peer Review Key Points

Topic	Key Points
Service Characteristics	<ul style="list-style-type: none"> ▪ The amount of transit service available in Turlock is relatively low. Turlock Transit has the lowest revenue hours per capita among the peers (0.21 hours, roughly half the peer average of 0.40). ▪ Turlock's weekday service span is high relative to peers (15 hours). Only Porterville Transit has a higher span (17 hours). However, Turlock's Saturday service span is the lowest among its peers. ▪ Turlock transit collects the same base single ride fare (\$1.50) as three of its four peers. GrapeLine offers a lower fare at \$1.25 per trip.
Productivity <small>Note: All NTD values are for FY 2016-17</small>	<ul style="list-style-type: none"> ▪ Among the peers, Turlock Transit has the lowest average trips per revenue hour (6.3). The peer average is 11.6 trips per revenue hour. ▪ Turlock Transit has the lowest average ridership per capita, with 1.3 riders per capita compared to the peer average of 4.9 riders per capita. ▪ Turlock Transit has the highest operating expenses per passenger trip among its peers, at \$8.63. This is about 40% above the peer average (\$6.20) and twice the amount of City Coach (\$4.21), which is the lowest peer. ▪ At \$54.25, Turlock Transit has the second lowest operating expenses per revenue hour compared to its peers.

SERVICE CHARACTERISTICS

This section assesses the service characteristics of Turlock Transit compared to its peers. It examines the span of service, fares, and the overall availability of transit relative to service area populations.

Span of Service

Service span calculates the daily duration of transit availability. It is measured from the earliest departure at the first bus stop until the latest arrival at the last bus stop. This measure provides an understanding of how much service is present.

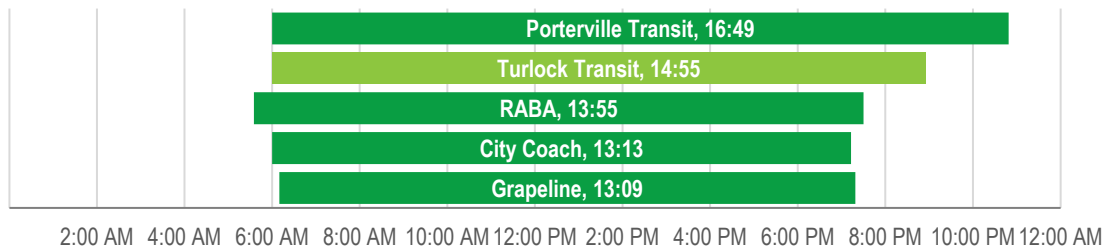
Weekday Service

On weekdays, Turlock Transit has the second longest span of service among the five peer agencies, operating from 6:00 a.m. to 8:55 p.m., or about 15 hours.

Porterville Transit operates for the longest period of time with nearly 17 hours of service. RABA, City Coach, and GrapeLine each operate between 13 and 14 hours per weekday (Figure 7-4).

Turlock Transit operates all of its routes for the entirety of the system's 15-hour span. This is somewhat unique compared to some of its peers that only operate their highest performing routes for their full hours of service. For instance, RABA only operates one of its routes for its full span of 14 hours; it operates the remaining routes for slightly less time: 12 to 13 hours.

Figure 7-4 Weekday Service Span Comparison

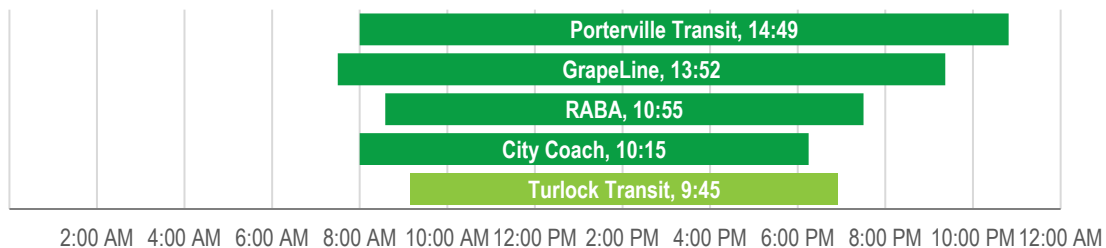


Source: System specific websites, accessed January 2019

Saturday Service

Turlock Transit provides the shortest span of service on Saturdays among the peers: 9 hours and 45 minutes between 9:10 am and 6:55 pm. Porterville has the highest service span with just under 15 hours of service on Saturdays. This is followed by GrapeLine (14 hours), RABA (11 hours), and City Coach (10 hours). Figure 7-5 displays the Saturday service span for the five transit agencies.

Figure 7-5 Saturday Service Span Comparison

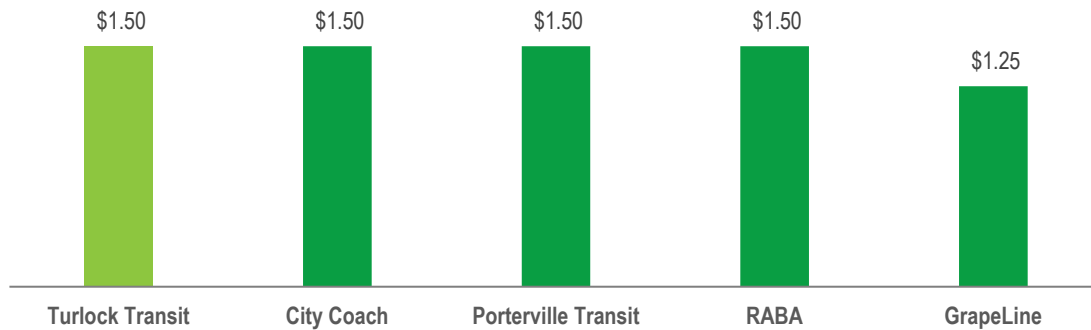


Source: System specific websites, accessed January 2019

Fares

The base single ride fare for Turlock Transit is \$1.50, which is the same as most of the peer agencies, including City Coach, Porterville Transit, and RABA. GrapeLine has a slightly lower fare at \$1.25 per trip. Figure 7-6 presents the single ride base fares for all five peer transit systems.

Figure 7-6 Single Ride Base Fare



Source: System specific websites, accessed January 2019

PRODUCTIVITY

This section explains how well-used Turlock Transit is relative to its peers. Figure 7-7 shows the key variable inputs that go into the calculations for performance.

Figure 7-7 Key Performance Variables

Transit Provider	City	Ridership Annual Unlinked Passenger Trips	Revenue Hours Annual Vehicle Revenue Hours	Operating Expenses Annual Operating Expenses (\$)	Fare Revenues Annual Fare Revenues (\$)
Turlock Transit	Turlock	117,295	18,653	1,011,912	65,549
City Coach	Vacaville	432,670	37,059	1,822,083	326,292
GrapeLine	Lodi	272,990	22,511	1,944,395	156,811
Porterville Transit	Porterville	620,420	50,183	3,270,987	524,987
RABA	Redding	685,793	43,998	4,091,736	696,197

Source: NTD 2017 Transit Agency Profiles

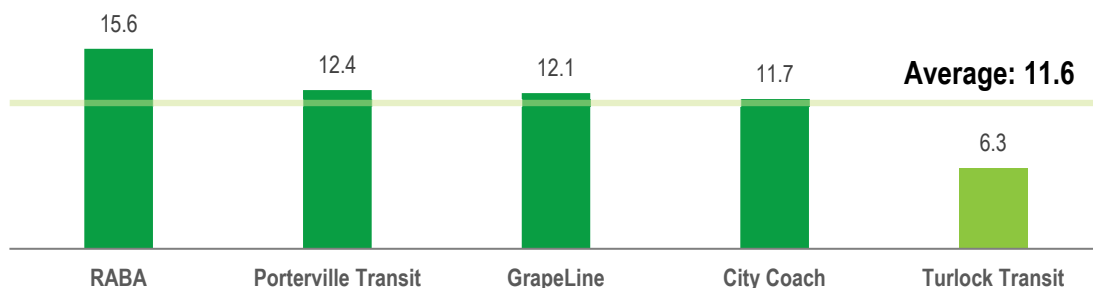
The key inputs presented in Figure 7-7 are used to calculate the following measures of productivity:

- **Ridership per revenue hour** describes the number of transit boardings taken relative to the amount of service, in hours, an agency provides.
- **Ridership per capita** describes the number of transit trips taken per person on average within the system's service area.
- **Operating expenses per passenger trip** describes how much it costs to provide one passenger trip.
- **Operating expenses per revenue hour** spell out how much it costs to run one bus-hour of service.
- **Farebox recovery** explains the proportion of operating costs recovered by fare revenues.

Ridership per Revenue Hour

Turlock Transit provides the lowest number of boardings per revenue hour (6.3), which is about half of the average of the other peer transit agencies (11.6). RABA carries the most people per revenue hour (15.6) followed by Porterville Transit (12.4), GrapeLine, and City Coach (11.7). Figure 7-8 presents the trips per revenue hour for all five transit agencies.

Figure 7-8 Ridership per Revenue Hour



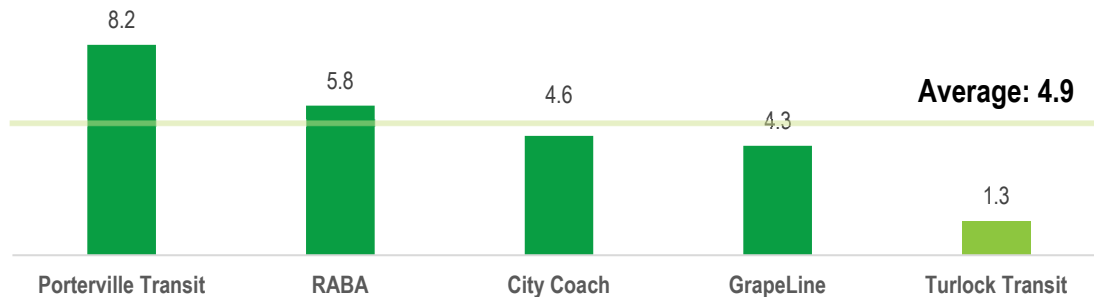
Source: NTD 2017 Transit Agency Profiles

Ridership per Capita

The ridership per capita for Turlock Transit is the lowest (1.3) and just under a quarter of the average for all five systems (4.9). Porterville Transit rises to the top according to this metric at 8.2, followed by RABA (5.8), City Coach (4.6), and

GrapeLine (4.3). Figure 7-9 shows ridership per capita for each of the five transit systems.

Figure 7-9 Ridership per Capita

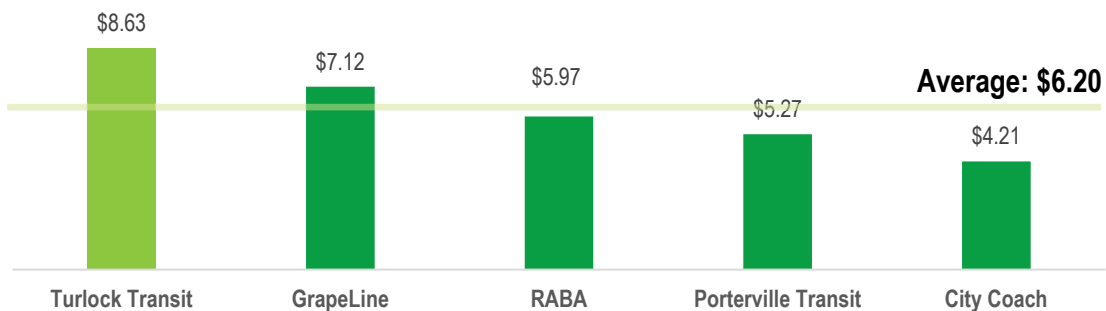


Source: NTD 2017 Transit Agency Profiles

Operating Cost per Passenger Trip

Operating expenses per passenger trip estimates the cost to provide one transit trip per passenger on average. Among the five peer agencies, Turlock Transit has the highest operating expenses per trip at \$8.63, which is about 40% higher than the peer average (\$6.20). Turlock Transit is followed by GrapeLine (\$7.12), RABA (\$5.96), Porterville Transit (\$5.27), and City Coach (\$4.21). Figure 7-10 displays the operating expenses per passenger trip for the five agencies.

Figure 7-10 Operating Expenses per Passenger Trip



Source: NTD 2017 Transit Agency Profiles

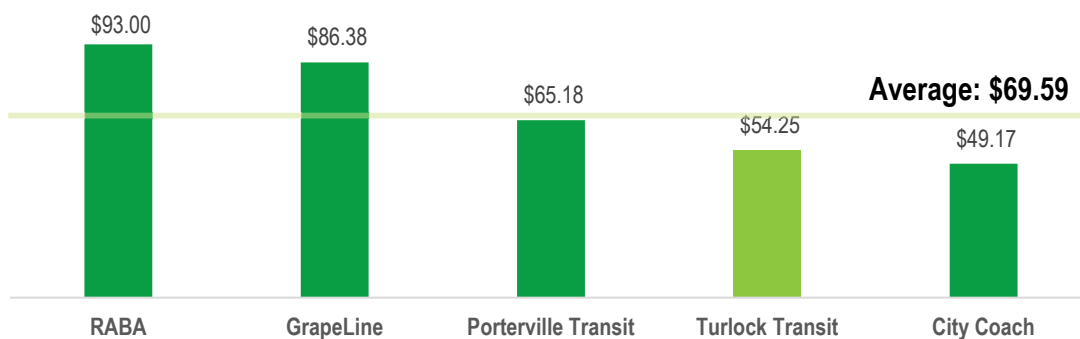
Operating Cost per Revenue Hour

Operating expenses per revenue hour evaluates how much an agency spends to provide one vehicle-hour of transit service. Without consideration for the number of passengers on board, this metric sheds light on the efficiency of the system's

operations. A low value usually results from a combination of lower labor costs and route scheduling efficiency.

Turlock Transit has the second lowest operating expenses per revenue hour at \$54.25, which is about 80% of the average of the peer agencies (\$69.59). City Coach is the only peer agency with lower operating expenses per revenue hour at \$49.17. RABA has the highest (\$93.00), followed by GrapeLine (\$86.38), and then Porterville Transit (\$65.18). Figure 7-11 illustrates the operating expenses per revenue hour for the five transit agencies.

Figure 7-11 Operating Expenses per Revenue Hour



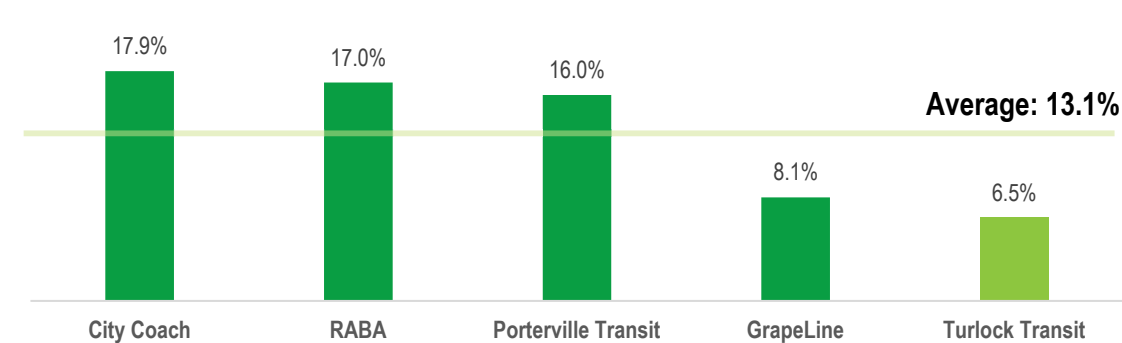
Source: NTD 2017 Transit Agency Profiles

Farebox Recovery

Farebox recovery is the proportion of a transit system's operating costs covered by fare revenues. According to NTD, this is a simple calculation. Turlock Transit has the lowest farebox recovery of the five systems, at 6.5% based on national guidelines. This is just under half the peer average (13.1%). City Coach boasts the highest farebox recovery (17.9%), followed by RABA (17%), Porterville Transit (16%), and then GrapeLine (8%). Figure 7-12 presents the farebox recovery for the five peer agencies.

Note that in California, there are certain operating cost exemptions that affect how farebox recovery is calculated. Although Turlock Transit is considered to have higher farebox recovery ratio for purposes of state funding (16%), that is not reflected in the chart below.

Figure 7-12 NTD Reported Farebox Recovery



Source: NTD 2017 Transit Agency Profiles

8 COMMUNITY ENGAGEMENT

Community engagement is central to the SRTP process. This chapter explains how we listened and what we heard.

What is community engagement and why is it important?

Community engagement is a dialogue between Turlock Transit and the public. Broadly speaking, the purpose is to both disseminate information *to* the public, and gather feedback *from* the public. Ultimately, it results in better plans, with more buy-in, and smoother implementation.



How is this chapter organized?

This chapter includes two sections:

- **How did we engage the community?** This section explains how we engaged the community over the course of the SRTP.
- **What did we hear?** This section presents key findings from the community engagement, for each touchpoint.

In addition to this chapter, detailed engagement findings are available in:

- **Appendix A: On-Board Survey**
- **Priorities identified by the community** in Chapter 8: Service Plan
- **Figure 10-6 spotlight** in Chapter 10: Marketing Plan

HOW DID WE ENGAGE THE COMMUNITY?

We engaged the community during four touchpoints over the course of the project. All rounds of engagement were publicized using printed posters, social media, and the Turlock Transit website.

Raw data and surveys are available to the Turlock Transit team for reference, in digital formats.

On-board survey (February 2019)

The on-board survey (**Error! Not a valid bookmark self-reference.**) was administered between February 11-13, 2019 and gathered responses from 237 transit riders on all routes (30-50 respondents per route).

Figure 8-1 On-Board Survey Instrument

RIDER SURVEY
Your answers will help us make Turlock Transit even better.

If you have already taken this survey, thank you! One survey per customer. Mirar al reverso para encuesta en español.

A. About this trip
Tell us about the trip you are making now.

1. At what time did you get on this bus?
____ : ____ ☐ AM ☐ PM

2. Which bus route are you currently on?
Check one.
☐ 1. Countryside (Red) ☐ 2. Geer (Yellow)
☐ 3. Olive (Green) ☐ 4. Colorado (Blue)
☐ 5. Lander (Orange) ☐ 6. Soderquist (Purple)

3. What's the purpose of this trip?
Check all that apply, whether you're on your way there or returning home.
☐ Work
☐ School or college
☐ Shopping or grocery store
☐ Medical or dental appointment
☐ Visiting friends or family
☐ Going out for fun
☐ Other: _____

4. Where does this trip start and end?
Example: Main & Golden State
Nearest intersection to START: _____
Nearest intersection to END: _____

5. Does this trip include a transfer? If so, which route?
Check all that apply.
☐ No transfer
☐ Yes, Turlock Transit Route _____
☐ Yes, StaRT Route _____
☐ Yes, Merced The Bus Route _____

6. How did you pay your fare for this trip?
Check one.
☐ Cash
☐ CSU Stanislaus student ID
☐ Turlock Transit monthly pass
☐ Turlock Transit single trip pass
☐ Turlock Transit day pass
☐ Turlock Transit stored value card
☐ StaRT transfer
☐ Other: _____

B. What matters to you?
Your input will help us set priorities.

7. Rate your overall satisfaction with Turlock Transit.
Check one.
☐ 😊 ☐ 😐 ☐ ☹️

8. Select THREE (3) improvements that are most important to you.
Check three.
☐ Earlier service ☐ Later service
☐ More Saturday service ☐ Sunday service
☐ More frequent service ☐ Easier fare payment
☐ Buses that are on time more often
☐ Faster service (fewer stops, more direct routes)
☐ Real-time information, at stops or in an app
☐ Stops that feel safer and more comfortable
☐ Better customer service
☐ Service to new areas (please tell us where): _____

9. In a usual week, how many days do you ride Turlock Transit?
Check one.
☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
☐ Less than once

10. How do you get information about Turlock Transit?
Check all that apply.
☐ Search engine (e.g., Google)
☐ Smartphone app (specify): _____

☐ Turlock Transit website
☐ Facebook
☐ Twitter
☐ Paper rider guide
☐ Map and schedule at the bus stop
☐ Inside the bus
☐ Phone call or in-person visit
☐ Word of mouth
☐ Other: _____

11. How would you describe yourself?
Check all that apply.
☐ Middle or high school student
☐ College or university student
☐ Employed full time
☐ Employed part time
☐ Not employed
☐ Retired or semi-retired

12. Do you have access to a car?
Check one.
☐ No
☐ Yes, but not always (shared car, reliability issue, etc.)
☐ Yes, for myself

13. Do you use a smartphone with a data plan?
Check one.
☐ Yes ☐ No

14. What is your gender?
Check one.
☐ Male ☐ Female
☐ Other ☐ I'd rather not say

15. What is your age?
Check one.
☐ Under 18 ☐ 18-29 ☐ 30-64 ☐ 65+

16. How much do you earn each month (before taxes)?
Check one.
☐ Under \$1,000 ☐ \$1,000 - \$1,999
☐ \$2,000 - \$2,999 ☐ \$3,000+

17. What language do you speak at home?
Check one.
☐ English ☐ Spanish ☐ Farsi
☐ Other: _____

18. What social networks do you use?
☐ Facebook ☐ Twitter ☐ Instagram
☐ Reddit ☐ Nextdoor ☐ None
☐ Other: _____

19. What did we miss? Tell us your thoughts here.

D. Stay in touch!
If you leave us your email address you'll be entered into a drawing to win a \$50 Visa gift card. And you'll be the first to hear about improvements to Turlock Transit.
Email address (OPTIONAL): _____

Please complete the next page →

Image of the English on-board survey (February 2019). A Spanish language survey was also available.

Source: Nelson\Nygaard and Turlock Transit

Round 1: in-person and online engagement (March 2019)

During Route 1, we held three in-person pop-up meetings on March 11 and 12, 2019—at the CSU Stanislaus Quad, Roger K. Fall Transit Center, and Turlock Sales Yard—as well as one formal public meeting at Turlock City Hall on March

11. A corresponding online survey was also available from March 4 to 31, 2019, which received 214 unique responses.

The purpose of the first round of outreach was to better understand the strengths, challenges, and opportunities associated with the existing Turlock Transit system.

Round 2: in-person and online engagement (May 2019)

During Round 2, we held three pop-up meetings on Wednesday, May 8, 2019 at the Roger K. Fall Transit Center, CSU Stanislaus Quad, and Monte Vista Crossings, as well as a formal public hearing at Turlock City Hall on Tuesday, May 7, 2019. A related online survey was available in both English and Spanish from May 5 to June 30, 2019, which received 46 unique responses.

The purpose of Round 2 was to gauge reception to various strategies under consideration for the SRTP.



Photos from Round 2 in-person engagement
Source: Nelson\Nygaard and Turlock Transit

Round 3: SRTP presentation (February 2020)

The Round 3 engagement consisted of a public hearing at Turlock City Hall on February 25, 2020.

WHAT DID WE HEAR?

Each engagement touchpoint yielded several insights from the community. Figure 8-2 summarizes the findings.

Figure 8-2 Summary of Findings from Community Engagement

Engagement	What did we hear?
On-board survey	<ul style="list-style-type: none"> ▪ High satisfaction. Satisfaction with Turlock Transit is very high (90% of respondents). ▪ A typical Turlock Transit rider is a student (46%), with a smartphone (76%), without access to a private vehicle (75%), traveling to school (34%) or shops (20%). They make several transit trips per week, and use Facebook (33%) and Instagram (27%). ▪ Fare payment. By a wide margin, the most common fare payment methods are cash (48%), CSU Stanislaus student IDs (23%) and Turlock Transit monthly passes (18%). However, the survey took place prior to Token Transit being implemented. ▪ Information materials. Riders are most likely to find information about Turlock Transit through a search engine (30%), a smartphone app (20%), or the paper rider guide (14%). The survey took place prior to Turlock Transit being available in the Transit app. ▪ Desired improvements. The most desired improvements are span-related (Sunday service, more Saturday service, later service), as well as real-time information. The survey took place prior to Swiftly and Token Transit implementation.
Round 1 engagement	<ul style="list-style-type: none"> ▪ Wish statement themes. Open ended wish statement key themes: extend hours (later, Sunday), bus stop amenities, better marketing/promotion of Turlock Transit, clearer schedules, service to new areas (movie theater, library, Costco, Amtrak), more frequent service ▪ Challenges among riders. Among riders, key challenges included: span of service; app-based information; bus stop and vehicle comfort; the Turlock Transit website; and transfers between Turlock Transit and other providers. ▪ Benefits that resonate. The three most appealing benefits of transit among all respondents were: (1) not having to worry about parking (61%), (2) being environmentally friendly (48%), and (3) being able to multitask, e.g., read a book (46%). ▪ Special events as key opportunities to attract new riders. People who didn't currently or hadn't ever used Turlock Transit indicated that they would most likely use it for a special event, e.g., the County Fair.

Engagement	What did we hear?
Round 2 engagement	<ul style="list-style-type: none"> ▪ Service to the library would be appreciated. Direct service to Turlock Public Library was mentioned explicitly in open-ended questions, and many people supported fixed-route modifications that would make this possible. ▪ General approval for two-way service. Multiple open-ended comments exhibited appreciation for more two-way service—on one proposed two-way Route 6 alignment in particular, which was ultimately found to be unfeasible. ▪ Concept routes: lukewarm reception. There was modest enthusiasm about the three concept routes (Tegner, Turlock-Denair Express, Tuesday Shuttle). ▪ More service on Route 1 and Route 2. When asked which routes should have more service, respondents largely selected Route 1 and Route 2. ▪ Sunday Service Span. People who want Sunday service thought it should have the same span as Saturday service. ▪ Transit-on-demand key findings. For a hypothetical transit-on-demand service: affordability is more important than convenience; later service would be preferable if feasible; limited support for replacing fixed-route with transit-on-demand. ▪ App- and web-based information. Real-time bus arrival information and app-based fare payment would both be nearly universally appreciated. Note that the survey took place before implementation of Swiftly and Token Transit. ▪ Low response rate. There was a low response rate (n=46) for the Round 2 survey. This should be taken into consideration when analyzing the results.

Part 2: Taking Action



9 SERVICE PLAN

Service planning is about where and when the bus comes. This chapter explains how to fine-tune Turlock Transit service to better meet community needs.

What is service planning?

Ultimately, service planning includes two levers: where buses operate, and when they operate. By adjusting these two elements—or leaving them unchanged—we can build transit that better suits community needs.

Where Buses Operate

This is about route design, or alignments: the streets that buses drive on and the neighborhoods they serve. Ultimately, the purpose of route design is to serve high densities of homes, jobs, and other destinations—and to do so as directly and quickly as possible.

The **service guidelines** section lays out principles of good route design.

When Buses Operate

Schedules determine when buses operate. This includes frequency and span. Frequency is about how often the bus comes: for example, every 15, 30, or 60 minutes.

Span is about when bus service starts and ends each day. For example, the current Turlock Transit span on weekdays is 15 hours on all routes—from 6:00 a.m. to 9:00 p.m.

How is this chapter structured?

This chapter begins by setting a foundation: the **vision**, **priorities**, and **guidelines** that help to frame service planning. These draw on community engagement, prior planning, staff input, and professional good practice.

- **Vision principles** are overarching principles that have guided Turlock Transit service since the 2016-2017 network redesign.

- **Priorities and goals** explain what is front-of-mind—both to the community and to the Turlock Transit team. In other words, what do we want this Service Plan to accomplish?
- **Service guidelines** are universal good practices in planning for fixed-route services, in order to make sure transit is as useful as possible to the greatest number of people.

The chapter then provides a list of strategies based on this foundation, as well as opportunities for regional integration. The strategies each tie back to the goals, and include suggested phasing and farebox implications.

- **Service strategies** outline how to modify Turlock Transit service to better serve the community. A summary of service priorities is available on p. 9-7.
- **Opportunities for regional integration** are ways that Turlock Transit can better coordinate with other transit providers in the region.

VISION PRINCIPLES

Turlock Transit confirms three core principles identified as part of the vision for the 2015 SRTP: sustainability, excellence, and innovation. These guide Turlock Transit toward solutions that are in line with shared values.

Figure 9-1 Vision Principles (2015 SRTP)

Principle	Description
Sustainability¹	Be financially and environmentally sustainable. <ul style="list-style-type: none"> ▪ Ensure service is financially sustainable. ▪ Use transit as an alternative to single occupant vehicles, thereby reducing vehicle emissions and traffic congestion.
Excellence²	Continually improve service delivery and the rider experience. <ul style="list-style-type: none"> ▪ Improve the experience of riding the bus. ▪ Expand and refine service to best meet the needs of future riders.

¹ 2015 SRTP text: “Sustainability as a guiding principle relates to both environmental and financial sustainability. From an environmental standpoint, transit service can be an effective tool for attracting riders who would otherwise drive alone, thereby reducing emissions and congestion. In order to continue expanding and offering a quality of service that will attract and retain riders, the City must set and maintain a financially sustainable path.”

² 2015 SRTP text: “Upcoming route changes, service improvements, and rebranding efforts will give the City a prime opportunity to raise the bar of excellence for local transit service. In turn, the public will come to associate this improved quality of service with riding the bus. Excellence encompasses a wide range of attributes that comprise service delivery and customer information. In the long term, excellence means expanding and refining service to best meet the needs of future riders.”

Principle	Description
Innovation³	<p>Collaborate and adapt to change.</p> <ul style="list-style-type: none"> ▪ Take advantage of changes in: funding, congestion, demographics, development, emerging mobility, and regulations. ▪ Evaluate and adjust system performance. ▪ Collaborate with other agencies, governments, private developers, and organizations.

PRIORITIES AND GOALS

We have compiled two sets of priorities for the 2020 SRTP – one from Turlock Transit staff and one from the community.

The items in bold are particularly relevant to service planning, while the others belong largely to other parts of the SRTP, e.g., marketing, fares, capital planning, and regional collaboration.

It is worth pointing out that many aspects of the system work well. If an item doesn't show up on the list, this doesn't mean it isn't important. Rather, it is not a priority warranting changes during this SRTP.

Priorities Identified by Turlock Transit

Based on the study efforts for this project, Turlock Transit's top goals include:

- **Improve reliability.** Do not compromise gains in on-time performance since 2016-2017 service changes—particularly the drop in late departures.
- Increase the farebox recovery rate to ensure a sustainable business model under current funding sources (through a combination of **service productivity** and fare collection)
- Improve the transit rider experience (fare payment, real time information)
- Build awareness of Turlock Transit through marketing

³ 2015 SRTP text: "Innovation is a vital tool for operating a transit system that is both sustainable and excellent. In the coming years, the City may likely face changes and opportunities related to funding, congestion, shifting demographics, new development patterns, competing/complementary transportation services, and new regulations. Innovation will require ongoing evaluation of system performance and customer expectations. Innovation requires taking advantage of opportunities to attract new riders, increase funding, and serve new destinations. Examples of innovation often come in the form of collaboration and partnerships: inter-agency coordination to improve connections, pass programs to increase transit mode share, and arrangements with private developers to ensure access to transit. As transit services grow and evolve, it is vital that City staff continue to explore opportunities to innovate."

Priorities Identified by the Community

The community provided input on Turlock Transit during three outreach touchpoints: one on-board survey, and two rounds of in-person outreach with corresponding public surveys. Key priorities identified from outreach include:

- **Extend hours**
- **Provide service to key unserved destinations⁴**
- Provide app-based information and an easier-to-use website
- Improve bus stop amenities (seating, shade, lighting, information)
- Increase marketing and awareness
- Make connections to and from other transit providers more intuitive

Service Planning Goals

Four goals specific to service planning emerge from the **bold** priorities above, in this order:



1. **Improve Reliability.** Reduce early departures from scheduled timepoints and late departures from the transit center.



2. **Grow Ridership.** Implement measures to ensure Turlock Transit is both (1) well-used by riders, and (2) financially sustainable. Focus on ridership with a view to increase the farebox recovery rate.



3. **Expand Coverage.** Fill in gaps in service, where anticipated ridership is sufficient. In particular, provide service to the library, and identify opportunities for service west of SR-99 and to Amtrak Denair.



4. **Increase Service Span.** Make transit available for a wider range of hours, when ridership can support it.

⁴ There is vocal support for service closer to the library, as well as to a lesser extent Costco, Ten Pin, and Village Fresh. Apart from these locations, however, increasing coverage does not seem to be a high priority.

Four Things to Keep in Mind About Service Planning Goals

1. Sometimes the goals are in tension

The service planning goals listed above can be in tension. This is normal: transit planning is a balancing act with tradeoffs. For example, increasing coverage and span (Goal 3 and Goal 4) tend to reduce frequency, which typically reduces ridership (Goal 2).

As such, the order of the goals is important: improving on-time performance is the most important—including maintaining a very low percent of late departures. Increasing ridership and farebox recovery are the second-most important, followed by filling gaps in coverage, followed by increasing span.

If a strategy accomplishes a lower-level goal but substantially compromises a higher-level goal, then it should not be pursued.

2. Reliability issues have changed but remain critical

Late departures decreased dramatically following the 2016-2017 service changes. However, two major on-time performance issues have emerged since then:

- Early departures from timepoints caused by schedule slack
- Late departures from the transit center due to driver break scheduling

For the first issue, it is worth remembering: a bus that is two minutes early is equivalent to a bus that is 32 minutes late (or 37 minutes late midday). That level of wait time makes walking competitive with the bus, which is a threat to ridership. For the second issue, late departures from the transit center tend to confuse and frustrate riders, which may push them away from transit.

3. There was a recent successful service redesign

A service redesign took place in 2016-2017, which resulted in a 24% increase in ridership. As such, major changes to route alignments would not be advisable, as riders continue to become accustomed to the new system.

4. Some priorities do not relate to service planning

Several priorities identified by the community and by Turlock Transit staff do not relate to service planning. These are addressed in other parts of the SRTP.

SERVICE GUIDELINES

In addition to the priorities and goals, strategies in this chapter draw on service planning guidelines established during the 2015 SRTP (Chapter 10):

Figure 9-2 Service Guidelines (2015 SRTP)

Principle	What is it?	Why is it important?
Headways (frequency)	Make service as frequent as possible. For Turlock Transit, headways are 30-35 minutes depending on the time of day.	<ul style="list-style-type: none"> More frequent service is one of the most important ways to attract more ridership. Clock face headways—e.g., service every 15, 30, or 60 minutes—increase ridership and the rider experience.
Route directness	Design routes as directly as possible to maximize average speed for the bus and minimize travel time for passengers.	<ul style="list-style-type: none"> Fast and direct routes tend to be useful to more people than circuitous routes.
Route deviations	Do not deviate from the most direct alignment unless there is a compelling reason. When deviations are necessary, weigh their benefits against the inconvenience to passengers.	<ul style="list-style-type: none"> Deviations increase running times and reduce speed, which reduce ridership (and in turn farebox recovery). Deviations with low ridership frustrate riders.
Route alignment	Operate along the same alignment in both directions. Exceptions can be made for one-way streets or turn restrictions.	<ul style="list-style-type: none"> Service in both directions makes it easy for riders to return to their trip origin. One-way loops increase transit coverage but also increase out-of-direction travel that is not intuitive or attractive to potential riders.
Arterial streets	All routes should operate on major roadways.	<ul style="list-style-type: none"> The operation of bus service along arterials and collectors makes transit service faster and easier for riders to understand and use.
Route length	Design routes an appropriate length to gain ridership and reduce operational issues. Maintain a pulse-based system when frequencies are 30-minutes or higher.	<ul style="list-style-type: none"> Excessively long routes are more prone to on-time performance issues. Routes of roughly equivalent length enable Turlock Transit's pulse system to function.
Service span	Span is the number of hours per day that a route operates. Establish spans that make transit available when riders and potential riders need it.	<ul style="list-style-type: none"> Longer service spans enable riders to use transit for more trip types, e.g., work, school, groceries, social activities.

SERVICE STRATEGIES

This section outlines the recommended strategies for Turlock Transit service over the next five years. Most strategies are implementable by July 2020. However, some require additional time and effort. The strategies are broken down into phases. They are:

- Phase 1: year one
- Phase 2: years two and three
- Phase 3: years four and five

Service Summary

This summary provides a high-level overview of the service strategies presented in detail in this chapter. It covers: (1) service strategy overview and map, (2) route spans, (3) facilities, and (4) other implementation considerations.

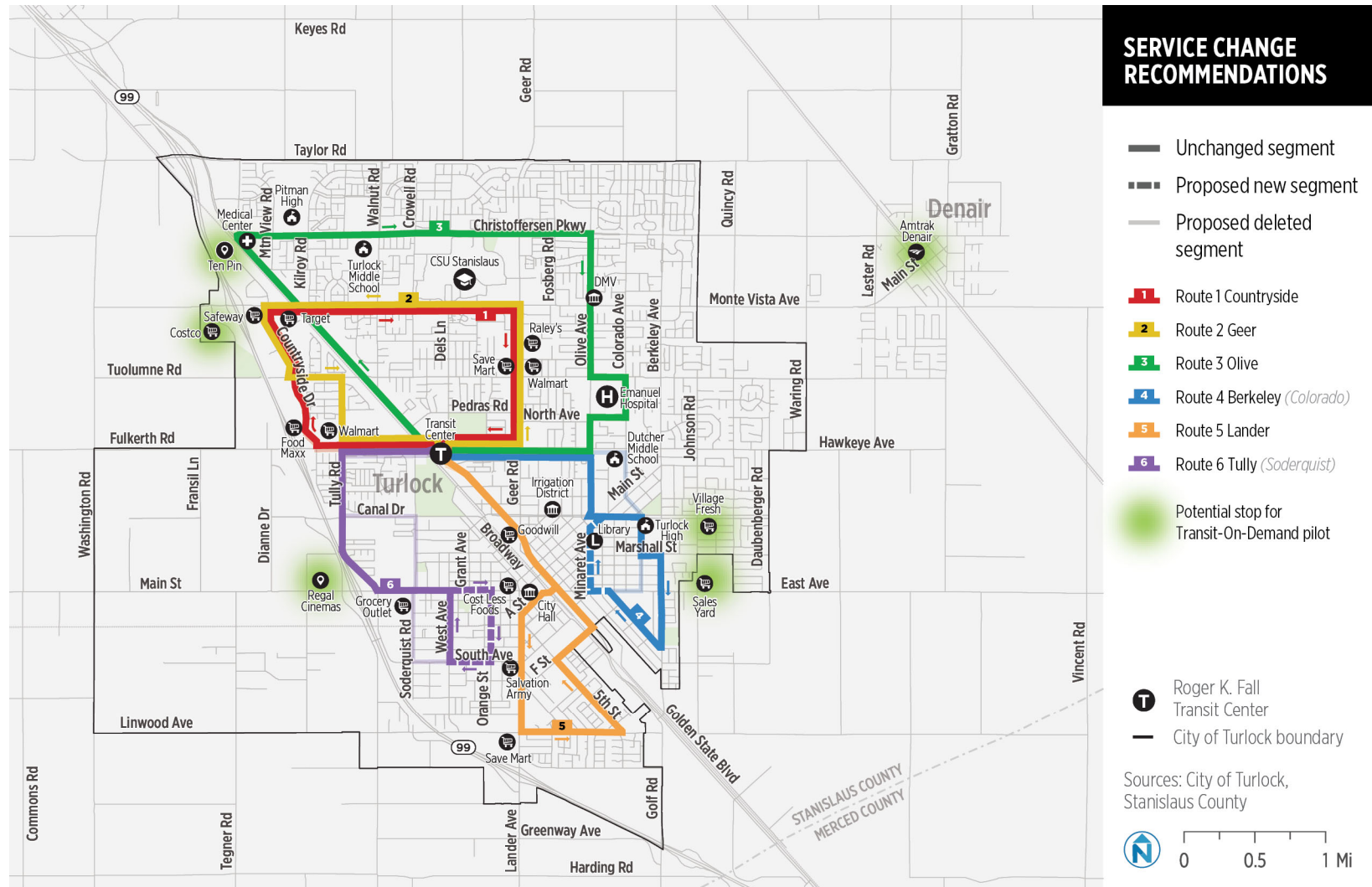
Service Strategy Overview and Map

Figure 9-3 Strategies, Phasing, and Farebox Implications

Goal	Strategy	Phasing
1. Reliability	1.1 Adjust schedules to better reflect travel times <i>Farebox recovery implications: none or modest increase</i>	Phase 1
	1.2 Use interlining to accommodate driver breaks without increasing headways in the public-facing schedule <i>Farebox recovery implications: none or modest increase</i>	Phase 1
	1.3 Evaluate potential to reduce headways to 30 minutes while maintaining on-time performance <i>Farebox recovery implications: increase</i>	When feasible
2. Ridership	2.1 Maintain current alignment for routes 1, 2, 3, and 5 <i>Farebox recovery implications: none</i>	Not applicable
	2.2 Extend Route 6 to Orange St <i>Farebox recovery implications: modest increase</i>	Phase 1

Goal	Strategy	Phasing
3. Coverage	3.1 Adjust Route 4 to serve Turlock Public Library <i>Farebox recovery implications: modest increase</i>	Phase 1
	3.2 Evaluate transit-on-demand options to serve key destinations where fixed route transit is not yet cost-effective <i>Farebox recovery implications: to be determined</i>	Action plan: Phase 1 Pilot: Phase 2 Review: Phase 3
4. Service Span	4.1 Lengthen the span on more productive routes and shorten it on less productive routes <i>Farebox recovery implications: increase</i>	Phase 1

Figure 9-4 Summary Map of Service Change Recommended Strategies



Note: Strategy 2.2 describes the alignment change on Route 6 in detail. Strategy 3.1 describes the alignment change on Route 4 in detail.

Span Recommendation Summary

Figure 9-5 Weekday Span Recommendation Summary

Route	Existing			Recommended	
	Start Time	End Time	Span	End Time	Span
1 Countryside	6 a.m.	9 p.m.	15 hours	10 p.m.	16 hours (+1)
2 Geer				8 p.m.	14 hours (-1)
3 Olive					
4 Berkeley (Colorado)				10 p.m.	16 hours (+1)
5 Lander				8 p.m.	14 hours (-1)
6 Tully (Soderquist)					
<i>Daily weekday fixed-route revenue hours</i>			<i>90 hours</i>		<i>90 hours (no change)</i>
ADA Paratransit	6 a.m.	9 p.m.	15 hours	10 p.m.	16 hours (+1)

Note that **this span change is cost neutral for the fixed-route system**, but will result in an increase in the ADA paratransit span. We anticipate this to result in a modest cost increase (\$8,000 per year). However, this depends on the future cost per revenue hour of ADA paratransit service, as well as paratransit ridership between 9 and 10 p.m.

Note on Weekend Service Span

Two commonly requested improvements during our outreach efforts were later weekend service and new Sunday service. After evaluation, it became clear that this expansion would decrease the farebox recovery ratio. Current regulatory requirements often require the farebox recovery ratio metric to take precedence over other considerations. If this regulation is removed, Turlock Transit should evaluate an expansion of service on weekends to help achieve the goals identified in this chapter.

Fleet Requirements

This Service Plan does not require any new vehicles to implement fixed-route changes. For more information on fleet needs over time due to depreciation, see Chapter 11: Capital Plan.

It is worth pointing out that Strategy 3.2 below may require additional vehicles. This will depend on the exact structure of the desired pilot.

Facility Requirements

The fixed route changes described in the strategies below will require ten new bus stops: four (4) on Route 4 (see Strategy 3.1) and another six (6) on Route 6 (see Strategy 2.2). In addition, sidewalks, curb cuts, and safe, high visibility crossing infrastructure will be helpful to improve transit access and egress.



Strategies for Goal 1: Reliability

- 1.1 Adjust schedules to better reflect travel times
- 1.2 Use interlining to accommodate driver breaks without increasing headways in the public-facing schedule
- 1.3 Evaluate potential to reduce headways to 30 minutes while maintaining on-time performance

Strategy 1.1: Adjust schedules to better reflect travel times

Description

Use data from Swiftly to fine-tune schedules based on actual running times. For most timepoints, departure times will tighten throughout the day as a result.

Rationale

A preliminary analysis of Swiftly-based on-time performance data shows that buses leave timepoints early at a relatively high rate (7%). Early departures suggest that schedules are too loose in general and should be tightened. This means that the bands of 30-minute headways can likely extend for more of the day than is currently the case.

Phasing

Phase 1

Costs

- Operating costs: none
- Fleet impacts: none
- Capital costs: none
- Staff effort: low

Farebox Implications

Modest increase in farebox recovery rate, due to higher ridership

Anticipated Outcomes

- Better reliability, including fewer early departures
- More rider trust and satisfaction
- Higher ridership

Spotlight 1.1: Early Departures

Early buses may not seem like a major issue at first glance, but in fact they are a greater problem for riders than late buses. Take for example a bus that is three minutes early vs. late.

- **Late bus.** If a bus is late by three minutes, then a rider needs to wait three minutes before boarding the bus.
- **Early bus.** If a bus is early by three minutes, and a rider shows up at the stop on time, then the rider has to wait the full headway for the next bus: typically a full 30 or 35 minutes—despite arriving on time. In other words, up to 33 (or 38) minutes!

The chart below shows how early buses—even those that are early by a relatively small interval—can result in an outsized delay for passengers.

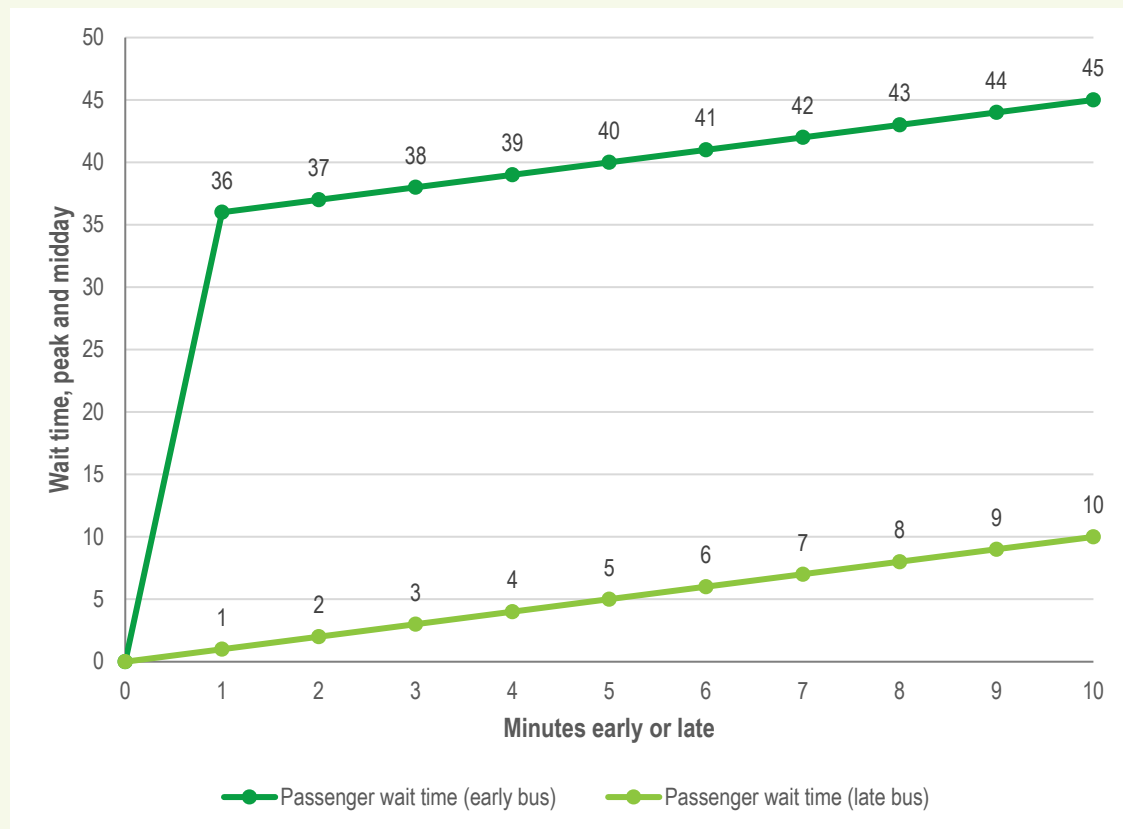


Chart showing wait times for passengers who arrive on time for a bus that departs early (dark green) vs late (light green) for a route with 35-minute headways

Source: Nelson\Nygaard

Strategy 1.2: Use interlining to accommodate driver breaks without increasing headways in the public-facing schedule

Description

Identify trips on Route 3 that arrive back at the transit center with enough time to provide 10-minute driver breaks. Schedule driver breaks at these times, and assign drivers to operate a Route 3 trip prior to taking their break. (Interlining does not require drivers to change the vehicle they are driving—only the route.) This interlining of routes with Route 3 enables breaks to be accommodated without adjusting public-facing schedule times. Trips on other routes that arrive early at the transit center can also be used for this purpose.

Rationale

Currently, mandated driver breaks can result in trips departing from the transit center several minutes late. This is a source of frustration for riders, who have to wait at the transit center later than expected for a reason that is not apparent.

Based on preliminary on-time performance data from Swiftly, Route 3 most consistently returns to the transit center early. Scheduling this time for driver breaks will be better for drivers and accommodate passengers without affecting the departure time of the next trip.

Phasing

Phase 1

Costs

- Operating costs: none
- Fleet impacts: none
- Capital costs: none
- Staff effort: low

Farebox Implications

No change or modest increase in farebox recovery rate, due to higher ridership

Anticipated Outcomes

- Better on-time performance (fewer late departures from the transit center)
- More rider trust and satisfaction
- Higher ridership

Strategy 1.3: Evaluate potential to improve service frequency to 30 minutes while maintaining on-time performance

Description

Using on-time performance data, determine feasibility of moving toward 30-minute service during more of the day, or all day. This may involve further schedule adjustments, and possibly minor alignment changes.

Rationale

Thirty-minute headways are “clock face.” In other words, they recur at the same clock face time each trip. For example, the bus may arrive at the same stop all day at :15 and :45 past each hour. This has the following benefits:

- 17% increase in frequency without increasing revenue hours
- Clock face headways typically increase ridership
- Less costly to update, print, and display schedules (Turlock Transit)
- Easier to read and remember schedules (riders)

Phasing

When feasible

Costs

- Operating costs: none
- Fleet impacts: none
- Capital costs: none
- Staff effort: medium

Farebox Implications

Increase in farebox recovery rate, due to higher ridership and number of trips per hour, with no change in revenue hours

Anticipated Outcomes

- Better rider experience (easier to remember schedules)
- More frequent service
- Higher ridership

Spotlight 1.3: Clock Face Headways in Colorado Springs

What was the challenge?

In 2008-2009, Mountain Metropolitan Metro was in a challenging fiscal situation: they needed to simultaneously **increase fares and cut service**.

What did Mountain Metropolitan Metro do?

The agency strategically **straightened routes and moved to clock face headways**—from 35 and 70 minutes to 30 and 60 minutes.

What was the result?

- Revenue hours dropped by 13%
- Ridership increased by 13%

It is worth pointing out that fares increased from \$1.50 to \$1.75 when the clock face headways went into effect. While Mountain Metropolitan Metro still had many challenges ahead, it had created a core system that worked for the community.



Mountain Metropolitan Metro increased ridership by 13% despite cuts in service and an increase in fares—as a result of straightening routes and moving to clock face headways

Image Source: Wikimedia Commons, licensed for reuse



Strategies for Goal 2: Ridership⁵

- 2.1 Maintain current alignment for routes 1, 2, 3, and 5
- 2.2 Extend Route 6 to Orange St

⁵ For more information on reporting on ridership, see the Spotlight on p. 9-21.

Strategy 2.1: Maintain current alignment for routes 1, 2, 3, and 5

Description

Do not make alignment changes to routes 1, 2, 3, or 5.

Rationale

Systemwide ridership has been increasing since the network redesign in 2016-2017, and users are still becoming accustomed to the new routes. In particular, routes 1, 2, and 5 have relatively high and growing ridership. While ridership is not high on Route 3, it provides a critical link to the Emanuel Medical Center.

- For more information on Route 3, see Strategy 1.2
- For more information on Route 4: see Strategy 3.1
- For more information on Route 6: see Strategy 2.2

Phasing

No action needed

Costs

- Operating costs: none
- Fleet impacts: none
- Capital costs: none
- Staff effort: none

Farebox Implications

No change

Anticipated Outcomes

- Easier for riders to become accustomed to the 2016-2017 transit network redesign

Strategy 2.2: Extend Route 6 to Orange St

Description

Extend Route 6 to Orange St, via West Ave and South Ave. Eliminate all segments on Soderquist Rd and the segment of South Ave west of West Ave. Serve Tully Rd in both directions. Keep all other segments unchanged. Rename the route to Route 6 Tully.

This change in alignment will require:

- Bus turning and running time tests
- New bus stops on West Main St, South Ave, and Orange St
- Move bus stops to the other side of the street on West Ave
- Updated system map, schedules, rider guides, and stop maintenance map
- Marketing to build awareness of the change

Rationale

Despite systemwide increases in ridership, Route 6 has a persistently low number of boardings. By extending this route closer to downtown and farther into the neighborhood southwest of downtown, it may be able to attract more riders.

Phasing

Phase 1

Costs

- Operating costs: none
- Fleet impacts: none
- Capital costs: new bus stops (6)
- Staff effort: medium

Farebox Implications

Modest increase in farebox recovery rate, due to higher ridership

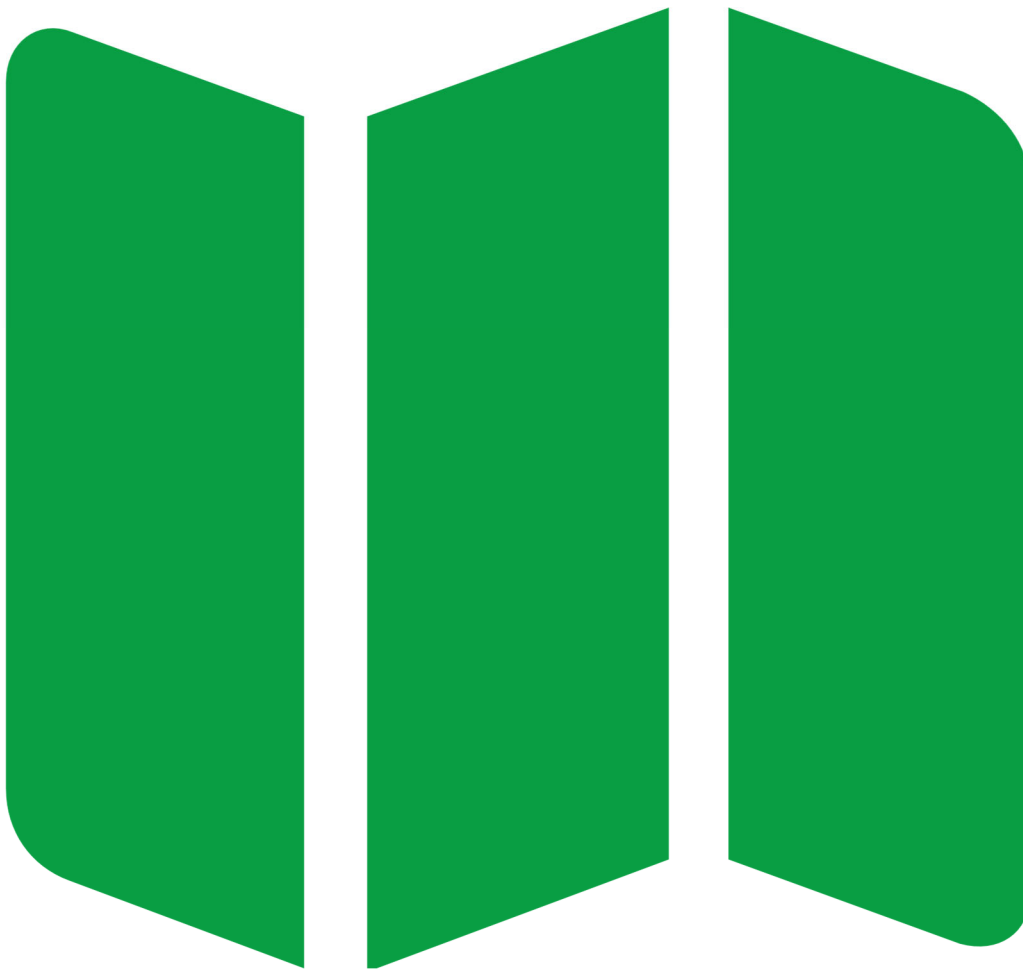
Anticipated Outcomes

- Modest increase in ridership

Spotlight: Reporting on ridership

Ridership reporting is critical to transit planning, delivery, and transparency. This spotlight lists key considerations when reporting on ridership.

- **Average daily ridership is more important than total monthly ridership.** Average daily boardings (with weekday and weekends calculated separately) is the most fundamental ridership information. This should be available by route and systemwide. By contrast, total monthly boardings can vary substantially due to the number of weekdays and weekend days that happen fall within the month.
- **Ridership by time of day.** Calculating ridership by time of day, again separating weekdays and weekends, helps to understand whether the span could be adjusted.
- **Productivity is even more important.** An even more useful calculation is productivity: average boardings *per revenue hour*, again calculated separately by weekday and weekend. This is closely related to farebox recovery—almost any increase in productivity means an increase in the farebox recovery rate, because the *marginal* cost of each additional rider is usually zero.
- **Automate reporting when possible.** For fixed-route ridership at the system, route, and trip levels, the GenFare fare system provides the requisite raw data. However, transforming this data into a useful format can be time-consuming. It is possible to use an Excel Macro, R script, or other tool to automate this process.
- **Manually validate GenFare data and collect stop-level data.** Periodic validation is important to have confidence in GenFare numbers. Turlock Transit does this now—through manual ridership counts, by stop, in buses—and should continue to do so in the future.
- **Use a tool that works.** Ridership analysis and reporting can happen using spreadsheet software (e.g., Excel), GIS (e.g., ArcMap), statistical software (e.g., R), or traditional database software (e.g., Access). There are advantages and disadvantages to each, and in many cases they can be combined. The most important thing is to keep data well-structured and consistent. For example, always use the same unique identifiers for stops and routes. This makes it easier to combine and compare data over time.



Strategies for Goal 3: Coverage

- 3.1 Adjust Route 4 to serve Turlock Public Library
- 3.2 Evaluate transit-on-demand options to serve key destinations where fixed route transit is not yet cost-effective

Strategy 3.1: Adjust Route 4 to serve Turlock Public Library

Description

Operate Route 4 as is until Alpha Rd and East Ave. From there, turn the route left on East Ave (instead of right, skipping the existing stop at East Ave and Colorado Ave), then run on Minaret Ave, East Main St, Colorado Ave, and back to Hawkeye Ave. This eliminates the segment on Colorado Ave between Hawkeye Ave and Canal Dr, including five bus stops.

This change in alignment will require:

- Bus turning and running time tests
- Roughly four new bus stops: Olive Ave (1, east side of street); Minaret Ave (2, east side of street); Canal Dr (1, between Main St and Olive Ave).
- Updated system map, schedules, rider guides, and stop maintenance map
- Marketing to build awareness of the change

Rationale

This change to Route 4 provides front-door access to the Turlock Public Library on Minaret Ave. It also brings service closer to downtown and provides bidirectional service on Olive Ave—including safer stops for Dutcher Middle School. It is expected to reduce running times and increase ridership.

Phasing

Phase 1

Costs

- Operating costs: none
- Fleet impacts: none
- Capital costs: bus stops (4)
- Staff effort: medium

Farebox Implications

Modest increase in farebox recovery rate, due to higher ridership

Anticipated Outcomes

- Increase in ridership (and farebox recovery rate)
- Better on-time performance

Strategy 3.2: Evaluate transit-on-demand options to serve key destinations where fixed route transit is not yet cost-effective

Description

Build an action plan for a transit-on-demand pilot project that would provide access to Amtrak Denair—and other key destinations outside the reach of the fixed-route network—to and from key fixed-route bus stops including the Roger K. Fall Transit Center, CSU Stanislaus, and Central Park. For transit-on-demand *information and example cases*, see Spotlight 3.2a (p. 9-25). For transit-on-demand *planning considerations*, see Spotlight 3.2b (p. 9-26).

Depending on the results of the pilot, transit-on-demand service could be structured to replace non-ADA Dial-A-Ride. Similar dispatching technology could also be used to improve the ADA paratransit rider experience.

Rationale

Various stakeholders and community members have requested transit service to places that are difficult to serve with fixed routes. Examples include Costco, Regal Cinemas, Ten Pin, Turlock Sales Yard, and Amtrak Denair.

The purpose of the service would be to provide transit access to lower-density and lower-demand destinations. Fixed-route service to these areas isn't viable because there aren't enough jobs, dwellings, and destinations within walking distance to generate ridership that would make traditional bus routes cost-effective. However, an on-demand service may be feasible.

Phasing

Action plan: Phase 1

Pilot: Phase 2

Review and adjust: Phase 3

Costs and Farebox Implications

To be determined. See Spotlight 3.2a for examples.

Anticipated Outcomes

- Access to destinations outside of the fixed-route network.

Spotlight 3.2a: What is transit-on-demand and what can we learn from other communities?

What is transit-on-demand?

Transit-on-demand, or microtransit, is a transit-like service without fixed routes and schedules, that uses software to match passengers making similar trips in real time.

What are the main benefits?

- The ability to book trips right away with an easy-to-use app (as well as other methods)—rather than a day in advance, like traditional dial-a-ride services.
- Automated software that does much of the end-user interfacing, vehicle routing, driver dispatching, and fare collection, in the background.
- Lower operating costs *per revenue hour* than traditional fixed-route and paratransit.

What are the main drawbacks?

- Higher cost *per passenger trip* than fixed-route service, with the exception of routes that have extremely low ridership. The thresholds of this depend on the relative costs per revenue hour of the two types of services.
- The *marginal cost* per passenger trip increases as ridership increases, unlike fixed-route transit, where the marginal cost per passenger trip is usually zero. In other words, for transit-on-demand, “success” in terms of ridership can often mean “failure” in terms of costs. For example, demand dramatically exceeded supply in the case of [GoMonrovia](https://www.calact.org/assets/Microtransit%20Partnership%20with%20TNC%20GoMonrovia%20Presentation%20-%20.pdf)’s partnership with Lyft, resulting in ballooning costs, fare hikes, and increasing restrictions on usage.
- Given the high cost per passenger trip, it is difficult to set fares in a way that makes the service affordable while considering farebox ratio requirements. One case where fares and costs have worked is [SouthWest Prime](https://mtap.transportation.org/wp-content/uploads/sites/42/2018/08/Simich-Len-and-Fyten-Matt.pdf) in Eden Prairie, MN.

Sources: <https://www.calact.org/assets/Microtransit%20Partnership%20with%20TNC%20GoMonrovia%20Presentation%20-%20.pdf> (Go Monrovia); <https://mtap.transportation.org/wp-content/uploads/sites/42/2018/08/Simich-Len-and-Fyten-Matt.pdf> (SouthWest Prime)

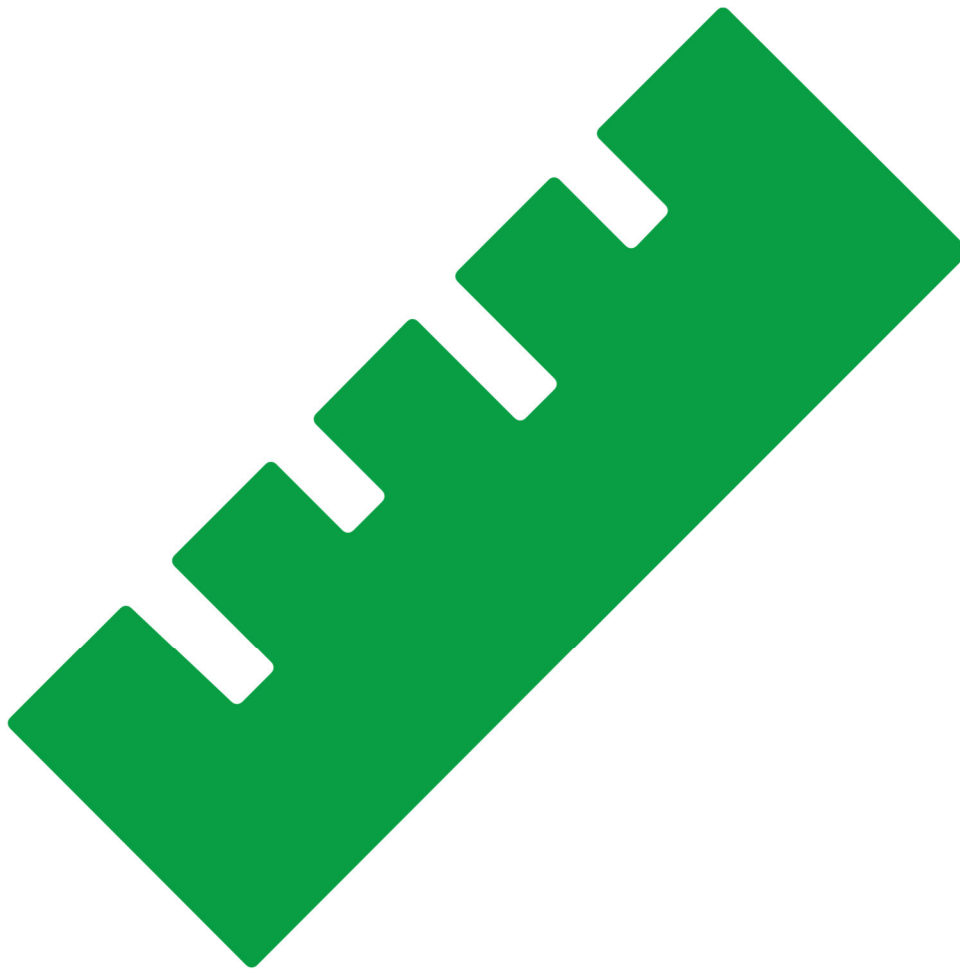
What are some other key considerations?

- **Use the right tool for the job.** At a minimum, transit-on-demand requires specialized software. Turlock Transit dial-a-ride software does not have the necessary functionality as it is currently deployed.
- **Avoid overlap.** Apart from ADA paratransit, do not provide transit-on-demand that overlaps with fixed-route service. Where both models operate simultaneously, ***any shift in ridership or resources from fixed-route to transit-on-demand will reduce the farebox recovery rate.*** This is because of the marginal costs involved in both models.

Spotlight 3.2b: What does the transit-on-demand action plan need to include?

For a transit-on-demand pilot to work, the action plan needs to include:

- **Goals.** Develop refined goals, roles, responsibilities, and quantifiable performance indicators. In experiences from other transit providers, the most commonly identified pitfall with transit-on-demand has been not clarifying “what success means.” It is also critical to specify what would make the service non-viable during planning stages or how to proceed if a pilot is successful/unsuccessful.
- **Service area and cost sharing.** Decide on the destinations (or zones) served by the transit-on-demand service, as well as a mechanism to add destinations. At a minimum, it would include service between Amtrak Denair and key fixed-route stops (Roger K. Fall Transit Center, CSU Stanislaus, and Central Park). However, other destinations (or zones) should be added based on partnerships/cost-sharing agreements with, for example, Ten Pin, Costco, Sales Yard, or Village Fresh. Criteria for adding and removing destinations should be clear. Destinations should not overlap with the existing fixed-route system.
- **Equity.** Be explicit about equity considerations in order to eliminate barriers to use among vulnerable populations. Examples include fare payment methods for people without credit cards, and ride request methods, such as phone, text, and app.
- **Fares.** Establish a fare structure that makes transit-on-demand financially sustainable over the long-term. This may relate to a cost-sharing agreement (see *service area and cost sharing*, above).
- **Demand and vehicle modeling.** Build a model to estimate demand and vehicle needs. Establish cost and vehicle thresholds at which point fares and other restrictions must change in order to keep service sustainable.
- **Data.** Establish written requirements for data sharing, privacy, and reporting.
- **Needs-based technology specification.** Specify technological needs that arise from goals, e.g., phone-based trip booking and fare payment. Be agnostic about specific technologies, vendors, and service providers. ***Importantly, identify ways that current ADA paratransit service can also use transit-on-demand technologies.***
- **Transition to fixed-route.** Specify a mechanism to move toward fixed-route service for origin-destination pairs with high levels of demand. Transit-on-demand does not scale up as well as fixed-route, and has an upper limit of roughly four (4) passenger trips per vehicle hour. Beyond this number, if there are consistent origin-destination pairs, they would be better served by fixed-route.
- **Contracting.** Develop an RFP and identify potential service providers.



Strategies for Goal 4: Service Span

- 4.1 Lengthen the hours of service on more productive routes and shorten it on less productive routes

Strategy 4.1: Lengthen the span on more productive routes and shorten it on less productive routes

Description

End service later at night on more productive routes and earlier on less productive routes. In practice this means: two additional trips for routes 1, 2, and 5 (service to 10:00 p.m.); and two fewer trips for routes 3, 4, and 6 (service to 8:00 p.m.).

This change in span will require:

- Updated schedules and rider guide
- Marketing to build awareness of the change
- A one-hour weekday increase in ADA paratransit hours of operation

Rationale

Strategy 4.1 enables Turlock Transit to provide later service without affecting the farebox recovery rate, despite low evening ridership. It does this by focusing later service on routes with higher productivity, while keeping the total number of fixed-route revenue hours constant.

Phasing

Phase 1

Costs

- Operating costs: up to \$8K per year (for additional paratransit span)
- Fleet impacts: none
- Capital costs: none
- Staff effort: medium

Farebox Implications

Modest increase in fixed-route farebox recovery rate (due to higher ridership and removing low-productivity trips).

Anticipated Outcomes

- Modest increase in productivity (and farebox recovery rate)

OPPORTUNITIES FOR REGIONAL INTEGRATION

Transportation needs don't stop at the city limits: Turlock Transit operates within a regional context. For example, Turlock Transit makes Dial-A-Ride service available in Denair, and outside transit providers serve Turlock.

Furthermore, the Stanislaus Council of Governments (StanCOG) recently undertook a Transit Efficiency and Innovations Study (TEIS) to better understand options for regional integration (see Spotlight, below).

In this context, this section outlines opportunities for regional integration. It addresses each of the StanCOG TEIS categories—(1) paratransit, (2) fixed-route service, (3) emerging mobility, and (4) transit provider consolidation—and provides considerations for Turlock Transit.

Spotlight: About the StanCOG Transit Efficiency and Innovations Study, 2019

In 2019, the Stanislaus Council of Governments (StanCOG) undertook the Transit Efficiency and Innovations Study (TEIS). The study makes recommendations that would impact Turlock Transit, as well as Modesto Area Express, Stanislaus Regional Transit, and Ceres Area Transit. The TEIS covers paratransit, fixed route service, emerging mobility, and transit provider consolidation.

Paratransit

ADA paratransit services are one area where integration is possible. The TEIS presents paratransit recommendations based on three levels of integration: (1) basic, (2) collaboration, and (3) consolidation.

- **Level 1: Basic**
 - Consistent fare structure
 - Improved information, including ADA eligibility process
 - Improved vendor procurement concepts: contract timing, performance measurement, non-compliance treatment, insurance provisions
- **Level 2: Collaboration**
 - Level 1 vendor procurement concepts, plus
 - Single procurement process
 - Common technology platform

- **Level 3: Consolidation**

- Joint governing framework
- Joint vendor procurement process
- Single reservation and scheduling technology system
- Single management structure

Considerations for Turlock Transit

- Pursue improved and consistent paratransit information. This has a relatively low cost and can improve rider comprehension.
- Determine whether consistent regional fares will have a neutral or beneficial impact on farebox recovery and overall financial sustainability before pursuing this possibility. If not, it should not be pursued.
- Pursue integrated vendor procurement, including contract timing, performance measurement, non-compliance treatment, insurance provisions. Consider a single procurement process or joint procurement if feasible. These have the potential to benefit Turlock Transit in terms of improved overall service quality and lower operating costs.
 - One key consideration for vendor procurement changes is the cost and service delivery model for continuing to provide general public Dial-A-Ride service in Turlock. See Strategy 3.2 (p. 9-24), Spotlight 3.2a (p. 9-25), and Spotlight 3.2b (p. 9-26) for additional considerations for non-ADA on-demand service.

Fixed-Route

Integrating fixed-route service is another topic in the TEIS. While this section of the study is extensive, two recommendations are particularly relevant to Turlock Transit:

- **Overlapping local service in Turlock.** In particular, the report points out—as this SRTP does in Chapter 4—that StaRT and Turlock Transit have considerable overlap in Turlock. Specifically:

“StaRT routes 10 and 15 are recommended to stop at CSU Stanislaus, Emanuel Medical Center, and the Roger K. Fall Transit Center only, providing an express connection to Turlock and bypassing many of the local stops that are currently served by Turlock Transit.” (p. 123).

- **Long-distance commuter service.** The TEIS suggests that StaRT should be the sole provider of long-distance commuter service to improve service legibility, branding, and awareness.

Considerations for Turlock Transit

- Encourage the consolidation of StaRT bus stop locations to key destinations in Turlock. This has the potential to improve Turlock Transit ridership and simultaneously improve speed and reliability for StaRT routes. Also, Turlock Transit should continue to focus resources on providing local services, while leaving StaRT to provide commuter services, including service to BART. This minimizes confusion between different providers' responsibilities, jurisdictions, branding, communications, and overall offerings.
- Continue to make connections to and from other transit providers more user friendly by work together on transfer time coordination. This may involve recurring meetings dedicated to interagency connections.

Emerging Mobility

The TEIS discusses emerging mobility in the context of regional integration. Specifically, it explores transit-on-demand (referred to as "microtransit" in the report). The TEIS echoes many of the points made in 3.2 (p. 9-24), Spotlight 3.2a (p. 9-25), and Spotlight 3.2b (p. 9-26), and also suggests that Route 3 and Route 6 may warrant consideration for on-demand service instead of traditional fixed-route service due to their low levels of ridership.

Considerations for Turlock Transit

- Work with regional partners to explore how on-demand service could fill in service gaps. A long-term transit-on-demand service delivery model is only feasible if it does not negatively affect the farebox recovery ratio (under the current transit regulatory environment). A regional partnership could reduce some of the financial or administrative burdens on Turlock Transit.
- The possibility of replacing Route 3 and/or Route 6 with an on-demand alternative may be considered as part of the broader transit-on-demand action plan (Strategy 3.2, p. 9-24). However, immediate implementation is not recommended due to limitations in existing dispatching equipment and other issues outlined in Spotlight 3.2b (p. 9-26).

- During public outreach for this SRTP, community members expressed some interest in on-demand service for areas that are not supportive of fixed-route service. However, they were also concerned about the possibility of high fares for on-demand services.

Transit Provider Consolidation

Lastly, transit provider consolidation involves the integration of transit provision itself, which can range from increased communication at one end, to the creation of a single regional transit provider that would replace all existing providers on the other end. The TEIS provides a spectrum of recommendations: (1) basic; (2) collaboration; and (3) consolidation.

- Level 1: Basic (does not affect Turlock Transit)
 - Integrate Ceres Area Transit into StaRT or MAX in order to provide transit service in Ceres
- Level 2: Collaboration
 - Combined paratransit operations
 - Centralized paratransit management (office, functions, operations oversight)
 - Single paratransit operator contract
 - Single point of contact for paratransit riders
- Level 3: Consolidation
 - New Joint Powers Authority (JPA) to include either (1) MAX, Ceres Area Transit, and StaRT, or (2) all Stanislaus County transit providers
 - Central management of all transit services (route structure, public information, fares, assets)
 - Centralized vendor procurement

Considerations for Turlock Transit

- Consider Level 2 (Collaboration) which involves the further consolidation of paratransit services. This has the potential to reduce Turlock Transit's demand-response cost per revenue hour without negatively affecting service.
- Evaluate consolidation options against Turlock Transit's vision principles: excellence, innovation, and sustainability. Any discussion about changes to the way service is administered, governed, or operated must take these

principles into account. To do this, identify and articulate specific priorities for Turlock Transit and the Turlock community as consolidation is being considered, in order to facilitate the decision-making process.

10 CAPITAL IMPROVEMENT PLAN

Capital is necessary for transit: from buses to stops and maintenance facilities. This chapter explains what capital investments are needed to make this SRTP a reality.

Alignment with other plans

This Capital Improvement Plan aligns with other recommendations from this SRTP—including Chapter 9: Service Plan—as well as three additional plans:

- City of Turlock 5-Year Capital Improvement Plan
- Federal Transit Administration Transit Asset Management (TAM) Plan
- Federal Transit Administration Agency Safety Plan

The above plans provide guidance for both near-term capital needs and long-term improvements.

Alignment with public outreach

The community provided suggestions for Turlock Transit that would encourage people to ride or ride more often. Included in recommendations below are the capital investments the community would like to see in the coming years. This includes:

- More seating at bus stops
- Better lighting at and near bus stops
- More information about bus service at bus stops
- Shade at bus stops

Structure of this chapter

This chapter is organized into four categories:

- **Vehicles.** How many buses does Turlock Transit need to purchase, based on useful life estimations, between now and 2032?
- **Facilities and Infrastructure.** What are the existing and planned transit facilities, including operations facilities, and bus stops?
- **Technology and Equipment.** What technology is available currently?
- **Strategies.** What capital-related recommended strategies are important for the success of this SRTP?

VEHICLES

This section explains what vehicles Turlock Transit has, when they will need replacing, and what this will cost. It also describes recent electric vehicle legislation in California and its implications for Turlock Transit.

Turlock Transit Fleet

Turlock Transit has a fleet of 21 revenue vehicles. This includes 17 vehicles supporting the fixed route system: 10 are 35 feet long, and six are 26 feet. The Dial-A-Ride system is operated with five 26 foot vehicles.

Figure 10-1 summarizes the revenue vehicle fleet, including the vehicle make, model and purchase year (“year”) by which the vehicles are grouped. The purchase year is the basis for the vehicle replacement plan.

In 2017 Turlock Transit lost three vehicles after a fire in the bus yard, leading to severe damage. The agency replaced the vehicles in 2018. The four 2019 vehicles expanded the fixed route fleet, allowing the agency to implement service expansions stemming from the 2016 short range transit plan.

Turlock’s heavy duty 35-foot buses use a compressed natural gas (CNG) fuel system. The fuel storage and delivery system is housed from the Turlock maintenance and bus yard facility. This is a slow-fill line, which is not ideal for operations under high-heat conditions. The City of Turlock has a fast-fill line, which provides some additional capacity.

Figure 10-1 Turlock Transit Revenue Vehicle Summary

Service	Make	Model	Year of service	Length	Useful life benchmark	Quantity
Fixed Route	Orion	VII	2009	35'	12	2
	Gillig	Standard Low Floor	2018	35'	12	4
	Gillig	Standard Low Floor	2019	35'	12	4
	Champion*	Transport	2017	26'	5	6
Dial-A-Ride	Arboc	GM 4500	2015	26'	5	5
<i>Total</i>						21

Source: Turlock Transit

*Turlock Transit does not plan to replace the Champion Transport vehicles with the same size or make.

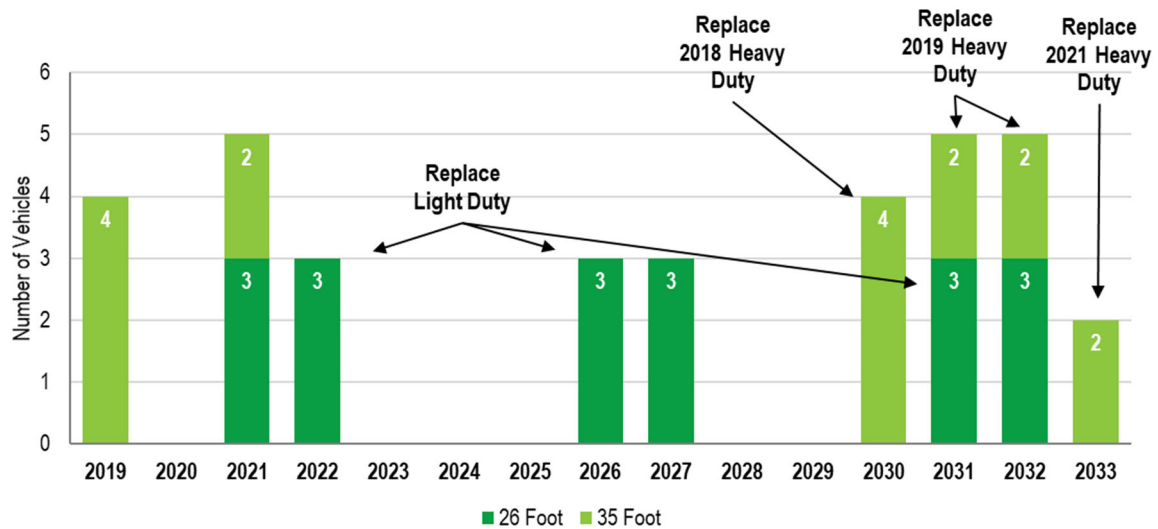
Vehicle Replacement

Turlock plans for vehicle replacements using useful life benchmarks generally accepted by the public transportation industry and the Federal Transit Administration (FTA). Large, heavy duty vehicles (30- to 40-feet long) such as the Turlock Gillig and Orion buses, have a useful life of 12 years. Light duty vehicles (25- to 35-feet long), such as the Champion and Arboc buses, have a useful life of 5 years. The useful life of any vehicle will be based on the vehicle condition in all cases, and the agency will typically try to extend the useful life as far as possible while providing safe, comfortable and clean transportation service.

Replacement Orders

Figure 10-2 summarizes the vehicle replacement count needed by year and grouped by vehicle size. The vehicle purchases are grouped in cycles due to how the vehicles were purchased. This will result in significant costs where vehicle purchases occur in the same year.

Figure 10-2 Revenue Vehicle Replacement Schedule (Count by year of expenditure)

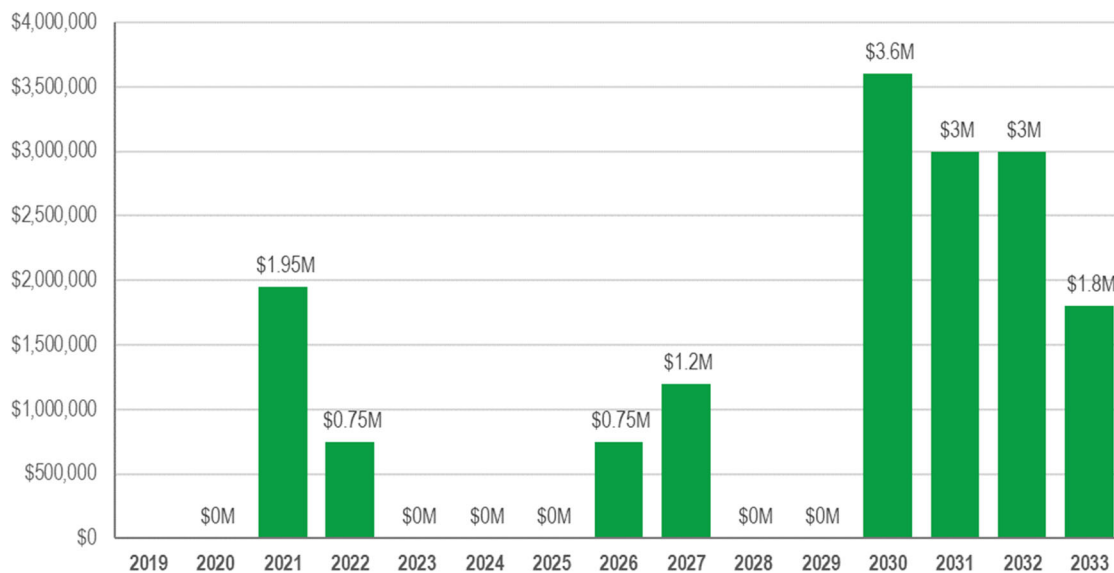


Source: Turlock Transit

Replacement Costs

Figure 10-3 estimates total vehicle purchase costs over the next 12 years (the time frame generally aligns with the next 35-foot vehicle purchase cycle). The purchases are likely to fall within three years of the dates shown, depending on vehicle condition and financial resources available at the time, whether through grants or financial reserves.

Figure 10-3 Estimated Revenue Vehicle Replacement Schedule (Cost)



Source: Turlock Transit

Note: Cost estimate assumes 26-foot transit vehicles cost \$250,000 and 35-foot transit vehicles cost \$600,000. The per vehicle costs are based on estimates presented in Turlock Transit's 2018-2019 Transit Development Act claim. Electric buses, required for new orders after 2029, will likely cost \$400,000 for 26' vehicles, and \$900,000 per vehicle (in unadjusted 2019 dollars) depending on model and features.

Electric Vehicles

This section describes the implications of California electrification legislation on Turlock Transit's fleet.

Legislative Requirements

The California Air Resources Board issued a rule in 2018 requiring all new transit buses (orders) be fully battery electric by 2029.

- Large transit providers must have 25% of new vehicle orders electric by 2023, and 50% by 2026.
- Small transit agencies, like Turlock Transit, need 25% of new vehicle orders to be electric buses by 2026, without the 50% benchmark.

As such, Turlock Transit must plan that at least one vehicle purchase in 2026 and 2027 be electric. This is contingent on whether 26-foot all-electric transit vehicles are available at that time. The next 35-foot vehicle replacement cycle in approximately 2030 is estimated to include only electric vehicles. This order would occur in 2029, roughly, for full purchase and operation in 2030. Turlock transit assumes electric vehicle prices to be nearly double the average vehicle cost today, or \$600,000 for a 26-foot electric bus, and \$900,000 for a 35-foot electric bus.

Charging Infrastructure and Maintenance Facilities

Turlock Transit will need to develop new electric charging infrastructure sites and maintenance facilities, and address the additional cost of electric vehicles. This is one of the major investments and challenges to converting to an electric transit fleet.

Turlock will install electric vehicle charging infrastructure in the new transit operations facility (see *Transit Operations Facility*, below) rather than the existing one—in order to avoid the risk of being unable to cost-effectively move the equipment.

Vehicle Types

Today only large transit vehicles such as Turlock Transit's 35-foot heavy duty vehicles are broadly available with fully battery electric systems.

Transit vehicles less than 30 feet in length, such as Turlock Transit's Arboc and Champion 26-foot vehicles, have not been fully brought to production scale and tested through the relevant vehicle certification programs. In general, the smaller vehicles don't have sufficient space for energy storage relative to the weight of the loaded vehicle.

Should battery electric technology be broadly available and reliable ahead of the 2026 or 2029 deadlines, Turlock Transit must purchase at least one 26-foot electric vehicle by 2026.

Contracting

Purchased service contractors are likely to pass vehicle cost increases through contract budgets, if those contractors are responsible for vehicles. Today, however, Turlock Transit only contracts operations.

FACILITIES AND INFRASTRUCTURE

This section describes Turlock Transit's existing and planned facilities and infrastructure, including the Roger K. Fall Transit Center, the transit operations facility, and bus stops.

Transit Center

Turlock Transit recently built the Roger K. Fall Transit Center at 1418 North Golden State Boulevard. The transit center provides a central hub for the transit system, with bus bays, customer waiting areas, and administrative offices (to be completed December 2019). The transit center was funded through Federal and State grant sources. The total design and construction costs totaled about \$7.5 million. Ongoing costs include maintenance, security and general operations and upkeep.

Transit Operations Facility

Turlock Transit also has a transit operations facility, which in 2019 entered the preliminary design phase to be updated and relocated north of the existing Corporation Yard. The new operating facility will include vehicle fueling and charging infrastructure, bus parking, canopies, solar power technology, and additional land for future expansion. This facility is expected to cost around \$7.0 million (design, environmental, right-of-way, and construction).

Bus Stops

This section describes amenities for existing stops, as well as the approximate stop needs for changes to routing recommended in Chapter 9: Service Plan.

Existing Stops

Turlock transit maintains over 100 bus stops across the city with customer amenities ranging from signposts to shelters, benches and lighting. In 2017 Turlock Transit invested in bus stops by purchasing 20 new bus shelters for high-use locations. The City will assist in installing the shelters in 2020. Bus shelters, signs and related equipment have a general lifespan of about 10 years, requiring ongoing cleaning and routine maintenance. These purchases are addressing customer comments identified in public outreach.

Bus stops should have the following amenities:

Figure 10-4 Bus Stop Amenities by Stop Type

Stop Type	Criteria	Amenities
Basic Bus Stop	<ul style="list-style-type: none"> Fewer than 15 daily boardings 	<ul style="list-style-type: none"> Pole and sign Lighting
Bus Stop with Seating	<ul style="list-style-type: none"> 15-25 daily boardings 	<ul style="list-style-type: none"> Pole and sign Seating Lighting
Bus Stop with Shelter	<ul style="list-style-type: none"> 25 or more daily boardings, and/or Located within 0.25 miles of: <ul style="list-style-type: none"> Medical, senior, social service, public, or special needs facility Major grocery store Apartments, dorms, or senior housing with 100+ units High schools, colleges, or universities 	<ul style="list-style-type: none"> Pole and sign Lighting Seating Shelter Waste bins

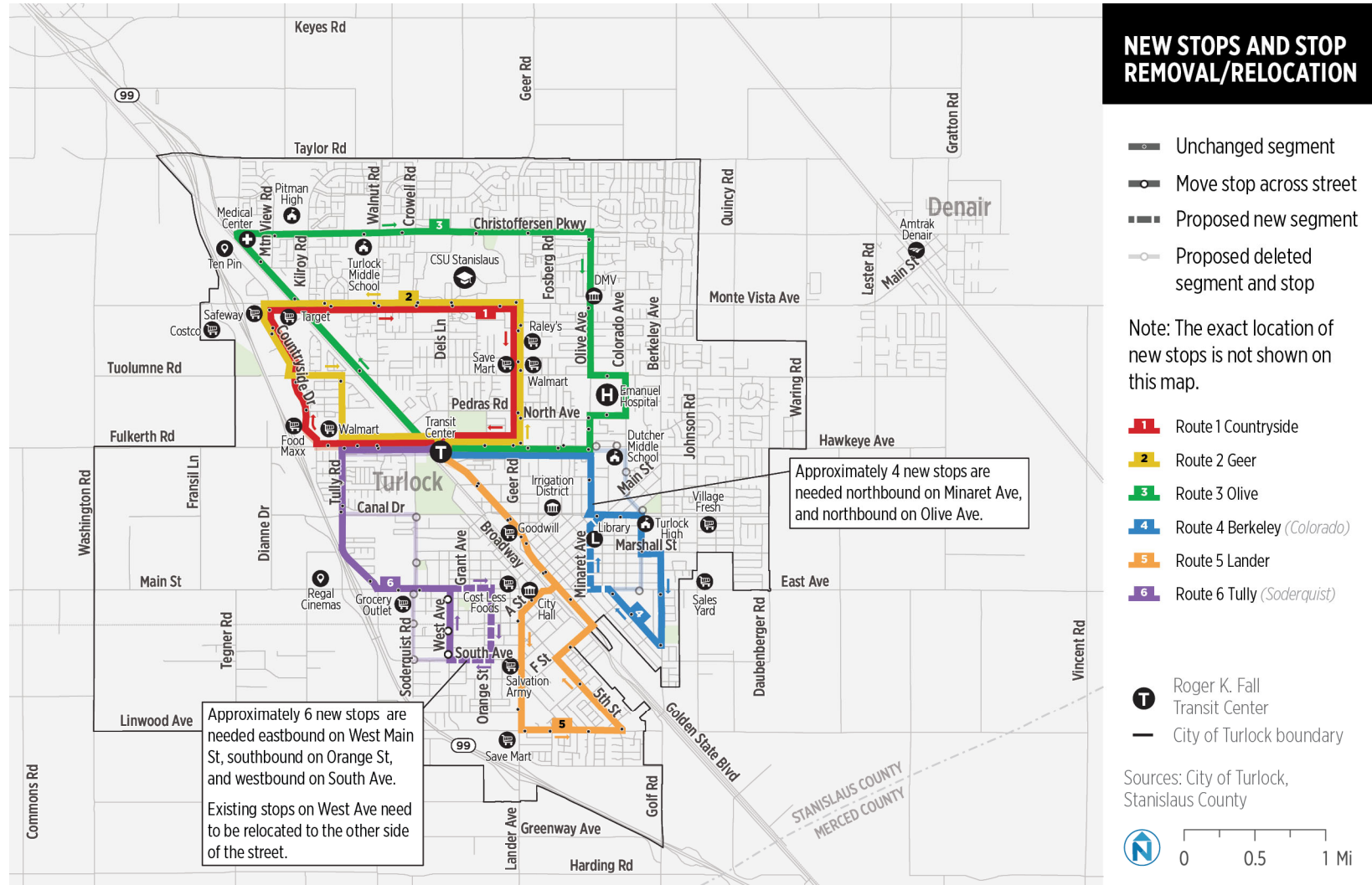
Note that lighting can be either specific to the stop, such as in-shelter solar lighting, or from nearby streetlights. For streetlights, pedestrian-oriented lighting is preferable over car-oriented “cobra”-style lights.

Proposed Stops

In addition to existing stops, the Service Plan strategies recommend the addition of 10 stops: four (4) stops on Route 4, and six (6) stops on Route 6. An additional three (3) stops need to be moved across the street on Route 6 (West Ave). The

precise location of the new stops is still to be determined. At the same time, six (6) stops can be removed on Route 4 and five (5) stops can be removed on Route 6. Figure 10-5 identifies which segments need new and relocated stops, and where stops can be removed.

Figure 10-5 Segments Needing New Stops and Stop Removal/Relocation



TECHNOLOGY AND EQUIPMENT

Technology and equipment include app-based fare collection, real-time vehicle location, and onboard fare collection and ridership reporting.

App-Based Fare Collection

Turlock Transit has recently invested in fare collection and customer information equipment and related software. Token Transit provides a turnkey mobile fare payment solution that is expected to increase convenience for customers, increase ridership, and reduce the agency's fare handling and reconciliation costs. The agency installed the system in October 2019. Each bus will require about \$11,000 in equipment installations or upgrades. Token Transit's fee comes to 10% per purchase.

Real-Time Vehicle Location

Turlock Transit recently implemented Swiftly technology, which provides real-time vehicle location, customizable reports and enhanced customer information applications. The system requires vehicle equipment, installation and maintenance, along with software installation and updates.

Onboard Fare Collection and Ridership Reporting

Other equipment includes onboard fare collection with GenFare Fast Fare fareboxes, which allows for enhanced fare receipt and ridership reporting through the existing network. Security and safety is enhanced by REI camera and recording systems.

STRATEGIES

The following strategies will help Turlock Transit implement this SRTP.

- Consider electric vehicle purchase timing with other capital funding needs. At the time of publication, Turlock Transit will be required to purchase at least one 26-foot electric vehicle in the year 2026, provided the technology is readily available in this vehicle size.
- Invest in and test electric bus charging equipment at the maintenance facility and other locations to facilitate efficient service delivery. Turlock transit will start now to prepare facilities, staff, and customers for the transition to new vehicle technology.

- Support technology investments with policies such as operations requirements, service disruption resolution, and customer privacy to ensure the most efficient and effective use of investments.
- Continue to invest in bus stop infrastructure and active transportation infrastructure to ensure safe transit access and egress.

11 MARKETING PLAN

This chapter outlines how to encourage people to understand, use, and support Turlock Transit.

Marketing is a critical part of public transit: it bridges the gaps between transit (the product) and riders (the customers). Successful transit marketing can:

- Attract new riders
- Make transit more convenient and easier to use
- Improve communication with existing customers
- Explain existing and planned services to the community
- Increase community support for transit

Inputs for the Marketing Plan

This chapter uses as its inputs the results of two rounds of community engagement, as well as an on-board survey—each of which took place during the first half of 2019. It also incorporates field observations and staff knowledge.

Building on Success

The 2016-2017 service changes included a rebranding from BLAST to Turlock Transit. This included a new name, logo, bus liveries, website, and social media presence. As such, we do not recommend branding changes at this time.

Structure of the Marketing Plan

This chapter includes three main components: (1) transit markets; (2) a marketing assessment; and (3) marketing priorities.

- **Transit markets** summarizes the key markets for transit in Turlock.
- **Marketing assessment** takes stock of current marketing efforts.
- **Marketing priorities** presents goals and strategies to improve Turlock Transit marketing as part of this SRTP process.



TRANSIT MARKETS





This section puts Turlock into demographic context. It outlines six markets to consider when marketing transit to the community.

Turlock, the second-largest city in Stanislaus County after Modesto, has a population of nearly 75,000 according to the 2017 Census estimate. It's home to California State University-Stanislaus, with a student population of 10,214 (Fall 2018 enrollment).

In Turlock, we see six key markets to consider when making transit decisions: (1) existing riders, (2) CSU Stanislaus students, faculty and staff, (3) high school students, (4) workers, (5) people shopping and using other services, and (6) older people and people with mobility challenges. It is worth pointing out that these markets are neither comprehensive nor mutually exclusive: it is possible to be part of multiple markets at once, and there are markets not included in this list. Nonetheless, these are the markets with the highest likelihood of benefitting from transit.

Figure 11-1 Summary of Transit Markets

Who is it?	Why is transit marketing important?	The Market in Numbers
 Existing riders	<ul style="list-style-type: none"> Retain riders Improve the transit experience Keep riders up to date Understand rider demographics Solicit feedback 	577 Average daily boardings <small>Source: Turlock Transit GenFare boarding data, January 1, 2018 through December 31, 2018, excluding July</small>
 CSU Stanislaus students	<ul style="list-style-type: none"> Continually attract new riders, because the student population changes regularly CSU Stanislaus students are more likely to use an app for trip planning than paper schedules CSU Stanislaus students are more likely to rely on transit than most other markets 	10,214 CSU Stanislaus students (Fall 2018) <small>Source: California State University</small>

Who is it?	Why is transit marketing important?	The Market in Numbers
 High school students	<ul style="list-style-type: none"> ▪ Develop community support for transit ▪ Promote the transportation independence that transit can provide ▪ Inform parents of travel options for students 	4,508 Number of high school students (2019-2020) <small>Source: Public School Review</small>
 Workers and employers	<ul style="list-style-type: none"> ▪ Inform workers of commute options ▪ Explain cost and other benefits of transit vs single occupant vehicle trips and parking ▪ Explain connections to other transit systems 	25,900 Jobs in Turlock <small>Source: LEHD 2015</small>
 People shopping and using other services	<ul style="list-style-type: none"> ▪ Explain how to use transit for shopping trips ▪ Identify key shopping destinations on transit print materials ▪ Explain parking benefits of taking transit 	\$1.7M Quarterly sales tax revenue from general retail and food products <small>Source: MuniServices 2017Q3</small>
 Older adults and people with mobility challenges	<ul style="list-style-type: none"> ▪ Explain how transit works and where it goes ▪ Provide information in multiple formats to increase accessibility 	9,600 Number of people in Turlock aged 65 and over <small>Source: 2013-2017 ACS five-year estimates</small>

MARKETING ASSESSMENT

This assessment takes stock of Turlock Transit’s current marketing assets and efforts. This includes branding, information materials, communications and engagement, transit vehicles, and transit stops.

Branding

Turlock Transit has a very strong brand, which was implemented at the same time as the service changes in FY 2016-17.

Logo

The Turlock Transit logo is the symbol of the service and sets the visual tone for the agency. It has the following characteristics:

- Green chevrons pointing forward (rightward)
- Turlock Transit written in capital letters

Figure 11-2 Turlock Transit logo



Source: Turlock Transit

Style and Consistency

Figure 11-3 describes the fonts and colors that make up the Turlock Transit style.


Figure 11-3 Summary of Fonts and Colors


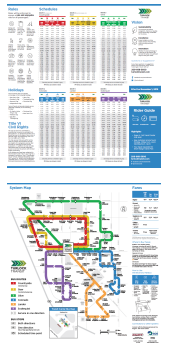
Brand element	Description	Opportunities
Fonts	Website: Helvetica/Arial (title); Unite (heading); Helvetica/Arial (body) Print and bus stop information materials: Gotham Logo: Gotham Internal documents: Franklin Gothic	More consistent font usage.
Colors	<ul style="list-style-type: none"> ▪ Green/Route 3: 9-158-67 ▪ Red/Route 1: 210-35-42 ▪ Yellow/Route 2: 226-193-37 ▪ Blue/Route 4: 49-132-193 ▪ Orange/Route 5: 244-162-71 ▪ Purple/Route 6: 133-96-168 	--


Information Materials



Information materials available to Turlock Transit riders include: (1) a system map, (2) route maps, (3) timetables, (4) a print rider guide, (5) the Turlock Transit website, (6) app-based GTFS information, and (7) Token Transit-based fare information and payment. The table below summarizes each type of information material, as well as its strengths and challenges.

Figure 11-4 Summary of information materials

Item	Strengths	Challenges
<div></div> <p>System map</p> <p>The system map is a 14x17" color document displaying all routes, stops, and scheduled timepoints. It also shows streets, SR 99, schools, and several points of interest. An inset map shows which bus bays serve which routes at the Roger K. Fall Transit Center.</p> <p>The system map exists on the website, in print rider guides, at the transit center, and at several other stops.</p> <p>An interactive system map is available on the website as well.</p>	<ul style="list-style-type: none">▪ Color-coded routes▪ Stops are visible▪ Points of interest provide context▪ Important elements are labeled (streets, points of interest, Turlock Transit routes)▪ System is easy to understand at a glance▪ Mileage bar shows average walking time as well as distance	<ul style="list-style-type: none">▪ Bus stop terminology may not be clear to riders, e.g., "scheduled time point"▪ Connections to other transit providers are small and unclear (inset map only)

Item	Strengths	Challenges
 <p>Timetables</p> <p>Timetables show departure times at timepoints for each route. They use gray shading to indicate Saturday service, and bold typeface to indicate PM departure times.</p> <p>Timetables are available on the website, in print rider guides, at the Roger K. Fall Transit Center, and at several other bus stops.</p>	<ul style="list-style-type: none"> Color-coded by route In print materials, consistent visual cues differentiate weekday/Saturday service, as well as AM/PM service Timepoints are written horizontally Major destinations and landmarks identified above timepoints 	<ul style="list-style-type: none"> On website-based timetables, Saturday service and AM/PM service is not differentiated in the same way as the print timetables It is not clear at a glance that there is no Sunday service It is not clear whether times listed correspond to arrival or departure times
 <p>Rider guide brochure</p> <p>The rider guide brochure is a 17.5x18.5", two sided, full color document that shows a system map and fare information on one side and timetables on the other.</p> <p>It also lists rules, the agency's vision, holidays, and Title VI civil rights documentation.</p> <p>The printed version is folded into five horizontal panels and two vertical panels (10 total per side).</p>	<ul style="list-style-type: none"> Color coded routes Contact information is available All critical information is available and comprehensive For the most part, panels contain discrete pieces of information 	<ul style="list-style-type: none"> Map and schedules are on different sides, making it difficult to flip between a route's alignment and its timetable Connections to regional transit systems and destinations are not clear

Item	Strengths	Challenges
 <p>Website</p> <p>The Turlock Transit website is separate from the City of Turlock website, and its homepage shows news items in reverse chronological order.</p> <p>The top menu provides these links:</p> <ul style="list-style-type: none"> ▪ Home is a blog showing news items. ▪ Live shows a Swiftly-based map of Turlock with real-time bus departures. ▪ Routes provides schedules for each route, as well as route maps and an interactive system map. ▪ Schedules provides schedules for each route. These are the same as the links available under “Routes”. ▪ Fares presents fare information for fixed-route and Dial-A-Ride service. ▪ Dial-A-Ride provides comprehensive information on Dial-A-Ride service, and the Dial-A-Ride rider guide (PDF). ▪ Fair explains how special County Fair service works. ▪ SRTP is a repository of planning and community engagement information. ▪ More includes an FAQ, a defunct news page, and a defunct Spanish-language home page. 	<ul style="list-style-type: none"> ▪ System map, timetables, and contact information are available and relatively easy to access ▪ Swiftly-based live bus map is relatively easy to use 	<ul style="list-style-type: none"> ▪ Route maps are available from both “Routes” and “Schedules” sections ▪ The purpose of “Live”, “Fair”, and “SRTP” are not clear in the top menu ▪ Limited styling makes it not immediately apparent that the website is an official Turlock Transit website ▪ Homepage image does not feel fresh or convey meaning ▪ There are no photos of bus service or Turlock anywhere on the site. ▪ There is no information about connections to other transit systems ▪ Top menu organization (and overall content organization) could be better suited to the needs of prospective or existing riders ▪ Certain pages are out of date or defunct, e.g., “Casa”, “News” (under “More”), and “Fair” ▪ There are several system maps, each of which have slightly different appearances: “Live”, “Routes”, and “Rider Guide”

Item	Strengths	Challenges
 <p>App-based GTFS information General Transit Feed Specification (GTFS) data is the information required for Google Maps and other third party applications to provide transit information to users. In addition to the Turlock Transit website “Live” page, real-time arrival information is available via Google Maps and the Transit app.</p>	<ul style="list-style-type: none"> ▪ Bus stop, route, and real-time arrival information is available via the Turlock Transit website and widely used applications ▪ Trip planning information is available via widely used applications 	--
 <p>Token Transit Token Transit provides fare-based information and purchase options from any smartphone with the app installed.</p>	<ul style="list-style-type: none"> ▪ Possible to purchase fares from a smartphone using any credit or debit card 	<ul style="list-style-type: none"> ▪ For people who use Token Transit for multiple agencies, it is not clear how to switch between them, and this step is not explained on the Turlock Transit website

Communications and Engagement

Turlock Transit communicates externally through several channels, including utility bill inserts, social media, the Turlock Transit website, informal connections with stakeholders, marketing campaigns, and in-person community engagement.

Utility Bill Inserts

Turlock Transit periodically puts transit-related materials into utility bill inserts—mailed to all households who live in Turlock—in order to disseminate key information such as special event service. For example, a utility bill insert in 2019 included information about the shuttle to the County Fair from the Roger K. Fall Transit Center.

Opportunities



- Further leverage utility bill inserts to provide regular updates to the community about Turlock Transit.



Social Media

Turlock Transit engages with the community on social media using the Turlock Transit Facebook page, the Turlock Transit Twitter account, and the Turlock Transit Instagram account.

Figure 11-5 describes existing social media accounts available to Turlock Transit, as well as their strengths and challenges.

Figure 11-5 Summary of Social Media Accounts

Platform	Description	Strengths	Challenges
Facebook 	Turlock Transit has a Facebook page that is managed in house. It has 517 “likes”, which is a strong number. The page is frequently updated.	<ul style="list-style-type: none"> ▪ 517 page “likes” ▪ Actively updated ▪ Information is helpful and pertinent 	--
Twitter 	Turlock Transit has a twitter account. It has 16 followers, but because Twitter content is public, its presence provides critical information about service alerts, which can be accessed by anyone.	<ul style="list-style-type: none"> ▪ Actively updated ▪ Publicly accessible venue for service alerts 	<ul style="list-style-type: none"> ▪ Low number of followers

Platform	Description	Strengths	Challenges
Instagram 	<p>Turlock Transit manages an Instagram account. It has 31 followers, is not following any other users, and has 21 posts. The page is updated regularly, but less frequently than the Facebook page.</p>	<ul style="list-style-type: none"> ▪ Opportunity for engagement: one-third of riders use Instagram 	<ul style="list-style-type: none"> ▪ Low number of followers
YouTube 	<p>Although YouTube isn't a social media site in the traditional sense, Turlock Transit does have a YouTube channel.</p> <p>The channel has three videos: a guide to mobile ticketing using the Token Transit app (7 views), and two videos from community engagement activities (19 and 34 views respectively).</p>	<ul style="list-style-type: none"> ▪ Repository for Turlock Transit-related videos, including live streaming ▪ Easy to share video content 	<ul style="list-style-type: none"> ▪ No Turlock Transit channel logo ▪ Comment moderation is difficult, which makes community dialogue challenging on this platform (comments are currently turned off)

Opportunities

- Publicize Instagram on information materials including the Turlock Transit website.
- Continue using existing social media accounts to communicate with the public.

Stakeholders

Although Turlock Transit maintains informal connections with several key community and regional stakeholders—e.g., CSU Stanislaus, StaRT, social service providers—there is no formal Turlock Transit mechanism for information sharing between key parties.

Opportunities

- Consider establishing an email list and regular meetings with stakeholders for whom transit would be relevant.
- Establish regular, ongoing communications with CSU Stanislaus, Turlock High School, and Pitman High School.

Marketing Campaigns

Turlock Transit conducts regular marketing campaigns during specific occasions during the year, in order to encourage people to try taking the bus. These include:

- Go Green Week (March)
- Earth Day (April)
- Bike to Work Week (May)
- Dump the Pump Day (June)
- Stanislaus County Fair (July)



Example of a Turlock Transit marketing campaign during the County Fair in July

Source: Turlock Transit

Opportunities

- Monitor and record the impacts of marketing campaigns. For example: How much social media engagement took place? How many people did Turlock Transit staff talk with in person? How much did ridership increase?

Community Engagement

During transit planning efforts, Turlock Transit interfaces directly with the community via in-person engagement activities in addition to using online surveys and social media content. Typically, these involve pop-ups at the Roger K. Fall Transit Center or other locations, as well as at City Hall.

Spotlight: What can community engagement from the 2019 SRTP tell us about transit marketing opportunities?

During the 2019 SRTP planning process, we gained insight into transit marketing from three community engagement touchpoints: two rounds of in-person engagement activities, and an on-board survey. Key marketing related findings include:

- **Website ease of use.** During the first round of outreach, a relatively low proportion of respondents said they found the Turlock Transit website easy to use (51%).
- **Connections to other transit providers.** During the first round of outreach, less than half of respondents said that connections to other transit providers was easy.
- **Smartphone usage and real-time information.** During the on-board survey, three-quarters (76%) of respondents had access to a smartphone with a data plan. Related to this, real-time information at stops or in apps was the fourth most requested improvement (11% of responses) during the on-board survey. As such, services like Swiftly and Token Transit should help to increase ridership.
- **Facebook and Instagram.** According to the on-board survey, most riders used either Facebook (33%) or Instagram (27%) or both. Very few riders used Twitter (12%) or any other social media networks (8%).
- **Awareness is a hurdle among nonriders.** During the second round of in-person outreach, by far the most common hurdle for using Turlock Transit among respondents who had never used it, was that “it doesn’t come to mind as an option” (47 out of 123 respondents).
- **Stop comfort.** During the first round of outreach, relatively few respondents who used Turlock Transit agreed that “bus stops and vehicles are comfortable” (61%).
- **Special events as opportunities.** During the first round of outreach, people who didn’t currently or hadn’t ever used Turlock Transit indicated that they would most likely use it for a special event, e.g., the County Fair. This suggests that special service should be further leveraged as an introduction to Turlock Transit for those who are not accustomed. For example, transit training may be a helpful activity to include as part of the special Fair service.
- **Benefits that resonate.** During the first round of outreach, the three most appealing benefits of transit among all respondents—whether current riders or not—were: (1) not having to worry about parking (61%), (2) being environmentally friendly (48%), and (3) being able to multitask, e.g., read a book (46%).

Transit Vehicles

Turlock Transit has a fleet of 17 transit vehicles dedicated to fixed route service, with a mix of 35' low-floor buses and 26' buses. Their appearance and amenities are described below. Figure 11-6 shows what a typical Turlock Transit vehicle looks like.

Figure 11-6 Example Turlock Transit Vehicles



Example of a 35' bus (left) and 26' bus (right)

Source: Nelson\Nygaard

- Full wrap livery with green Turlock Transit logo on the left, right, and back side of each vehicle, as well as the front of large buses
- Phone number and website URL feature prominently on the sides of the bus
- Headsigns display the route number and name, e.g., “4 Colorado”
- Air conditioning
- 35' buses have bike racks with capacity for two bikes
- 35' buses have low floors with ramps for wheelchairs and other mobility devices

Opportunities

- Automatic voice announcements for approaching bus stops (“annunciators”)

Transit Stops

Bus stops are important places for both information—e.g., maps, route numbers—and amenities, such as benches, shelter, artwork, and waste bins.

A bus stop inventory in 2017 identified the information and amenities available at each stop, as well as ADA compliance. At a minimum, all Turlock Transit bus stops include a Turlock Transit sign. Several stops with higher ridership or at key locations also have a shelter, benches, system map, schedules, and waste bins. This is true of the Roger K. Fall Transit Center.

Figure 11-7 shows four Turlock Transit bus stops, including the transit center.

Figure 11-7 Example Turlock Transit Bus Stops



Examples of different types of Turlock Transit bus stops

Source: Nelson\Nygaard

Opportunities

- Bus stop signs do not clearly differentiate between Turlock Transit routes based on route colors.
- The Roger K. Fall Transit Center is relatively isolated, with almost no adjacent pedestrian-oriented businesses or land uses. As such, it may not feel safe for riders, particularly at night.

- Most stops do not have physical maps or schedules available to consult.
- Most stops do not have seating or shelters.
- Shelters do not feature artwork.

MARKETING PRIORITIES

Based on the marketing assessment, we identify two primary transit marketing priorities for Turlock Transit: (1) build awareness and support, and (2) improve the rider experience.

1. Build Awareness and Support

This priority includes four strategies: (1) Establish regular communication among key stakeholders; (2) Evaluate the effectiveness of promotional campaign strategies; (3) Develop specialized transit guides and training; (4) Further harness utility bill inserts

Figure 11-8 Strategies to Build Awareness and Support

Strategy	Rationale	Phasing	Effort
<p>1.1 Establish regular communication among key stakeholders</p> <p>Build a formal Turlock Transit list of key stakeholders including contact information. Use this list to develop regular communication about Turlock Transit in the form of an email newsletter, recurring meetings, or one-on-one calls.</p> <p>This strategy also includes maintaining an inventory of non-stop locations that have information materials—including high schools—to ensure they remain stocked and up to date.</p>	<p>Regular communication with key stakeholders helps to:</p> <ul style="list-style-type: none"> ▪ Boost the reach of messaging and promotion ▪ Keep apprised of community goings-on ▪ Identify and respond to shared community needs 	Phase 1 (immediate term)	Low

Strategy	Rationale	Phasing	Effort
<p>1.2 Evaluate the effectiveness of promotional campaign strategies</p> <p>Use promotional campaigns to test different strategies and measure their impact.</p> <p>For example, perhaps Facebook ads are more effective at increasing awareness than in-person activities. But perhaps in-person activities result in higher ridership gains.</p>	<p>Promoting transit takes effort. This strategy makes it possible to:</p> <ul style="list-style-type: none"> ▪ Learn from transit promotion ▪ Increase the benefits of transit promotion ▪ Report tangibly on promotion outcomes 	Phase 1 (immediate term)	Low
<p>1.3 Develop specialized transit guides and training</p> <p>Develop transit guides and training tailored to groups that are more likely to consider transit, notably incoming CSU Stanislaus students, high school students, and people who use transit during the County Fair.</p>	Transit guides—such as a guide to car-free student living—help to improve the visibility of Turlock Transit among the groups most likely to benefit from transit.	Phase 2 (short term)	Medium
<p>1.4 Further harness utility bill inserts</p> <p>Send out an annual Turlock Transit update to the community, as a way to highlight accomplishments from the previous year, and key objectives for the coming year.</p>	Among non-riders, awareness of Turlock Transit as a viable transportation option is relatively undeveloped.	Phase 2 (short term)	Medium

Spotlight: Who are key Turlock Transit stakeholders?

There are mutual benefits to maintaining regular communication with key stakeholders. For instance, some represent groups that would benefit disproportionately from transit. Others may be groups that Turlock Transit would like to target for a specific transit marketing campaign. Examples of transit stakeholders include:

- CSU Stanislaus students and staff
- Turlock High School and Pitman High School students, staff, and parents
- Other City of Turlock departments (Parks, Recreation & Public Facilities; Planning)
- Turlock Chamber of Commerce
- Social service providers: Valley Mountain Regional Center (VMRC), Stanislaus County Health Services Agency (HSA), Stanislaus County Community Services, United Samaritans Foundation, The Salvation Army Turlock Corps
- Emanuel Medical Center patients, employees, and visitors

2. Improve the Transit Rider Experience

This priority includes four strategies: (1) rebuild the Turlock Transit website; (2) activate Roger K. Fall Transit Center; (3) refresh information materials; and (4) invest in bus and stop amenities.

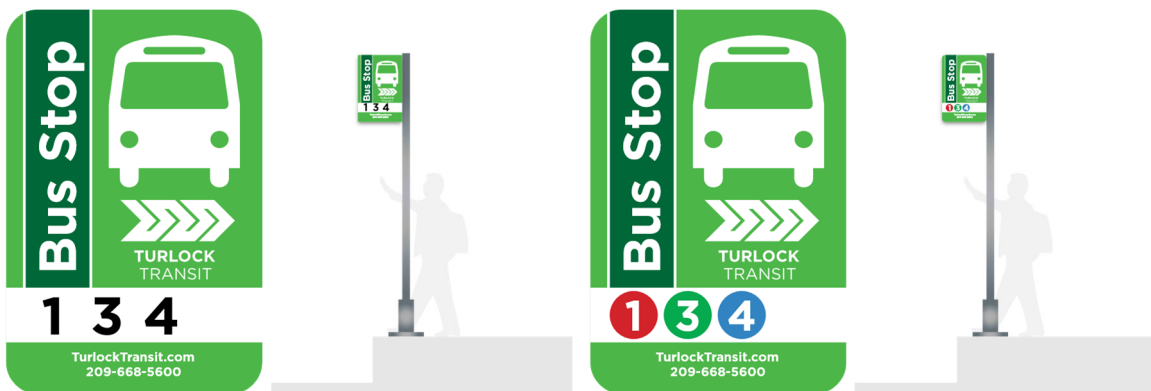
Figure 11-9 Strategies to improve the rider experience

Strategy	Rationale	Phasing	Effort
2.1 Rebuild the Turlock Transit website Rebuild the Turlock Transit website, including online information materials, and the overall structure and user experience. Ensure that the updated website is accessible with screen readers.	Community members have identified the Turlock Transit website as not easy to use. Although all critical information is available currently, the website could be more intuitive and stylistically consistent.	Phase 2 (short term)	Medium

Strategy	Rationale	Phasing	Effort
<p>2.2 Activate Roger K. Fall Transit Center</p> <p>Establish the Roger K. Fall Transit Center as a mobility and activity hub. Activities could include things like a farmers market, food carts, or other pop-up events/retail.</p> <p>The availability of multiple transit routes, bike parking, EV charging, car parking, and open space, make the transit center an ideal place for temporary activities.</p>	<p>Despite having very high ridership due to transfer activity, the Roger K. Fall Transit Center does not have any adjacent pedestrian-oriented land uses. As such, it may not feel safe and comfortable to many types of riders.</p> <p>Activating the transit center space would increase its visibility, perceived safety, and strategic importance—rather than simply serving as a transfer point.</p>	Phase 2 (short term)	Medium
<p>2.3 Refresh information materials</p> <p>In general, information materials have been well-received by the community. However, there are some opportunities for improvement:</p> <ul style="list-style-type: none"> ▪ Create an official style guide so that web, print, and ad-hoc information look consistent ▪ Clearly define “time point” ▪ Provide more information about regional connections ▪ Add route number labels to routes on the system map 	<p>The reasons for refreshing information materials are:</p> <ul style="list-style-type: none"> ▪ Fonts and colors used in print, web, and ad-hoc information aren’t always consistent ▪ “Time point” is not a self-evident term ▪ During outreach, a common request was clearer information on regional transfers ▪ Route number labels improve accessibility for people with visual impairment 	Phase 2 (short term)	Low

Strategy	Rationale	Phasing	Effort
<p>2.4 Invest in bus and stop amenities</p> <p>This strategy involves four main components: (1) color-coded route labels on bus stop signs (Figure 11-10), (2) audible stop information on buses, and (3) a local bus stop art program.</p> <ul style="list-style-type: none"> ▪ Add color-coded route labels to bus stop signs (see image below) ▪ Identify options for adding automatic voice announcements on buses ▪ Consider establishing a program to partner with local artists to develop unique bus stop art 	During outreach, a commonly requested improvement involved bus stop and vehicle amenities.	Phase 3 (medium term)	High

Figure 11-10 Existing and Suggested Bus Stop Route Color-Coding



Example of current black-and-white bus stop route labels (left) and suggested color-coded bus stop route labels (right)

Source: Turlock Transit and Nelson\Nygaard

12 STAFFING PLAN

Transit takes teamwork. This staffing plan describes the staff resources Turlock Transit needs to continue delivering top notch service.

Ridership is on the rise, and Turlock Transit will need to invest in specific skills to help evolve with the changing technological and planning landscape. The Staffing Plan explains how to get this done.

This chapter includes three sections: (1) summary of staffing strategies; (2) who does what, and (3) key challenges and recommended solutions.

- **Summary of staffing strategies** presents a high-level summary of strategies from this chapter.
- **Who does what** outlines Turlock Transit's organizational structure.
- **Key challenges and recommended strategies** identifies existing staffing issues and how to address them.

SUMMARY OF STAFFING STRATEGIES

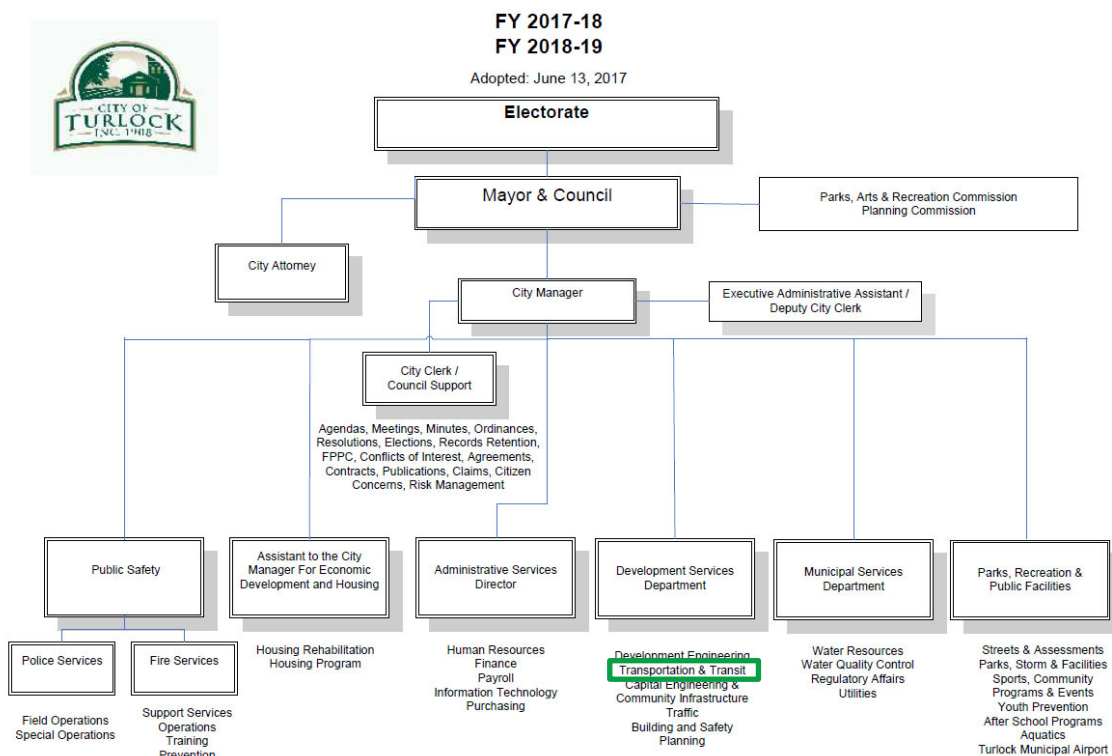
This Staffing Plan lays out three strategies: (1) develop in-house geographic information systems (GIS) capacity; (2) invest pragmatically in design; and (3) invest in technical training and workshops.

1. **Develop in-house GIS capacity.** GIS analysis is a core, ongoing need for Turlock Transit.
2. **Invest pragmatically in design.** Use either external or in-house resources to develop and update graphical items, such as information and marketing materials.
3. **Invest in technical training and workshops.** Technical training for internal staff will make it easier to do regular service planning and harness investments in new technology, such as Swiftly and Token Transit.

WHO DOES WHAT?

Turlock Transit is a division of the Development Services Department, which in turn reports directly to the City Manager. In different organizational charts, the division appears as “Transportation & Transit” as well as “Traffic / Transit”. We refer to it as “Turlock Transit” throughout this document. Figure 12-1 presents the City of Turlock organizational chart for FY2017-18 and FY2018-19, with Turlock Transit outlined in green (“Transportation & Transit”).

Figure 12-1 Organizational Chart for the City of Turlock



Turlock Transit includes four City of Turlock staff:

- Transit Manager, full-time
- Transit Planner, full-time
- Staff Services Technician, full time
- Transit Assistant, part-time

In addition, Storer Systems operates Turlock Transit vehicles, including drivers and dispatchers. Vehicle maintenance staff are not exclusive to Turlock Transit.

Mechanics work on all city vehicles. This staffing plan, however, focuses primarily on City of Turlock transit planning staff.

Spotlight: Building on the 2015 SRTP

The 2015 SRTP recommends a structure that has by-and-large been implemented, with one main exception: GIS analysis remains a missing skill among planning staff. However, a citywide GIS needs assessment was underway in 2019, which may lead to new capacity building and software acquisition.

Figure 12-2 shows the recommended staffing structure from the 2015 SRTP.

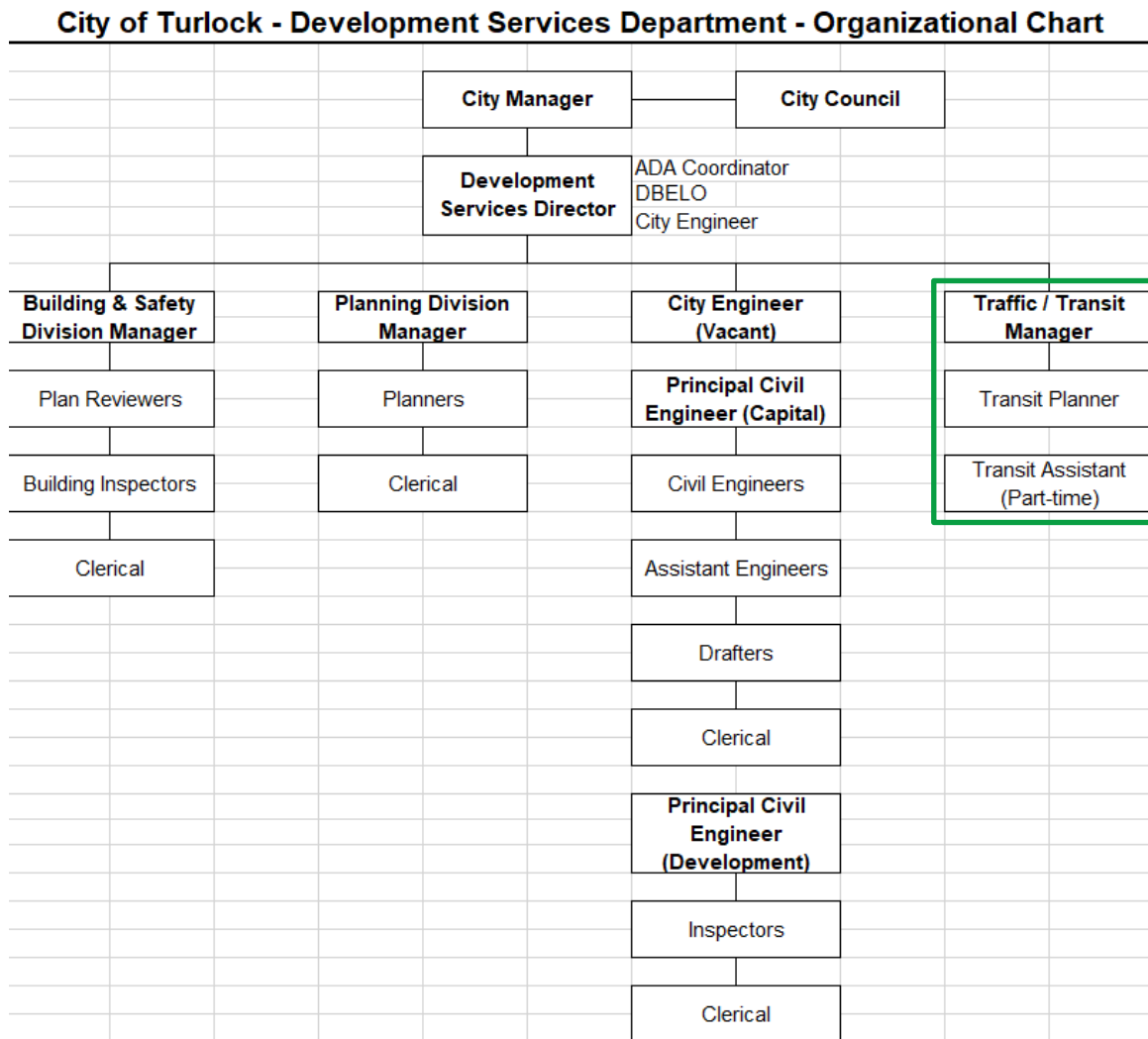
Figure 12-2 Recommended staffing structure, 2015 SRTP

Position	Reports to	Duties
Transit Manager	Director of Development Services	<ul style="list-style-type: none"> ▪ Budget development and administration ▪ Procurement and grants ▪ Service provider contract management ▪ Regional coordination/partnerships ▪ Capital projects ▪ Active transportation integration
Transit Planner/Analyst	Transit Manager	<ul style="list-style-type: none"> ▪ Performance monitoring ▪ State and Federal reporting requirements ▪ Route/schedule adjustments ▪ GIS analysis ▪ Google Transit Feed Specification (GTFS) updates
Transit Technician	Transit Manager	<ul style="list-style-type: none"> ▪ Bus stop database management ▪ Point checks ▪ Customer comments ▪ Riders notices ▪ Website and social media updates

Figure 12-3 presents the organizational chart for the Development Services Department of the City of Turlock. Turlock Transit is outlined in green. It is worth pointing out that an additional full-time role—the Staff Services Technician—was

added to Turlock Transit in 2019. This position is not yet visible on the organizational chart.

Figure 12-3 Organizational chart for the Development Services Departments



KEY CHALLENGES AND RECOMMENDED STRATEGIES

Based on communications with the team, Turlock Transit faces three key staffing challenges: (1) GIS capacity; (2) graphic design capacity; and (3) new technological and service planning opportunities.

- **GIS capacity:** Capacity to develop and manipulate digital maps—whether for routes, demographics, or any other geographic analysis. This includes the datasets that underly typical GIS layers.

- **Graphic design capacity:** Capacity to design and update information materials as well as marketing and external communications materials.
- **New technological and service planning opportunities:** Turlock Transit is taking advantage of new technologies such as Swiftly real-time information and Token Transit to help customers pay more easily. As new technology continues to help users and the system, it will be important to have staff who can analyze the increasing amounts of data available to ensure efficient operations.

Recommended Strategies

- **Develop in-house GIS capacity.** GIS is a core, ongoing need for Turlock Transit. All Turlock Transit staff would benefit from training in GIS and having access to the requisite software.¹ The findings from the GIS needs assessment will help to shed light on what is possible from a software licensing perspective. Ideally this person will also have a basic understanding of Adobe Illustrator to help translate GIS mapping into easy-to-read maps for the public and elected officials. See the Spotlight, on p. 12-6, for more information on GIS for transit planning.
- **Invest pragmatically in design.** Unlike GIS, graphic design is an intermittent (or “lumpy”) task for a small transit agency. It tends to become more important during key moments during the year, such as the beginning of class for CSU Stanislaus students. As such, there are a few options: (1) continue to use an external design contractor for design-related needs; (2) build graphic design capacity internally, as part of an existing role; or (3) establish a communications and design role that covers several different departments, in order to pool resources.
- **Invest in technical training and workshops.** This means having staff available to take the lead on the technical side of implementing new systems, such as Swiftly and Token Transit—as well as the service planning implications of the newly available data and insights. In so doing, Turlock Transit will be better positioned to translate new technology into ridership and increased rider satisfaction.

¹ The most common GIS software used by transit planners is ESRI ArcMap. However, alternatives exist, such as Pitney Bowes MapInfo and QGIS. Also, Remix provides specific transit planning features, but is not a general GIS solution.

Spotlight: Using Geographic Information Systems (GIS)

As mentioned above, GIS is a critical tool for transit planning. In particular, it is useful for asset management, analysis/planning, and reporting.

- **General-purpose GIS software.** When determining which GIS software to use, be agnostic about providers and first identify needs. The most common general-purpose GIS software used by transit planners is ESRI ArcMap. However other options exist, such as QGIS (free and open source), and MapInfo. General-purpose GIS software is often useful for several municipal departments—e.g., planning, public works—so licenses and GIS expertise can be shared. This is particularly useful if a full-time GIS position is not feasible or warranted for any given department.
- **Specialized GIS software.** In addition to general-purpose GIS, some transit providers also use specialized transit planning GIS software, such as Remix. These types of software can make transit planning much faster and more intuitive. However, the cost of software like Remix can be prohibitive. Also it is not usually relevant to other municipal departments. As such, sharing of resources is rarely possible.
- **Asset management.** GIS should be used to assist with asset management. For transit, this means maintaining a record of stops, route alignments, and other facilities such as the Roger K. Fall Transit Center, in shapefile or geodatabase format. Additional information, like the fields currently available in the stop maintenance spreadsheet, should also be joined to GIS files in any general-purpose GIS software.
- **Analysis and planning.** GIS is useful for conducting analysis and planning. For example, it enables transit providers to understand how many people and jobs are within walking distance of stops.
- **Reporting.** GIS—usually in combination with Adobe Illustrator—provides transit planners with the ability to develop public-facing maps that can help to present information, such as route deviations or service planning intentions.

13 FINANCIAL PLAN

This chapter examines revenues and expenditures over the past five years, and projects future funding (10 years).

The Financial Plan includes five parts:

- **Expenditures by Service Category** provides an overview of expenditures for fixed-route service and demand-response service. “Demand-response” refers to Dial-A-Ride, including ADA paratransit.
- **Operating Revenues and Expenditures** explains how Turlock Transit gathers and invests funding on transit operations.
- **Capital Revenues and Expenditures** explains capital funding and expenses, including vehicles, facilities, and stops.
- **Projections: Future Revenues and Expenditures** projects revenues and expenditures ten years into the future.
- **Strategies** highlights strategies for Turlock Transit to pursue based on findings from this chapter.

Financial Plan Reporting and Data Sources

Turlock Transit provided annual financial reports submitted to Stanislaus Council of Governments (StanCOG), as required in the regional funding allocation process. The process allocates public transportation funding from the state Local Transportation Fund (LTF) and State Transit Assistance (STA) programs. The reports include the agency’s expenditures and revenues for two past years (actuals for the previous year and an estimate for the current year) and one upcoming year.

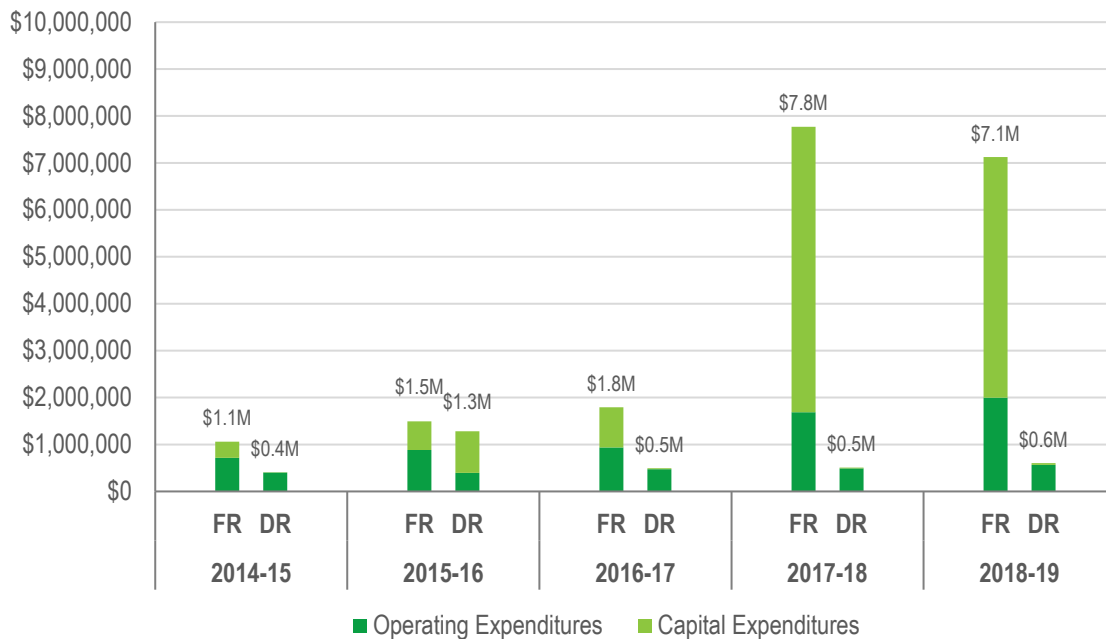
This chapter summarizes data existing at the time of the report and may not directly reference new funding sources. This is especially true for capital funding programs that may offer one-time or near-term opportunities. Turlock Transit will continue to monitor new funding opportunities to implement strategies identified in this plan.

EXPENDITURES BY SERVICE CATEGORY

Figure 13-1 and Figure 13-2 show the capital and operating expenditures for fixed-route and demand-response transit services over the past five years. Key points include:

- **Roger K. Fall Transit Center construction and vehicle purchases.** The chart is notably skewed by large capital expenditures for vehicles and the regional transit center design and construction between FY2016-17 and FY2018-19, resulting in over \$7 million in expenditures per year during FY2017-18 and FY2018-19.
- **Recent network redesign.** Changes in fixed-route expenditures have the largest effect on total agency revenue and expenditures. Significant service changes starting in FY2017-18, along with other changes in expenditures increased the fixed-route share by 10 percentage points.

Figure 13-1 Capital and Operating Expenditures by Service Category, FY2014-15 to FY2018-19 (Chart)



Source: Turlock Transit Development Act Claims, FY2015-16 to FY2018-19

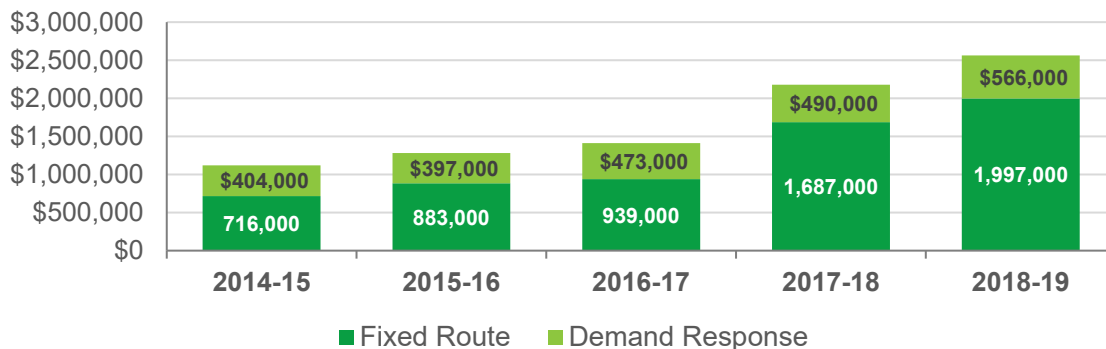
Figure 13-2 Capital and Operating Expenditures by Service Category, FY2014-15 to FY2018-19 (Table)

Fiscal Year:	2014-15	2015-16	2016-17	2017-18	2018-19
Fixed-Route					
Operating	\$715,770	\$882,645	\$938,840	\$1,686,598	\$1,997,404
Year to year change		23%	6%	80%	18%
Capital	\$344,369	\$610,070	\$852,999	\$6,082,127	\$5,126,000
Year to year change		77%	40%	>200%	-16%
Total	\$1,060,139	\$1,492,715	\$1,791,839	\$7,768,725	\$7,123,404
Demand-Response					
Operating	\$403,521	\$396,877	\$472,726	\$489,537	\$565,660
Year to year change		-2%	19%	4%	16%
Capital	\$6,338	\$886,342	\$21,520	\$17,284	\$36,502
Year to year change		>200%	-98%	-20%	111%
Total	\$409,859	\$1,283,219	\$494,246	\$506,821	\$602,162

Source: Turlock Transit Development Act Claims Fiscal Years 2015 to 2020

Figure 13-3 summarizes operating expenditures by mode. Major service changes starting in FY2017-18, along with other changes in expenditures, increased the fixed-route share by 10 percentage points and increased the total operating expenditures from approximately \$940,000 to over \$1.6 million. The costs reflect system-wide route improvements and changes in service procurement. These actions resulted in a 23% increase in ridership in fiscal year 2017-2018.

Figure 13-3 Operating Expenditures by Service Category, FY2014-15 to FY2018-19



Source: Turlock Transit Development Act Claims Fiscal Years 2015 to 2020. Figures rounded for clarity.

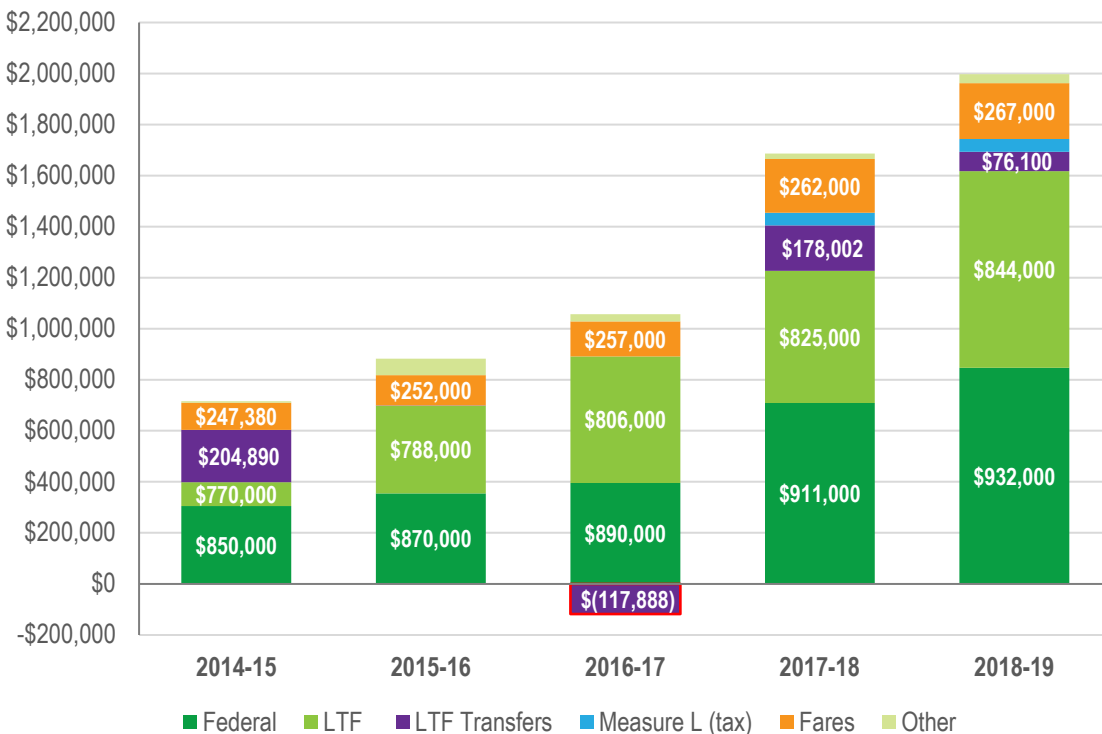
OPERATING REVENUES AND EXPENDITURES

This section describes operating revenues and expenditures for Turlock Transit, by category, between FY2014-15 and FY2018-19.

Operating Revenues

Turlock Transit's operating revenues are based on federal and state funding sources, which accounted for about 80% of total revenues in fiscal year 2018-2019. Other revenue sources include fares, transfers from unspent California Local Transportation Fund (LTF) revenues, advertising, and a student transit pass program with California State University Stanislaus. Starting in fiscal year 2017-2018 Turlock Transit also added Measure L funds to the revenue mix, accounting for 3% total revenues to date. Fares have accounted for about 11% to 15% of total operating revenue¹. Figure 13-4 illustrates five years of fixed-route operating revenues by dollar amount and the share of revenue by category.

Figure 13-4 Fixed-Route Operating Revenue, FY2014-15 to FY2018-19

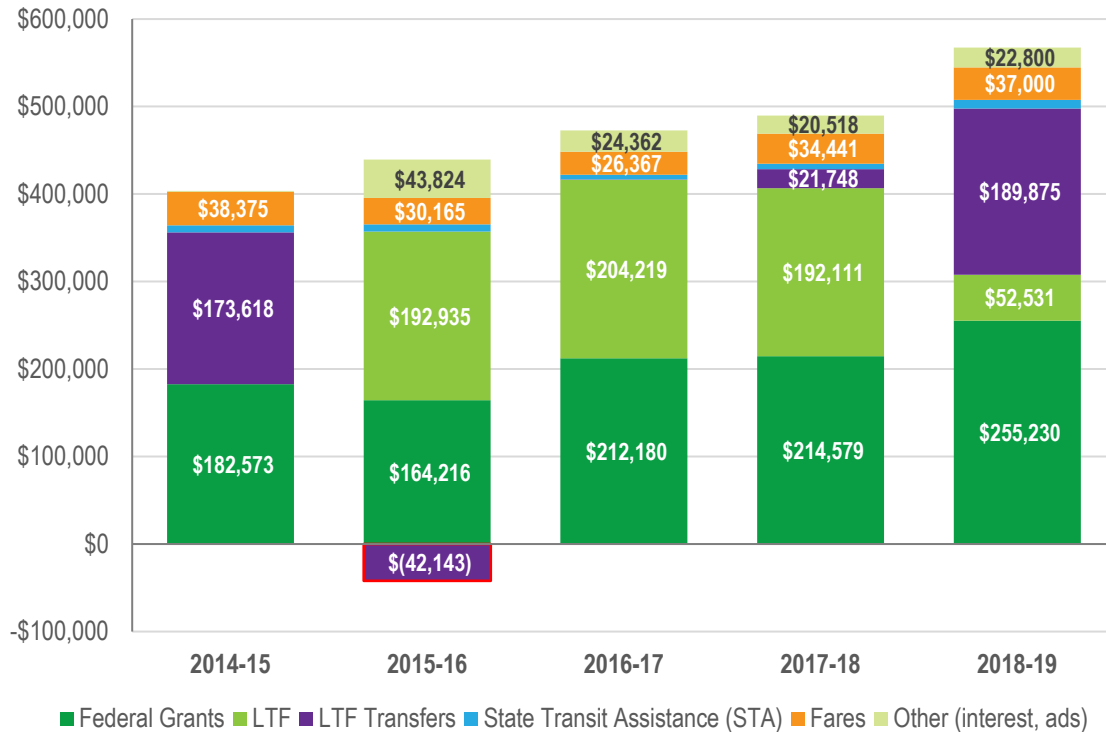


Source: Turlock Transit Development Act Claims Fiscal Years 2015 to 2020

¹ California transit funding rules allow for other local funds to be included with passenger fare revenue when calculating local farebox recovery. The required farebox recovery rate is 20% in urbanized areas.

Demand-response operating revenues show greater variation by year than fixed-route revenues. In general, the federal and state (LTF) revenues account for about 45% and 42%, respectively (LTF revenues assumed to include both direct share and transfers and carryovers). Fare revenue has accounted for about 6% to 10% of total revenues over the past five years.

Figure 13-5 Demand-Response Operating Revenue, FY2014-15 to FY2018-19



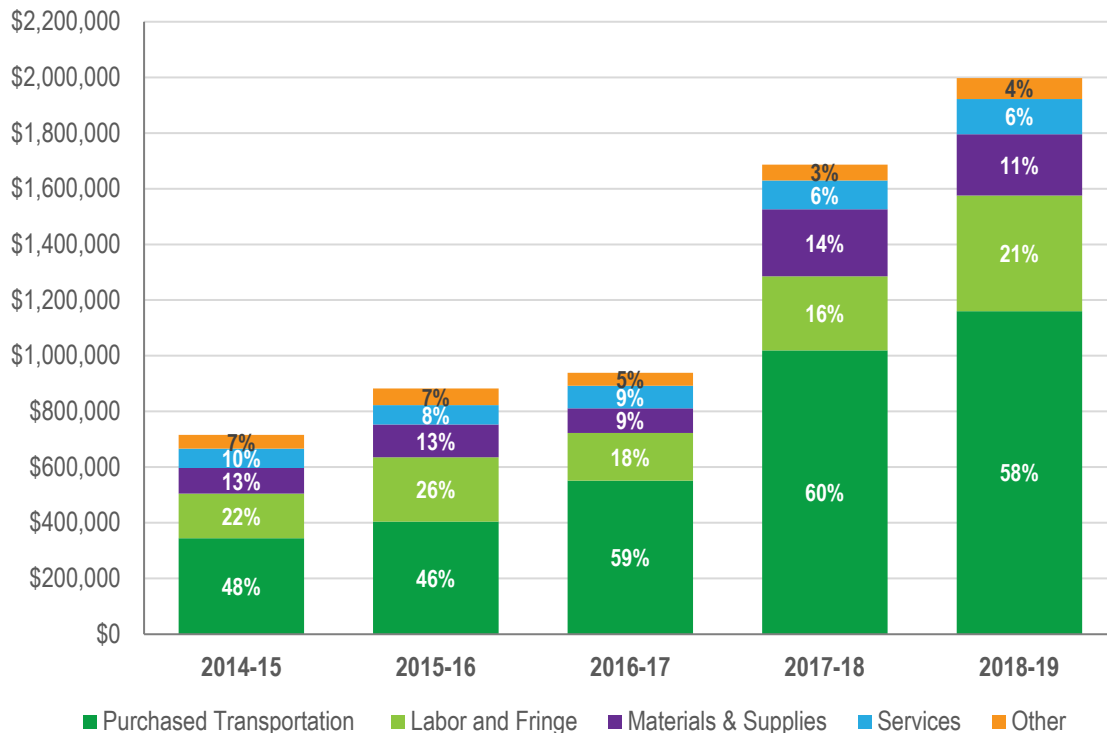
Source: Turlock Transit Development Act Claims Fiscal Years 2015 to 2020

Operating Expenditures

In fiscal year 2018-2019 purchased transportation accounted for 58% of the total fixed-route operating costs. This has been generally consistent over the past three years, but a higher total share than fiscal years 2014 to 2016 by roughly 10%. This is not uncommon with transit operations across the region, as labor and materials costs continue to rise due to inflation and an increase in service hours by about three hours per day. The Storer Transit Systems contract with Turlock Transit was also more expensive than the previous contract with First Transit.

Other major cost types include labor and fringe benefits and material and supplies, which account for about 20% and 12% of total expenditures. The fixed-route operating expenditure types are summarized in Figure 13-6.

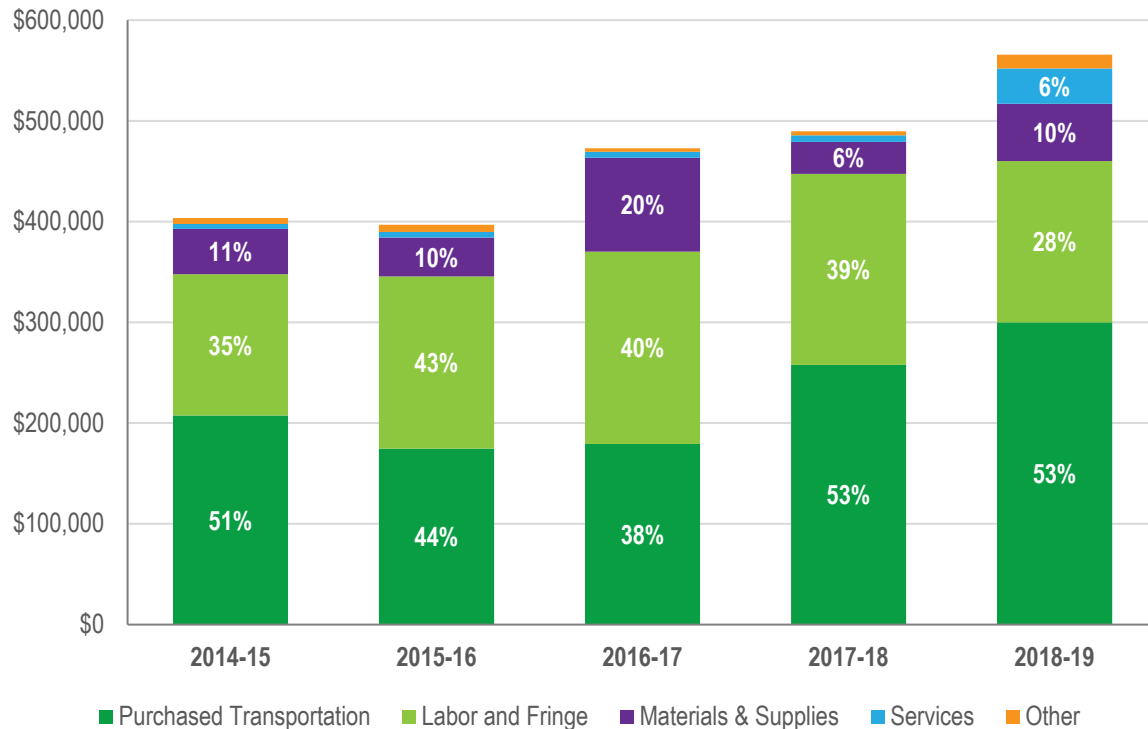
Figure 13-6 Fixed-Route Operating Expenditures by Category, FY2014-15 to FY2018-19



Source: Turlock Transit Development Act Claims Fiscal Years 2015 to 2020

Demand-response operating expenditure categories show a distribution with City labor and fringe benefits accounting for a greater share of total costs, as shown in Figure 13-7. The labor and fringe costs in the past five years range from \$140,000 to over \$190,000, having decreased about 15% in 2018-2019. Given the smaller scale operating costs, adding staff to right-size the administration and compliance functions increased labor costs that account for a larger share of overall operating expenditures.

Figure 13-7 Demand-Response Operating Expenditures by Category, FY2014-15 to FY2018-19



Source: Turlock Transit Development Act Claims Fiscal Years 2015 to 2020

CAPITAL REVENUES AND EXPENDITURES

This section describes Turlock Transit's capital revenues and expenditures, by category, for FY2014-15 through FY2018-19.

Capital Revenues and Expenditures

Capital revenues and expenditures have greater variability by year compared to operating expenditures, because of the intermittent purchases capital items require. Turlock's capital transit revenues are relatively broadly allocated across different sources, including federally appropriated funds, California Proposition 1B funds, and the state LTF, with occasional local financial support (fiscal years ending 2017 and 2018). Federal funds accounted for about \$7.5 million dollars used for the transit center design and construction.

The transit center has had the greatest impact on capital expenditures in the past two years, which was also driven up over the past three years, with over \$3.3 million for vehicle purchases. Capital expenditures also reflect significant recent

investments in equipment and materials, which includes a mobile ticketing service (Token Transit) and vehicle location equipment and software to support service operations and planning (Global Positioning System and Swiftly).

Figure 13-8 Fixed-Route Capital Revenue and Expenditures by Year

Fiscal Year:	2014-15	2015-16	2016-17	2017-18	2018-19
Revenue					
Federal	\$208,921	\$47,725	\$211,661	\$4,461,789	\$3,500,000
Proposition 1B	\$417,527	\$235,854	\$49,762	\$550,462	\$606,835
Local Transportation Fund	\$163,243	\$663,119	\$553,044	\$434,410	\$808,902
LTF Transfers	\$(96,389)	\$(336,628)	\$38,532	\$613,859	\$210,263
Local funds	\$1,767		\$349,234	\$220,025	
Total	\$344,369	\$610,070	\$1,202,233	\$6,280,545	\$5,126,000
Expenditures					
Facilities	\$265,372	\$84,674	\$269,763	\$5,073,197	\$2,135,000
Bus Stops			\$10,374	\$243,329	\$8,000
Revenue Vehicles		\$986	\$343,906	\$547,788	\$2,450,000
Equipment and Materials	\$55,137	\$352,335	\$137,164	\$77,125	\$335,000
Non-Revenue Vehicles			\$44,256	\$102,894	\$39,000
Planning	\$204	\$150,553	\$46,026	\$1,535	\$100,000
Other	\$23,656	\$21,522	\$1,510	\$36,259	\$59,000
Total	\$344,369	\$610,070	\$852,999	\$6,082,127	\$5,126,000

Demand-response revenues and expenditures are focused primarily on revenue vehicles. These purchases are linked directly to funds from Proposition 1B. Other expenditures account for about \$20,000 per year, as shown in Figure 13-9.

Figure 13-9 Demand-Response Capital Revenue and Expenditures by Year

Fiscal Year:	2014-15	2015-16	2016-17	2017-18	2018-19
Revenue					
Proposition 1B		\$872,586			
Local Transportation Fund				\$173,088	\$20,000
LTF Transfers	\$4,818	\$13,756	\$21,520	\$(164,104)	\$16,502
Local funds	\$1,520			\$8,300	\$0
Total	\$6,338	\$886,342	\$21,520	\$17,284	\$36,502
Expenditures					
Facilities	\$6,000	\$6,000			
Revenue Vehicles		\$872,586	\$79	\$17,196	
Equipment and Materials			\$15,376		\$6,502
Other (incl. Transit Center)	\$338		\$6,065	\$88	\$30,000
Total	\$6,338	\$878,586	\$21,520	\$17,284	\$36,502

PROJECTIONS: FUTURE REVENUES AND EXPENDITURES

Turlock Transit is in good financial position looking towards the next decade of providing transportation services. Historical funding data provides a basis from which to project future revenues and expenditures. This information is intended to support the city's financial sustainability and provide context and information for annual budgeting procedures and funding applications to federal, state, and regional transit programs.

The financial projections reflect several assumptions:

- **Based on historical data.** They are a snapshot of an ongoing process. Figures are based on historical data. Funding program targets, allocations, and revenues may change over time, and should be adjusted and revised as needed. Proposition 1B funds were awarded for one-time capital expenditures such as the Transit Center; these funds are nearly all expended, and are therefore not included in the projection.
- **Revenue growth of 2.3%.** Operating revenues are expected to grow at 2.33% annually between 2020 and 2030. This reflects expected growth in funding apportionments based on population and ridership, and background economic growth as reflected in the US Bureau of Labor

Statistics' Consumer Price Index, considering rates for all goods, the transportation sector, and gasoline. The annual adjustment rate does not reflect major service or funding changes, but rather a "business as usual" growth rate.

- **Varying fixed-route expenditure growth rates.** Fixed-route expenditures are expected to grow at different rates by category, also based on the Consumer Price Index. Labor and services are assumed to grow 2.33% annually, as described above. Purchased transportation is expected to increase by 2.1% annually, reflecting the index for the transportation sector. Materials and supplies is assumed to grow by 2.0% annually, reflecting the index for gasoline prices.
- **Additional fare revenue.** Implementing recommendations from the 2019 Fare Analysis Final Report is expected to increase revenue by 22% in 2019-2020, or about \$28,000 in additional annual fares.
- **Zero-emission buses and charging.** Zero-emission buses and charging infrastructure will not require significantly larger capital expenditures than what is currently budgeted for CNG vehicles. When Turlock Transit needs to transition to zero-emission vehicles in 2029, there may be price reductions in the California market as more agencies purchase battery electric vehicles. Furthermore, there may be statewide funding opportunities to support implementing the zero-emissions requirements.

The following figures summarize the operating and capital revenues and expenditures, for both fixed-route and demand-response service.

Projections for Fixed-Route Operations

Figure 13-10 Fixed-Route Transit Operations Revenue and Expenditure Projections

Fiscal Year:	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Revenue										
Federal	\$870,000	\$890,000	\$911,000	\$932,000	\$954,000	\$976,000	\$999,000	\$1,022,000	\$1,046,000	\$1,070,000
LTF	\$819,000	\$838,000	\$858,000	\$878,000	\$898,000	\$919,000	\$940,000	\$962,000	\$984,000	\$1,007,000
Measure L	\$51,200	\$52,400	\$53,600	\$54,800	\$56,100	\$57,400	\$58,700	\$60,100	\$61,500	\$62,900
Fares	\$252,000	\$257,000	\$262,000	\$267,000	\$272,000	\$277,000	\$282,000	\$287,000	\$292,000	\$297,000
Misc/ Other	\$35,800	\$36,600	\$37,500	\$38,400	\$39,300	\$40,200	\$41,100	\$42,100	\$43,100	\$44,100
Total	\$2,028,000	\$2,074,000	\$2,122,100	\$2,170,200	\$2,219,400	\$2,269,600	\$2,320,800	\$2,373,200	\$2,426,600	\$2,481,000
Expenditures										
Purchased Transportation	\$1,184,000	\$1,209,000	\$1,234,000	\$1,260,000	\$1,286,000	\$1,313,000	\$1,341,000	\$1,369,000	\$1,398,000	\$1,427,000
Labor and Fringe	\$425,000	\$435,000	\$445,000	\$455,000	\$466,000	\$477,000	\$488,000	\$499,000	\$511,000	\$523,000
Materials & Supplies	\$224,000	\$228,000	\$233,000	\$238,000	\$243,000	\$248,000	\$253,000	\$258,000	\$263,000	\$268,000
Services	\$130,000	\$133,000	\$136,000	\$139,000	\$142,000	\$145,000	\$148,000	\$151,000	\$155,000	\$159,000
Other	\$77,000	\$79,000	\$81,000	\$83,000	\$85,000	\$87,000	\$89,000	\$91,000	\$93,000	\$95,000
Total	\$2,040,000	\$2,084,000	\$2,129,000	\$2,175,000	\$2,222,000	\$2,270,000	\$2,319,000	\$2,368,000	\$2,420,000	\$2,472,000

Notes: All figures in 2019 dollars.

Projections for Demand-Response Operations

Figure 13-11 Demand-Response Operations Revenues and Expenditures

Fiscal Year:	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Revenue											
Federal Grants	\$256,000	\$262,000	\$268,000	\$274,000	\$280,000	\$286,000	\$293,000	\$300,000	\$307,000	\$314,000	\$321,000
LTF	\$235,000	\$240,000	\$246,000	\$252,000	\$258,000	\$264,000	\$270,000	\$276,000	\$282,000	\$288,000	\$295,000
State Transit Assistance (STA)	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Fares	\$38,000	\$39,000	\$40,000	\$41,000	\$42,000	\$43,000	\$44,000	\$45,000	\$46,000	\$47,000	\$48,000
Other (interest, ads)	\$24,000	\$25,000	\$26,000	\$27,000	\$28,000	\$29,000	\$30,000	\$31,000	\$32,000	\$33,000	\$34,000
Total	\$563,000	\$576,000	\$590,000	\$604,000	\$618,000	\$632,000	\$647,000	\$662,000	\$677,000	\$692,000	\$708,000
Expenditures											
Purchased Transportation	\$306,000	\$312,000	\$319,000	\$326,000	\$333,000	\$340,000	\$347,000	\$354,000	\$361,000	\$369,000	\$377,000
Labor & Fringe	\$184,000	\$188,000	\$192,000	\$196,000	\$201,000	\$206,000	\$211,000	\$216,000	\$221,000	\$226,000	\$231,000
Materials	\$58,000	\$59,000	\$60,000	\$61,000	\$62,000	\$63,000	\$64,000	\$65,000	\$66,000	\$67,000	\$68,000
Services	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Other	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Total	\$563,000	\$574,000	\$586,000	\$598,000	\$611,000	\$624,000	\$637,000	\$650,000	\$663,000	\$677,000	\$691,000

Projections for Fixed-Route and Demand Response Capital

Figure 13-12 Transit Capital Revenue and Expenditure Projection

Fiscal Year:	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Revenue											
Grants or Other Funds ²		\$1,200,000 ³	\$375,000								\$2,100,000
LTF	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000	\$450,000
From Reserve		\$300,000	\$0				\$300,000	\$775,000			\$1,075,000
Total	\$450,000	\$1,950,000	\$825,000	\$450,000	\$450,000	\$450,000	\$750,000	\$1,225,000	\$450,000	\$450,000	\$3,625,000
Expenditures											
Facilities & Stops	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Revenue Vehicles		\$1,950,000	\$750,000				\$750,000	\$1,200,000			\$3,600,000
Non Revenue Vehicles			\$50,000			\$50,000			\$50,000		
To reserve	\$425,000			\$425,000	\$425,000	\$375,000			\$375,000	\$425,000	
Total	\$450,000	1,975,000	\$825,000	\$450,000	\$450,000	\$450,000	\$775,000	\$1,225,000	\$450,000	\$450,000	\$3,625,000
Reserve Balance	\$425,000	\$125,000	\$125,000	\$550,000	\$975,000	\$1,350,000	\$1,050,000	\$275,000	\$650,000	\$1,075,000	\$0

Note: All figures in 2019 dollars and are used for estimating and planning purposes only.

² Grants and Other Funds amounts represent revenues needed to cover planned expenses shown in this table. The actual source has not been determined.

³ The capital funds in 2021 include a \$600,000 grant from Federal CMAQ funds, and a \$600,000 State Affordable Housing and Sustainable Communities grant.

STRATEGIES

This section presents six recommended strategies for Turlock Transit (Figure 13-13): (1) consider grant programs for vehicle replacement; (2) explore new funding sources; (3) purchase vehicles off cycle; (4) explore partnerships; (5) extend the useful life of vehicles; and (6) coordinate paratransit contracting with other Stanislaus County transit agencies

Figure 13-13 Strategies to Reduce Expenditures and Increase Revenue

Strategy	Rationale	Financial Impact	Phasing
1. Consider grant programs for vehicle replacement	<ul style="list-style-type: none"> Vehicle replacement costs near the year 2030, when the 26-foot and 35-foot buses reach the end of their useful life and must be replaced by electric vehicles, will require over \$3 million. 	Increase revenue	Continuous
2. Explore new funding sources Note that in addition to traditional funding sources, carbon credits, such as Low Carbon Fuel Standard credits are a potentially relevant new funding source.	<ul style="list-style-type: none"> Federal, state, and local programs that offset operating and capital expenses can mean an improved experience for riders. Grants for sidewalk or roadway improvements can help improve access to transit. 	Increase revenue	Continuous
3. Purchase vehicles off cycle This means purchasing vehicles incrementally, when possible and given funding availability.	<ul style="list-style-type: none"> To reduce the effort to turn the fleet over in a short amount of time. To reduce the need to purchase several vehicles at the same time—and the associated financial impact. 	Decrease expenditures	As needed

Strategy	Rationale	Financial Impact	Phasing
4. Explore additional partnerships	<ul style="list-style-type: none"> Local organizations and businesses can help provide financial support that can come in the way of cost sharing, and marketing and messaging. Partnerships with other local transit agencies provides the potential to reduce the operating costs where programs overlap such as marketing and paratransit policies. 	Decrease expenditures	Continuous
5. Extend the useful life of vehicles	<ul style="list-style-type: none"> Extending the useful life of vehicles can help spread replacement costs over time and reduce the annual need to hold funds in reserve. 	Decrease expenditures	Continuous
6. Coordinate paratransit contracting with other Stanislaus County transit agencies	<ul style="list-style-type: none"> Turlock Transit's Dial-A-Ride (demand-response) operating costs are considerably higher than its peers and other Stanislaus transit providers. Coordinated contracting is one way to bring demand-response costs in line with other providers. 	Decrease expenditures	Phase 1 (immediate term)