



# LONG RANGE TRANSIT PLAN

## Shasta Regional Transportation Agency

April 2021



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# 1 INTRODUCTION

This Long-Range Transit Plan (LRTP) for Shasta County provides the Shasta Regional Transportation Agency (SRTA) with a long-range vision for public transportation and mobility services throughout the region.

## Context for this Plan

In 2018, SRTA adopted the latest iteration of the Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) that is intended to guide the growth and development of the region to ensure the region meets its established greenhouse gas emissions reductions targets under SB 375.

**This LRTP takes the next step in that process by establishing potential strategies and implementable actions to help the Shasta region achieve the goals set out in the SCS.**

The LRTP is organized into the following sections:

- **Chapter 2 – Emerging Trends** builds upon the existing conditions work to identify eight observable trends in the region regarding public perceptions, travel patterns, and development patterns.
- **Chapter 3 – Scenarios** identifies three scenarios that describe potential alternatives for how population and employment growth may occur in the region, how public perceptions of transportation and mobility may evolve over time, and how funding availability may impact the types and intensity of potential transportation services over the next 20 years.
- **Chapter 4 – Strategies** details the specific actions that SRTA can take to improve multi-modal accessibility and walkability, fixed-route transit service and infrastructure, policy improvements, alternative mobility, and technological innovations to respond to emerging trends and adapt to future scenarios.
- **Chapter 5 – Implementation Plan** includes a prioritization approach for the strategies identified in Chapter 4, as well as an implementation timeline during the near-term, mid-term, and long-term horizon of the plan.
- **Appendices** provide details and context to the project and include:
  - Appendix A – Fact Book
  - Appendix B – 2020 Community Questionnaire Summary
  - Appendix C – Big Data Analysis - LRTP Origin-Destination Report
  - Appendix D – Virtual Community Workshop Summary Report

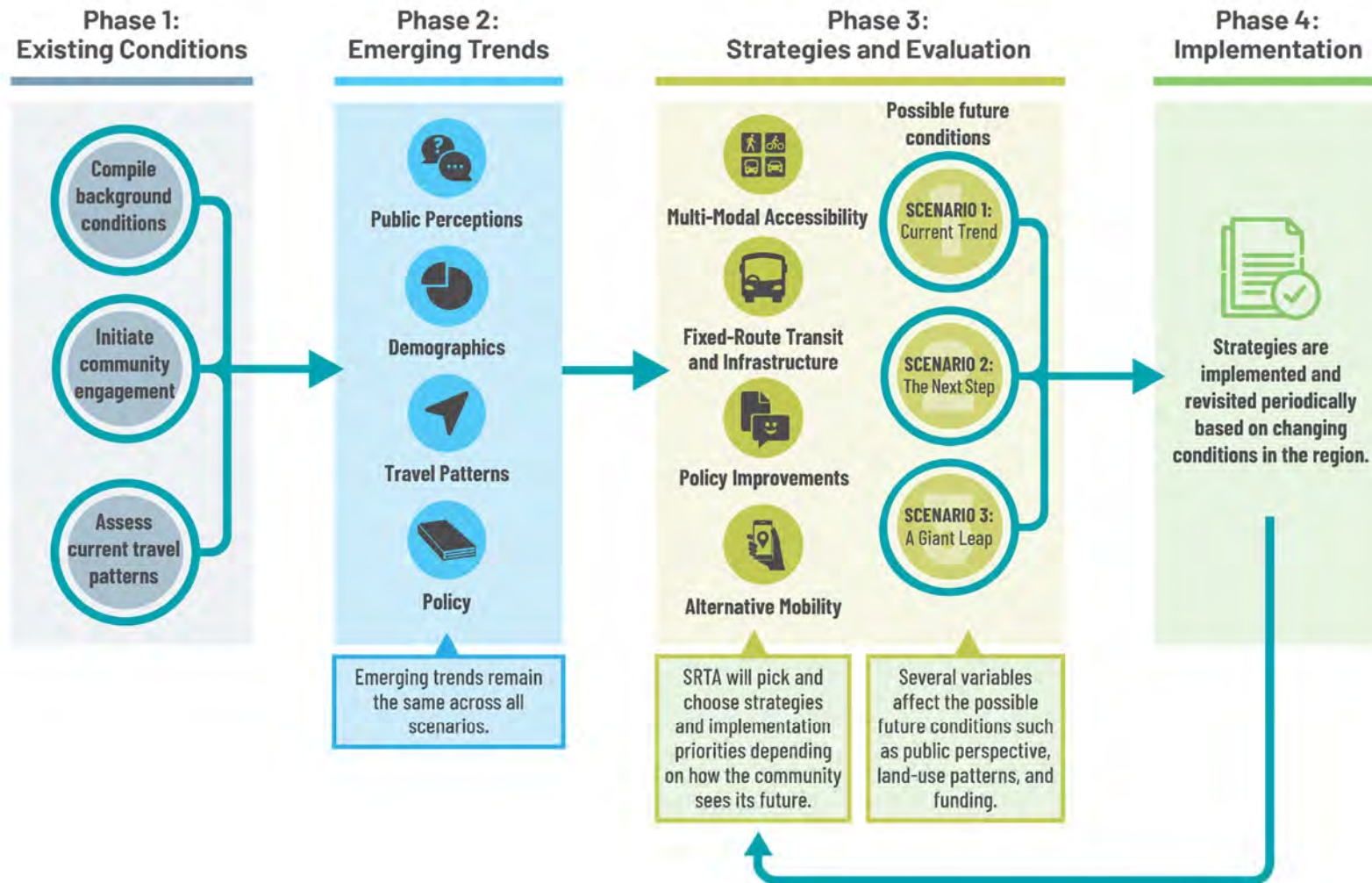
## HOW TO USE THIS PLAN

The LRTP establishes a long-term vision for transportation in the region over a 20-year horizon. Recognizing the inherent uncertainty over this timeframe, the plan provides flexibility in how to respond to the unknown and changing conditions in Shasta County. Building upon the key findings from the existing conditions analysis, this plan includes three inputs:

- **Emerging Trends** – Emerging trends are observable trends occurring in the region based on findings from the existing conditions analysis. These trends are external factors which SRTA can make a concerted effort to respond to with specific strategies.
- **Scenarios** – Scenarios are possible futures based on unpredictable factors that will shape the future of the region, including funding availability, population, employment, and development dynamics, and public perceptions. These are external factors that SRTA must adapt to and may make certain strategies more relevant than others.
- **Strategies** – Strategies are specific activities that SRTA can take to address emerging trends and adapt to the scenario that most closely mirrors real world conditions as they occur. Depending on how the future unfolds, SRTA can pick and choose specific strategies for implementation and continuously reevaluate and select new strategies throughout the life of this plan.

This LRTP process includes the known trends in the region to which SRTA must respond, the unknown future scenarios to which SRTA must adapt, the specific strategies that SRTA can employ in response to these conditions, and provides the flexibility to continuously monitor results and change priorities based on new information, as shown in Figure 1-1

Figure 1-1 Long-Range Transit Planning Process



## 2 EMERGING TRENDS

Several emerging trends within the region were identified through the development of the Fact Book, 2020 Community Questionnaire, and Origin-Destination analysis. These trends are indicative of observed demographic, behavioral, financial, and institutional factors that will continue to play a key role in shaping the future of development and mobility in the Shasta region.

Emerging trends are split into four distinct categories:

- Public Perceptions
- Travel Patterns
- Demographics
- Policies

### PUBLIC PERCEPTIONS



The July 2020 community questionnaire and a review of existing planning documents in the region revealed several trends related to public perceptions in Shasta County. As broad opinions regarding the environment and sustainability evolve, perceptions of personal choices like transportation, housing, and land use also change. These trends reveal how public perceptions in the region are changing toward sustainability and alternative mobility options.

#### **Community attitudes are shifting to concerns about sustainability and availability of alternatives for land use and mobility**

The community questionnaire and existing regional planning documents have shown that there are significant community values associated with preservation and sustainability. During July 2020 outreach, 38.5% of respondents to the community questionnaire noted that they typically drive for most trips but walk or bike for recreation. Many respondents also provided comments specifically calling for improvements to the bicycle and pedestrian network. These comments indicated both a desire for safe biking and walking options and underscored the sustainability benefits associated with these low-carbon transportation alternatives. Additionally, stakeholder interviews and community feedback have identified regional bicycle trails and access to recreational areas like Lassen National Park, Whiskeytown, and Shasta Lake as key strengths for the region. Preserving access to the outdoors and nature will likely continue to be a high priority for the community.

#### ***Quote from Community Questionnaire***

***“Focusing on environmentally sensitive issues and designing transportation in that arena is a must for the future of our beautiful area.”***

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Regional planning documents also indicate a strong priority for preserving the natural environment, including:

- Accessible open space
- Urban-nature interface
- Parks and trails

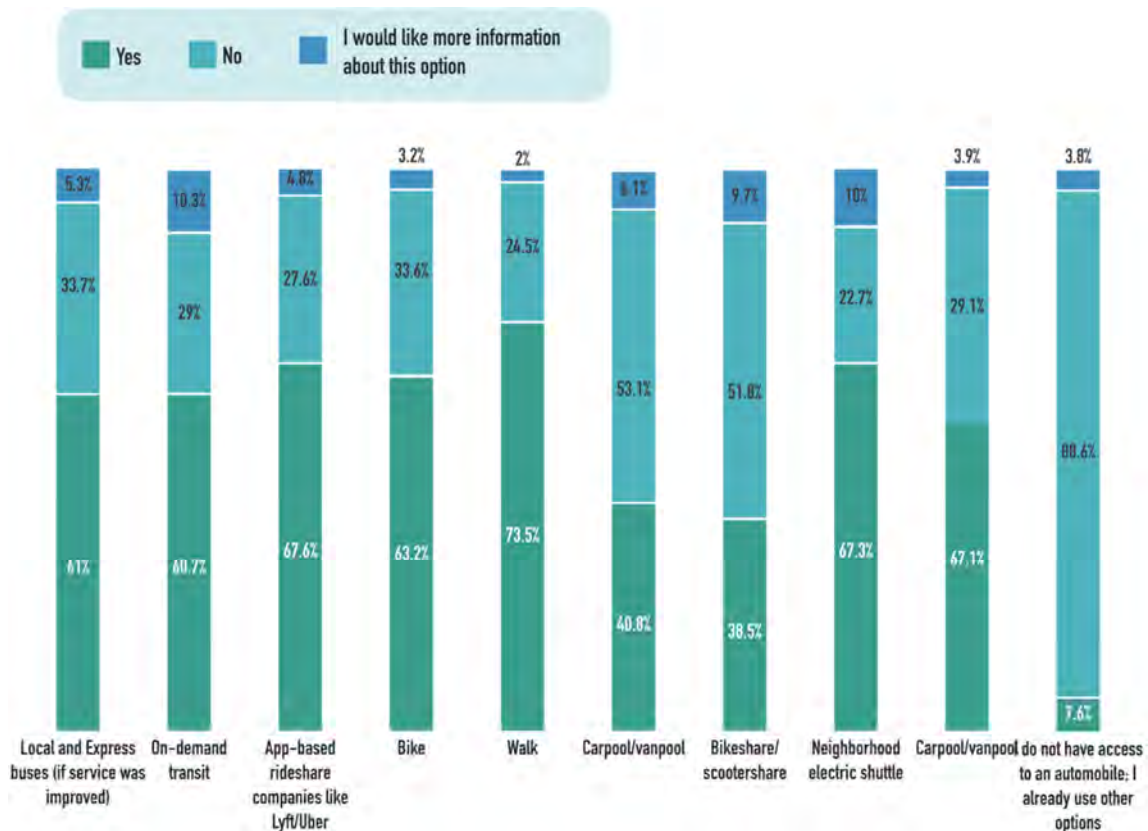
***What are the implications for Shasta County?***

Maintaining focus on natural preservation and sustainability will continue to be a priority for the region. These are notable key strengths for that can be incorporated into messaging during strategy development to improve public perceptions of service alternatives and enhance cohesion between existing planning documents and long-range strategies. This messaging can be used to prioritize alternative mobility options and foster transit supportive land use strategies in both the near-term and long-term.

## County residents are more likely to use transportation options that are familiar

Automobiles are the most popular mode of transportation in Shasta County, accounting for nearly 83% of residents' primary transportation mode. Residents also have relatively high familiarity with public transit, walking and bicycling, airport shuttle services, and app-based rideshares. Results from the July 2020 community survey indicated that Shasta County residents' willingness to replace automobile travel was contingent on their experience with other modes. Respondents to the online survey were most likely to consider walking, neighborhood electric shuttles, app-based rideshare, bicycling, on-demand transit, and fixed-route transit. Conversely, Bikeshare, scootershare, carpools, and vanpools are the least popular modes that survey respondents are willing to try. The transportation options that residents were least willing to try are also not commonly available in the region. Residents' relatively low willingness to try these options may be more related to a lack of familiarity, rather than a lack of interest. Pilot programs can be used to introduce and increase public familiarity with new service, which will affect future willingness.

**Figure 2-1 Community Questionnaire Respondents' Willingness to Try New Mobility Options**



### ***What are the implications for Shasta County?***

As the region looks for alternative transportation options, it is important to consider public perceptions and willingness to try new modes. Proper marketing and outreach about potential new services can be used to ensure service attracts ridership, meets expectations, and provides a useful service for the community. Also, the more familiar people are with the mode, the more likely it is that people will try it.

## TRAVEL PATTERNS



The Big Data Analysis was used to identify common trip patterns taking place in the region and revealed several trends related to how people travel in Shasta County, how this travel relates to the public transportation system, and how these trips may be served in the future.

### **The uncertainty of the COVID-19 pandemic may change the travel patterns in the region**

There remain many unknowns regarding settlement, employment, and travel patterns in the COVID-19 era. There is also uncertainty about how long the impacts of the COVID-19 pandemic will continue to be felt. If large numbers of people no longer have to travel to offices every day, will they begin to relocate to lower cost areas that have a high degree of attractiveness, like Shasta County? If these urban refugees are younger, what will their preferred housing look like? Compact and efficient condos and apartments that are within easy non-auto reach of urban amenities or more traditional large lot suburban development?



In addition to a reduction in commute related trips, social distancing requirements and perceptions of safety have led to reduced transit ridership and increased bicycling and walking in many communities across the country. The continuing impacts and duration of the COVID-19 pandemic will be a key cause of uncertainty for the region moving forward.

#### ***What are the implications for Shasta County?***

Despite previous projections for future population, employment, and demographics within the Shasta region, the continued uncertainty surrounding the COVID-19 pandemic may significantly alter how and where people choose to live, work, and travel. These population and transportation dynamics should continue to be monitored as behaviors and public perceptions continue to evolve with the COVID-19 pandemic. Where these trends serve to improve mobility and transportation system efficiencies, they can be supported and further developed so that they're not just temporary.

## **Observed travel patterns do not align with the existing transit service**

An analysis of travel patterns using mobile device origin-destination data provided by StreetLight included over 1.8 million data samples for 71,000 mobile devices between March 2019 and May 2019 (in depth discussion provided in Appendix C). This analysis showed that the 20 most common peak period travel patterns (8,355 trips) in the county are relatively short (5.3 miles on average), east-west trips within Redding, Anderson, and Palo Cedro (primarily school related trips). However, the existing fixed-route transit network mostly provides north-south trips through the urbanized area. Many transit routes are also circular in nature to catch as many potential riders as possible, making public transit even more indirect. Additionally, midday travel patterns (30,535 trips) are concentrated around the Mt. Shasta Mall and nearby big box retail areas, indicating that travel patterns change throughout the day from short commute trips to service trips.

The top travel origin-destination zones were cross-connected to areas where there is an emphasis on strategic growth for Shasta County and focus corridors where transportation improvements are planned to occur. The zones are aggregations of the more detailed zones established for the travel demand study (see Appendix C, Section 4 for more detail on the zones and quadrants analysis). The result of the cross-comparison, as shown in Figure 2-2 shows areas with higher potential to support greater focus on transit and active transportation as the community continues to grow. This is primarily due to current concentrations of travel demand, the highest concentrations in the county, and identification of these areas as strategic growth areas. The implication is a high probability that travel in and between these areas will intensify at a much higher rate than the balance of the county.

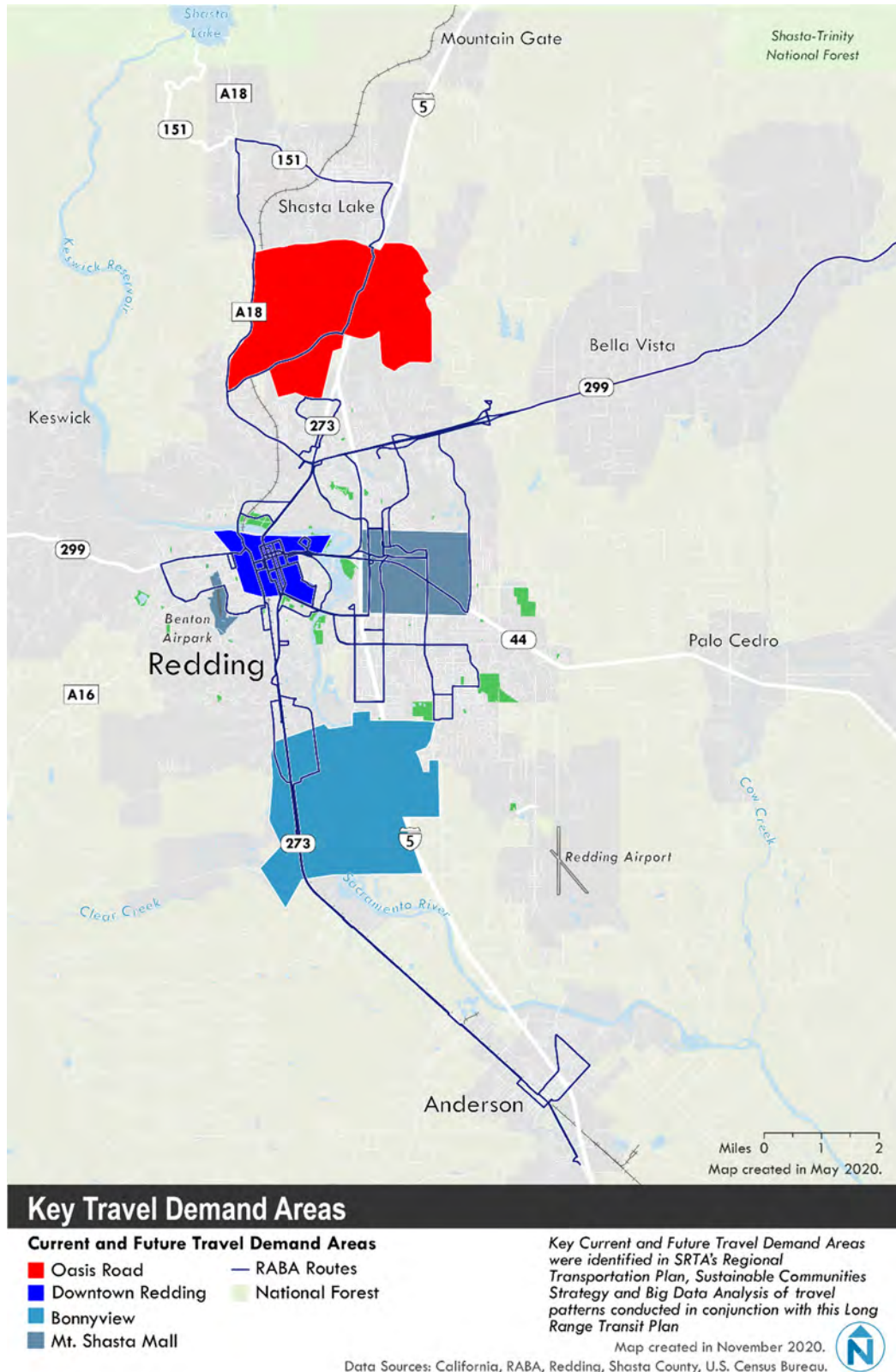
Future growth and evolving travel needs may necessitate changes to the fixed-route system alignment. Identified growth areas and focus corridors, as shown in Figure 2-2, include Oasis Road, Downtown Redding, and South Bonnyview. These areas have emerged as strong candidates to study for future improvements, in-step with growth and development as it occurs.

### ***What are the implications for Shasta County?***

The existing fixed-route transit network is designed to provide an option for transit dependent populations and connections between Anderson, Redding, and Shasta Lake. However, this service pattern does not match the most common actual travel patterns of people in the region. As population growth concentrates in the urbanized area, the fixed-route system should adapt to these trends and consider meeting these observed trip patterns to add the value and appeal required to attract new riders and choice (non-transit dependent) riders.

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**Figure 2-2 Current and Future Key Travel Demand Areas**

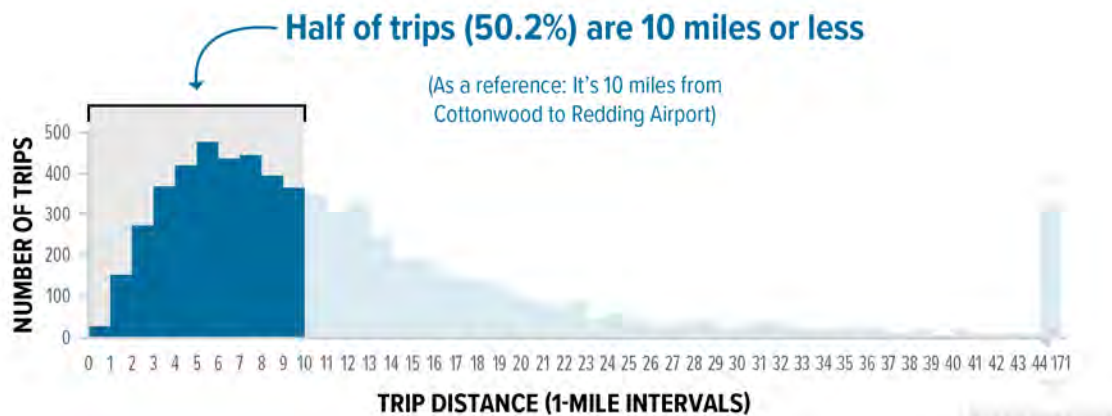


**Most trips are relatively short, congestion is low, and parking is readily available and almost entirely free.**

Relatively low traffic congestion and readily available parking make driving an attractive option in Shasta County. Additionally, low-frequency fixed-route transit service and long travel times make transit a relatively unattractive option. Accordingly, transit ridership has decreased by approximately 19% since 2014. However, the average length of the 20 most common travel patterns in the region is about five miles and half of all trips in the morning peak period are 10 miles or less (Figure 2-3). These relatively short trips provide an opportunity to be replaced with a range of alternative mobility options.

Currently, all public on-street parking in downtown Redding is free with the exception of a few specific areas with policed metered parking. The downtown Redding underground parking facility below Market Center has recently opened and provides an additional 83 parking spaces at a rate of \$1.00 per hour. The city of Redding also recently completed a parking study that included an analysis of parking demand and supply as well as recommendations for fees to encourage parking turnover. Parking policies and pricing are becoming a significant factor related to transportation and development in downtown Redding.

**Figure 2-3 Morning Peak Period Average O-D Pair Trip Length Distribution**



***What are the implications for Shasta County?***

Multiple dynamics in Shasta County promote automobile use throughout the region. However, a growing urban population and observed travel patterns in the region provide an opportunity to offer a choice between numerous alternative mobility options in the future. The prevalence of short trips, relatively flat topography, and temperate climate all present opportunities for shifting modes away from automobiles and toward transit options or active transportation alternatives.

## DEMOGRAPHICS



A review of existing local and regional planning documents performed in conjunction with the Fact Book development identified several demographic trends in the region related to population and employment growth, and demographic concentrations. These demographic trends have implications regarding where transit service may be best suited in the future and how new service types may be utilized to meet shifting demographics.

### Expected population growth is concentrated in the urbanized area of Shasta County

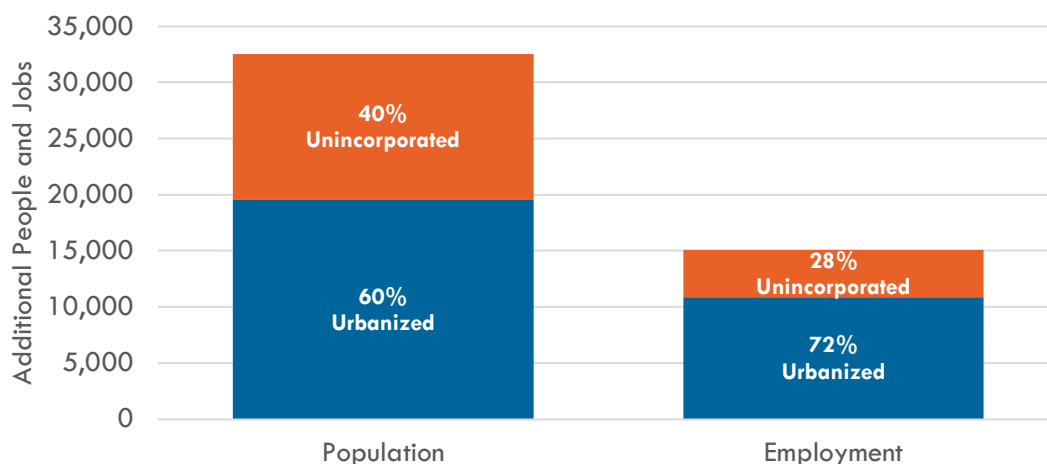
Shasta County is expected to see a 17% rise in population and a 21% rise in employment, or about 32,500 new people and 15,000 new jobs by 2040. About 60% of this population growth and 72% of this employment growth is expected to occur within the urbanized areas of Redding, Anderson, and Shasta Lake (Figure 2-4). For more information about how population is forecast to be distributed see Appendix A, page 2-14. From a policy perspective, SRTA has previously identified seven Strategic Growth Areas where strategies can be focused to encourage growth, provide alternative mobility options, and reduce per capita vehicle miles traveled. The Strategic Growth Areas include:

- Shasta Lake
- Downtown Redding
- Anderson
- Cottonwood
- Palo Cedro
- Burney
- Fall River Mills / McArthur

#### *What are the implications for Shasta County?*

Transit will need to be responsive by adapting to growth while continuing to provide efficient mobility options for Shasta County travelers. As population growth concentrates in urbanized areas, mobility improvements should likewise be prioritized within the urban areas, with special consideration for Strategic Growth Areas and transit corridors when they are combined with other strategies to achieve the community design factors known to affect mode shift (density, design, distance to transit, destination accessibility, and diversity of land use).

Figure 2-4 Projected Population and Employment Growth (2020 – 2040)



Source: SRTA 2018 Regional Transportation Plan

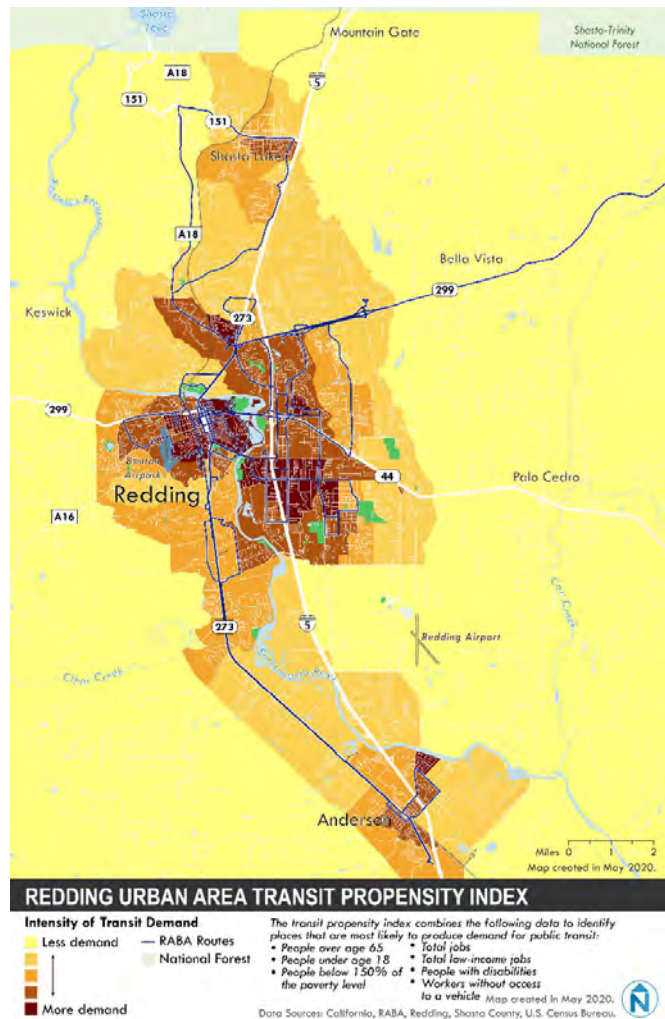
## Transit dependent populations are mostly concentrated in urbanized areas of Shasta County

Shasta County is generally characterized as rural with an urbanized area along the I-5 corridor, including the cities of Redding, Anderson, and Shasta Lake. The higher population density, employment density, and demographic characteristics of the urbanized areas (Figure 2-5) make fixed route transit service more feasible than in lower density, rural areas of the county. As population continues to concentrate in the urbanized areas, transit service must adapt to the growing needs of these transit dependent populations as well as those looking to use other forms of transportation other than the personal vehicle.

While these urbanized areas are stronger candidates for fixed-route transit service than the rest of the county, the population density is still generally low, posing an ongoing challenge for fixed-route transit performance. Strategies regarding fixed-route transit service and alternative mobility options must account for the varying population density and ensure that proposed solutions are aligned with observed demand for services and appropriate land uses and development density.

It is important to recognize that while the urbanized area of the county has a higher propensity for fixed-route transit, there are still significant low-income populations in the rural areas of Shasta County. These populations may not be best served by fixed-route transit but still have their own unique transportation needs.

Figure 2-5 Transit-Propensity Index



### ***What are the implications for Shasta County?***

The urbanized areas of the county are stronger candidates for fixed-route transit service. As population and employment grow in these areas, improving fixed-route transit frequency on key corridors with supportive alternative mobility options in lower density areas will be necessary for improving the convenience and reliability of the transportation system. New alternative mobility options and innovative approaches, like microtransit and on-demand transit, could be explored as options for serving lower density or lower demand areas where more traditional fixed route transit is not an efficient option.

## POLICIES



Through a detailed analysis of local and regional planning documents and the processes for decision making and service implementation, it is clear that there are relevant trends relating to policies in the region. Policy change can often be the fastest way to respond and adapt to regional changes and this category of trends explores this issue.

### **Transportation governance is complex and multifaceted**

In Shasta County, there are overlapping transit providers and services, all of which are marketed differently. Each of these services are perceived differently by the public and lead to a confusing, overly complicated transit network. This is a result of transportation governance in the region, the overlapping roles of SRTA and RABA, as well as regulations and limitations on eligible activities by funding sources and restrictions on who can be served and where. Service can be simplified and more understandable by operating under a unified brand and marketing approach. The coordinated delivery of transportation services within the county to avoid confusion and duplicative resources has been identified in previous planning documents as a priority for the region. In particular, the process of identifying unmet transit needs, determining feasibility of addressing unmet needs, and competition over limited funding availability.



Burney Express and ShastaConnect are two examples of multiple services and branding operating in the same areas of the Shasta County. (Source: SRTA, ShastaConnect)

At a fundamental level, there is a divergence of strategic direction between regional partners about the role of public transit, priorities for transportation improvements, and the allocation of funding. For example, during development of the ShastaConnect on-demand service pilot, RABA declined the opportunity to operate the service, so a new model was developed through SRTA and DHCL. SRTA viewed this as an opportunity to address a long-standing unmet need for transit service on Sunday while also piloting a new service mode. RABA appeared to be concerned about starting up a new business model and about the lack of long-term funding to support the service if the pilot were successful. This is a sensitive issue in the region and may require multiple strategies over the long-term of this plan to effectively facilitate coordination and agreement on shared priorities between these governing bodies.

#### ***What are the implications for Shasta County?***

The transportation governance structure for the primary public transportation services (e.g. fixed route, paratransit, on-demand services, and CTSA) in Shasta County has resulted in multiple services that, while complementary, are confusing for passengers. Coordination between SRTA and RABA to unify transit under a consistent customer facing brand, regardless of the actual provider or funding source, would improve public perceptions of services in the region. In the long range, it may be found that revising governance of transit in the county is another strategy to address this issue. In the meantime, the outward appearance can be addressed without changing the actual governance.

## 3 SCENARIOS

While the emerging trends explored in Chapter 2 represent observed regional trends supported by key findings in the existing conditions analysis, scenarios represent potential directions that region may be heading in the future. While the actual outcome for the Shasta region is unknowable, the scenarios identified in this chapter present a range of likely potential outcomes. Three conditions are explored in each of the scenarios, including:



### **Funding**

The process of diversifying local and regional investments to be more balanced and inclusive of public transit and alternative modes requires a clear vision and shared commitment among stakeholders to implement the new direction. If community and decision-maker desire and coordination are lacking, progress is likely to be incremental, reactive, and discordant. Taking the 'Next Step' or 'Giant Leap' will require proactive action and leadership.



### **Land Use and Development**

Recent history in and around Shasta County effectively demonstrates that there is an intersection between natural events, mobility, and the extent of land use and development intensity. Long term, this will become a shaping factor for how we get around and where new development occurs. Even so, most new development is likely to continue the current trend of being more auto-oriented in character. With current investment and service levels transit is less likely to be a significant influencer of the form of new development. However, the affect of natural events is more likely to influence the location of new development, closer to existing urban infrastructure, where transit could play a role in providing alternate or improved mobility.



### **Perspective**

In the outreach conducted for this plan it would be fair to postulate that there is significant interest in the possibility of exploring alternate means of mobility. That trend means that demand for alternate mobility will develop more slowly as people are trending more toward experimentation than actual dedication to change. Public attitude is a major shaping factor in public policy. If perspective moves from a desire to experiment to a demand to provide alternate mobility, the pace of change and the priorities of how that change evolves will also change.

Each of the three above factors are combined in a unique mix that are important shaping factors for how non-auto mobility evolves in Shasta County. The purpose is to demonstrate how the various strategies of the plan could be deployed for each of these scenarios. The need for a flexible

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plan is already apparent in what could be called a ‘renaissance’ in Redding. Today, traditional, or perceived, values are being challenged in new developments. The plan intends for on-going monitoring of trends in the community and then to respond based on those trends. For example, does a market exist for ‘urban-style’ housing? Are the residents of this housing trending toward owning fewer autos? What forms of mobility are people choosing as alternatives? Are people who choose this housing option walking, biking, and taking transit at a greater rate than the balance of the population? The plan is designed to evolve as the community evolves.

| Scenario                            | <br>Funding                                                                                                                                                                                                                                                                                                  | <br>Land Use and Development                                                                                                                                                                                                                                         | <br>Perspective                                                                                                                                                                                                                                              |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Scenario 1:</b><br>Current Trend | <ul style="list-style-type: none"> <li>Funding will increase in relationship to the economy, but the relative share of funding expended to support alternative mobility options remains about the same as today.</li> <li>As grant funds allow, temporary pilot projects are tested in response to unmet transit needs.</li> </ul>                                                            | <ul style="list-style-type: none"> <li>Land use patterns and characteristics will continue as today with occasional higher-density residential developments</li> </ul>                                                                                                                                                                                | <ul style="list-style-type: none"> <li>General community attitude continues to be one of interest and willingness to experiment with alternatives to the automobile.</li> <li>Mobility options improve for individuals who are transit dependent, but available options remain unattractive to those that are not transit dependent.</li> </ul> |
| <b>Scenario 2:</b><br>The Next Step | <ul style="list-style-type: none"> <li>New state and federal funding opportunities will allow for the expansion of creative and customized mobility options.</li> <li>At the local and regional level, a change in funding reallocation among mobility options begins to occur, allowing for the limited but long-term implementation of new mobility alternatives where feasible.</li> </ul> | <ul style="list-style-type: none"> <li>Urban centers, transit corridors, and rural town centers become more attractive and experience modest increases in population.</li> <li>In these areas, market and policy factors begin to expand the number of living options, combined with some public investment in transit and other modes.</li> </ul>    | <ul style="list-style-type: none"> <li>People are actively looking for realistic options to driving an automobile.</li> <li>Alternative modes are popular in certain areas where high-quality facilities and services are available.</li> </ul>                                                                                                 |
| <b>Scenario 3:</b><br>A Giant Leap  | <ul style="list-style-type: none"> <li>New funding is not only available from state and federal sources, but also local funding decisions prioritize local funds for mobility options.</li> <li>Most closely aligned with assumptions and performance outcomes in the region's Sustainable Communities Strategy (SCS).</li> </ul>                                                             | <ul style="list-style-type: none"> <li>Both market and policy factors strongly incentivize transportation-efficient development patterns.</li> <li>Population growth in urban centers and corridors is substantially higher, but is still consistent with the region's growth rate and Sustainable Communities Strategy (SCS) assumptions.</li> </ul> | <ul style="list-style-type: none"> <li>Access to alternative travel modes to autos is expected and demanded throughout the more urbanized areas.</li> <li>Context-appropriate mobility options expected in rural and low-density areas.</li> </ul>                                                                                              |

## **Considerations**

### **Land Use**

The land use conditions of Shasta County will be established by market forces and not how the public transportation system evolves. The personal automobile will likely continue to be the predominant form of transportation in Shasta County through the life of this plan. While in-roads to more compact and people-oriented development will occur in the denser areas of the county, the built form and projects that are not as space efficient will also continue to exist and expand. The position of transit will be to try to support and encourage developments that are compact and people oriented, as opposed to transit investment being the force that moves development into a more transit supportive direction. Transit improvements can be most influential when layered with a variety of other infrastructure, programs, and services that work together to provide the environmental conditions known to result in mode shift (i.e. density, design, diversity of land use, distance to transit, and destination accessibility).

### **COVID-19**

There remain many unknowns regarding settlement and employment patterns in the post-COVID era. If large numbers of people no longer have to travel to offices every day, will they begin to relocate to lower cost areas that have a high degree of attractiveness, such as the Shasta region? If these urban refugees are younger, what will their preferred housing look like? Compact and efficient condos and apartments that are within easy non-auto reach of urban amenities or more traditional large lot suburban development? It is unclear how this trend will shape the future of housing development, employment patterns, and retail infrastructure.

### **Other Considerations**

There are also the larger mega-trends such as automation (i.e. autonomous, self-driving vehicles), electrification, and other alternative fuel development. In its present form, electrification will tend to pull land use closer together, due to the perceived range issues of electric automobiles that will slowly be changed as production and innovation make progress and, more importantly, as the vehicle fleet turns over and charging infrastructure becomes as ubiquitous as gas stations. Automation might make some forms of car-free travel both more feasible and more appealing. What is not as predictable is the pace with which those innovations move from labs and pilots to actual daily use. Given that Shasta County is not a major urban area it is likely to be on the trailing edge of this trend rather than the leading edge of the trend. That said, the availability of technology that can deliver mobility at a lower cost, even on a small scale, may find application in the Shasta area over the next 20 years. Even so, it is highly unlikely that it will become the mainstay of personal mobility, rather it will be an addition to what is likely to be a much broader spectrum of choice than exists today.

## 4 STRATEGIES

Strategies are specific activities that SRTA can take to address emerging trends and adapt to the scenario that most closely mirrors real world conditions as they occur. Depending on how the future unfolds, SRTA can pick and choose specific strategies for implementation and continuously reevaluate and select new strategies throughout the life of this plan.

The strategies identified in this chapter are broken down into four distinct categories:

- **Multi-Modal Accessibility Strategies** details the specific actions that SRTA can take to improve multi-modal accessibility and walkability to respond to emerging trends and adapt to future scenarios.
- **Fixed-Route Service and Infrastructure Strategies** identifies approaches to the fixed-route transit service and infrastructure improvements.
- **Policy Improvement Strategies** describes specific policy improvements that SRTA can make or foster within the region to respond to emerging trends and scenarios.
- **Alternative Mobility and Technology Strategies** discusses strategies related to potential alternative mobility and new technology options in the region, expanding beyond walking, bicycling, and traditional public transportation service.

Some of the strategies include potential capital costs using an order- of-magnitude cost scale, to give a general sense of needed investment:

\$ = Less than \$100,000

\$\$ = \$100,000 - \$250,000

\$\$\$ = \$250,000 - \$500,000

\$\$\$\$ = \$500,000 - \$1 million

\$\$\$\$\$ = More than \$1 million

These are not included for all strategies as many have the ability to spend very little, or a great deal. The scenario where a strategy might be most appropriate will also have an influence on the total expense. This cost assessment is provided to give a relative sense of magnitude.

## **MULTI-MODAL ACCESSIBILITY STRATEGIES**

Multi-modal accessibility plays a key role in mobility throughout the Shasta region. The strategies discussed in this section can be used to encourage walking and bicycling as independent point-to-point transportation modes, improve connections to traditional fixed-route public transportation, and explore new service types to provide first-last-mile connections. Strategies in this section primarily respond to emerging trends related to public perceptions and travel patterns.



These strategies include:

- Improve Bicycle and Pedestrian Accessibility and Mobility
- First- Last-Mile Connectivity Enhancements

## **IMPROVE BICYCLE AND PEDESTRIAN ACCESSIBILITY AND MOBILITY**

The extensive network of recreational bike trails has been identified as a key strength in the Shasta region and represents a key focal point to extend the active transportation network to serve more trip purposes. Bicycle and pedestrian facilities surrounding transit stops and stations can impact people's ability and willingness to use transit. Improving these connections may include:

- Wide sidewalks, pedestrian pathways, landscaping, and well-marked crossings for pedestrians.
- Comfortable on-street bicycle facilities that provide convenient access to transit stops and stations.
- Secure bike parking at transit stops and stations, as well as continued provision of bike racks on buses.
- Promotion of new bicycle and pedestrian facilities, particularly high-end facilities. The promotion would include cross-promotion with transit where a connection to transit is an opportunity.

Frequent and well-placed crossings also allow pedestrians to easily connect to transit without walking out of their way. Bike facilities that feel safe to a wide range of peoples' comfort and experience levels helps everyone connect to transit. Secure bike parking at transit stops and stations helps people connect to transit by bike and helps reduce demand for space on transit vehicles.

### **Why is this Important?**

Public perceptions regarding sustainability and interest in alternative mobility options have emerged as key trends that align with improvements to the active transportation system in the community. Bicycling and access to the outdoors have also emerged as key priorities for the Shasta region in regional and local planning documents. The warm weather and topography of Redding, Anderson, and Shasta Lake are conducive to bicycling and walking but there is a lack of fully connected, ubiquitous, infrastructure in the urbanized area of the region. Safe, comfortable, and convenient bicycle and pedestrian connections both encourage more people to

**LONG RANGE TRANSIT PLAN**  
Shasta Regional Transportation Agency

walk and bike and improve access to the public transit system since the vast majority of transit trips begin and end with walking or bicycling.

The City of Redding is currently in the process of planning and constructing a bicycle connection between downtown Redding, the Bike Depot, the downtown Transit Center, and the Sacramento River Trail which is expected to be completed in 2021. This type of connection significantly expands the accessibility of bicycling as a standalone mode of transportation in the region and fosters additional connections to transit. Continuing to prioritize these active transportation connections to other areas with observed travel patterns, like the Mt. Shasta Mall area, would encourage more people to choose bicycling as a comfortable and convenient option.

There is a strong opportunity to build upon these successes and future investments to integrate with the region's transit system. Additionally, the relatively low-density development pattern consistent throughout the urbanized area limits the number of people and jobs located within easy walking distance of public transportation. A holistic bicycle and pedestrian network improves these connections and increases access to transit by expanding the reach or footprint of transit since nearly all transit trips begin and end with walking or bicycling.



The Sacramento River Trail is a key existing bicycle trail through Redding, CA and includes a crossing over the Sundial Bridge. (left) The planned Bike Depot in downtown Redding is slated to open in 2021 and will serve as a focal point for multi-modal connectivity in the city. (right)

Source: California Bicycle Coalition (CalBike)

## What is SRTA's Role?

- Support proposed investments outlined in the [GoShasta Regional Active Transportation Plan](#) including Community Walking Connections, Safe Routes to School, intersection improvements, and various bikeway network improvements. Prioritize investments that will help pedestrians safely connect to public transportation.
- Pursue funding opportunities outlined in the GoShasta Regional Active Transportation Plan.
- Partner with the Public Works Departments for Shasta County, the cities of Redding, Anderson, and Shasta Lake, and non-profit organizations like Shasta Living Streets to coordinate and prioritize active transportation connections and facilities.

## How Would it Work?

This strategy is primarily a function of prioritizing capital investments that have already been identified in local and regional planning documents. As the Regional Transportation Agency, SRTA would be in the position to work in partnership with local public works and planning departments to identify shared goals and to provide a portion of funding for priority projects.

Priorities resulting from this strategy would include developing a cohesive bicycle and pedestrian network to facilitate more active transportation trips as well as specifically providing active transportation connections in key transit corridors to improve access to transit throughout the community. The level of financial investment required for specific improvements varies by the type of improvement (Figure 4-1). Accordingly, the improvements made are necessarily limited by funding availability, which is a key differentiating factor between the three scenarios. The dollars represent a level of funding that might be made available through transit funding sources and is intended to add robustness to funding the active transportation plan, as opposed to supplanting funding needs and opportunities outlined in that plan. The dollars are not the cost to implement the improvement, but an indication of the relative contribution of transit.

**Figure 4-1      Bike and Pedestrian Infrastructure Generalized Cost Estimates**

| Strategy                                          | Capital Investments                                   | Level of Financial Investment |
|---------------------------------------------------|-------------------------------------------------------|-------------------------------|
| <b>Connect Bike and Pedestrian Infrastructure</b> | Sidewalks                                             | \$\$                          |
|                                                   | Landscaping and lighting                              | \$                            |
|                                                   | Pedestrian crossings and intersection improvements    | \$\$                          |
|                                                   | On-street and off-street bike facilities              | \$\$                          |
|                                                   | Off-street bike parking                               | \$                            |
|                                                   | Promotion of new facilities and transit opportunities | \$                            |

## Scenario 1 Current Trend

The generally low-density urban and rural development patterns in the Shasta region are expected to continue in Scenario 1, making active transportation connections to transit a high priority to ensure accessibility throughout the region. Within the urbanized area of the county, the highest frequency transit service is expected to operate on a few larger arterial corridors. To ensure effective transit service under this development pattern, transit riders will need safe walking and biking connections to reach these transit corridors and completing the projects identified in the GoShasta Active Transportation Plan would help achieve this outcome.

Prioritizing these improvements within the previously identified Strategic Growth Areas and key travel demand areas identified during the existing conditions analysis would make the most effective use of limited funding to promote accessibility to transit. These key areas include:

- Downtown Redding
- Oasis Road
- Bonnyview
- Mt. Shasta Mall Area

## **Scenario 2 The Next Step**

As more funding is made available and the urbanized population in the region increases, people will be actively engaged in looking for realistic alternatives to driving. In addition to fostering connections to high frequency transit, this scenario would involve the development of a standalone active transportation network throughout the urbanized area. This approach provides the flexibility for residents to choose walking for shorter trips, bicycling for medium length trips, and the connections to transit for longer trips. Integrating this multi-modal network with the existing regional bicycle trail system and the planned Bike Depot in downtown Redding would further increase the visibility of active transportation as a viable travel mode in the region.

## **Scenario 3 A Giant Leap**

The approach to active transportation is similar in Scenario 3 as in Scenario 2. The growing urbanized population, availability of new transportation funding, and demand for mobility alternatives would make the development of a cohesive active transportation network a high priority for the region. The demand for mobility alternatives and increased funding levels expected in this scenario would make this strategy highly relevant for providing infrastructure that allows the flexibility for residents to choose between walking, bicycling, and transit for a variety of trip purposes.

## **FIRST- LAST-MILE CONNECTIVITY ENHANCEMENTS**

In relatively low-density urbanized areas, the effectiveness of fixed-route transit service is often limited by the number of people who are able to easily access the service and the quality or frequency of the service. In addition to connectivity through walking and bicycling infrastructure, newer microtransit services are emerging across the country to provide first- last-mile connections to transit. These services include scooter and bike share and on-demand service connections to traditional fixed-route transit. Service is sometimes delivered as part of an integrated package of agency services and sometimes through partnerships with Transportation Network Companies (TNCs) like Lyft and Uber. These services can be used to extend the service area of the existing fixed-route network to ensure that there is some service option available in more places and provide additional first- last-mile connections to the transit system.

## **Why is this Important?**

The Shasta region is characterized by low-density development with low-frequency fixed-route transit service that emphasizes geographic coverage. The long travel times and the need to plan around infrequent service make public transit non-competitive compared to automobile travel and instead is most utilized by transit dependent populations with few or no alternatives.

First- last-mile microtransit connections in Shasta County would be used to replace some of the coverage service currently provided by fixed-route service, allowing the fixed-route service to focus on higher-frequency service on a few key transit corridors. This approach represents the potential for a more efficient option of providing coverage service to transit-dependent populations and makes fixed-route service more time-competitive with private automobile trips. Microtransit service can be implemented as a pilot project, similar to ShastaConnect, or as an integrated service type in combination with proposed fixed-route service changes.

## LONG RANGE TRANSIT PLAN

Shasta Regional Transportation Agency



Via to Transit provides on-demand transit service in King County, WA for trips within specific neighborhoods beginning or ending at designated light rail stations or mobility hubs. (left) Marin County, CA recently launched a partnership with Uber to provide on-demand transit service along the Highway 101 corridor. (right)

Source: King County, Mass Transit Magazine

### What is SRTA's Role?

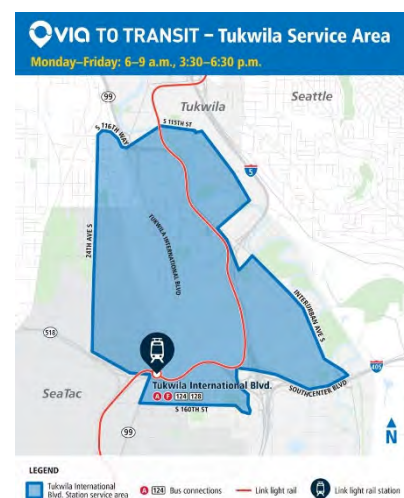
The role of transit governance in the Shasta region is relatively complex, with multiple government agencies and operating in overlapping jurisdictions. To employ this strategy, SRTA would partner with another organization, such as RABA or DHCL, to provide the service as a partnership, or contract service operations to a private sector provider such as Lyft or Uber, Via, First Transit, or TransDev.

SRTA has already taken a step in this direction by expanding the eligibility criteria for ShastaCONNECTS. Next steps could be brokering an agreement with another provider such as an app-based rideshare operator to further expand the service and the responsiveness of the service. This could also include coordination with RABA to supplant current low productivity services provided by RABA and allow re-investment where fixed route ridership would be greater.

### How Would it Work?

First- last-mile connections provided by microtransit service can be provided in several ways, including agency operated, contracted service, or as a partnership. This service type can also be restricted to operate only in specific areas or more generally throughout the service area. Some of the most common applications of this strategy are to identify specific service areas, often high-transit propensity neighborhoods, and provide on-demand service for trips between this zone and a nearby fixed-route transit stop. This strategy may be employed as a standalone pilot project to gauge public perceptions of the new service type or as a part of a larger service change related to fixed-route service.

How this strategy is employed is largely dependent on the availability of funding, public perceptions, and quality of the connecting fixed-route system. For example, fully operating a



Via to Transit Tukwila service area map

Source: King County

new on-demand service is more expensive than providing an agency subsidized Lyft or Uber ride. Additionally, potential passengers would be more willing to take a two-seat ride to access a high-frequency transit route than to one that only operates every hour. These characteristics impact how this strategy can best be utilized between the three scenarios. It should also be noted that whatever pathway is selected for providing the service, a fare system could be established that directly relates to potential riders ability to pay for the service. Given the cost of these services, a near market-rate fare structure with a sliding scale of discount depending on income is more likely to create a sustainable financial situation. Equity will also need to be considered, as the issue of comparable transit service for individuals with limited mobility (e.g. wheelchair riders) who generally cannot benefit from TNCs.

These services may be explored in a number of areas within Shasta County. Identifying specific areas for on-demand service would require additional analysis and substantial public outreach prior to implementation. Priority areas for further study include citywide pilots (e.g. Anderson and Shasta Lake) as well as the previously identified travel demand areas of:

- Downtown Redding
- Oasis Road
- Bonnyview
- Mt. Shasta Mall Area

## **Scenario 1 Current Trend**

This strategy would likely be employed in tandem with the Pilot Program Identification, Planning, Execution, and Evaluation strategy to ensure that any new mobility strategy is evaluated and prioritized in a way that makes the best use of limited funding and addresses key identified community needs. Limited funding availability would make micotransit and emerging mobility strategies best suited as pilot programs. Based on current trend allocation of transit revenue, it is likely the first- last-mile service will have to offset some existing fixed route service to make the system financially viable.

## **Scenario 2 The Next Step**

Higher funding under Scenario 2 would lead to improvements in the fixed-route transit network. First- last-mile connectivity provided through microtransit would be used to target specific neighborhoods or population groups without direct access to the fixed route transit network. This effectively extends the transit service area to provide access to a greater segment of the population and provide more consistent, reliable travel options. This service may emerge as a pilot project, as a standalone investment by SRTA, or in a partnership with RABA or DHCL.

## **Scenario 3 A Giant Leap**

Microtransit and emerging mobility solutions as first- last-mile connections to the fixed-route system would be an established service under the higher funding levels and transit improvements expected in Scenario 3. These services would connect lower density communities near the periphery of the urbanized area to high-frequency core transit routes and perhaps as a point-to-point service for locations with high demand. The optimal combination is to select access points that provide connectivity to the fixed route system while also being important trip attractors. These services would be supplemented with additional improvements in the bike and pedestrian network to improve first- last-mile connectivity closer to the urban core.

## FIXED-ROUTE TRANSIT AND INFRASTRUCTURE STRATEGIES



The strategies discussed in this section relate to the fixed-route transit network and related infrastructure. Fixed-route transit will continue to serve as the foundation for alternative mobility options in the region, supplemented by other modes and strategies discussed throughout this plan. As such, ensuring fixed-route transit meets the identified needs of the community and provides useful, convenient service are key outcomes from these strategies. These strategies primarily address the emerging trends related to travel patterns and demographics.

Strategies discussed in this section include:

- Realign Current Transit Network for Future Conditions
- Implement Transit Enhancements Coordinated with Active Transportation Improvements
- Improved Localized Customer Amenities at Bus Stops

## REALIGN CURRENT TRANSIT NETWORK FOR FUTURE CONDITIONS

Fixed-route transit networks are typically designed to achieve specific goals based on city or agency priorities. Some networks prioritize high-frequency service in fewer locations to provide fast, convenient service between high population density neighborhoods and a central business district. Other networks may prioritize lower-frequency service that provides coverage across a large geographic area, ensuring that as many people as possible have access to some level of transit service. As population and demographic trends change over time, it is necessary to examine and evaluate the effectiveness of transit networks to ensure they are still serving their intended populations or if realignment is in order.



Common tradeoffs in transit service planning include frequency and coverage. Providing more frequent service often comes at the cost of providing service in fewer areas. These tradeoffs must be carefully considered to ensure service meets the needs of the community.

### Why is This Important

The existing RABA network is designed primarily as a coverage service. Local routes operate every 60 minutes and provide mostly north-south service and local circulation with a handful of commuter express routes operating during peak periods only. As the region grows in the future

and development patterns begin to shift, it is important to realign the transit network to continue to meet the needs of the community.

The Big Data Analysis identified several travel patterns that are not currently being met by the fixed-route network, including east-west travel and trips to and from other travel demand areas like the Mt. Shasta Mall area, Bonnyview, and Rancho Shasta View. Focusing on addressing these underserved travel patterns and diversifying the network to include a mix of high-frequency trunk lines, low-frequency coverage routes, and alternative mobility options would create a more robust, adaptable network to meet the needs of the community.

## What is SRTAs Role?

- Continue planning and coordinating service across jurisdictions where applicable, including fixed-route, on-demand, and emerging mobility options.
- Identify and pursue potential funding opportunities for enhanced fixed-route service and alternative mobility strategies.
- Identify and recommend candidates for high-frequency transit within Shasta County.

## How Would it Work?

Many transit agencies periodically analyze the market for transit and the performance of existing services to ensure they are meeting the unique needs of the community. Any service realignments would follow a similar analysis, identifying key travel patterns, concentrations of transit dependent populations, and the alignments of both high and low ridership routes. Following this analysis, key corridors should be identified as candidates for high-frequency trunk line service, while lower ridership areas may receive lower-frequency service or more cost-effective emerging mobility options like microtransit. This approach to system realignment would provide more useful service on the high frequency corridors, ensure transit dependent populations continue to have access to mobility options, and allows new service types to be tested and evaluated in lower demand areas.

For example, assessing the approximate travel times between two sets of key origins and destinations identified in the Big Data Analysis shows that public transit takes significantly longer, due in part to infrequent service and required out of direction travel (Figure 4-2).

**Figure 4-2      Approximate Travel Time Estimates**

| Origin-Destination                       | Approximate Automobile Travel Time <sup>1</sup> | Approximate Transit Travel Time, Including Wait Time |
|------------------------------------------|-------------------------------------------------|------------------------------------------------------|
| Downtown Redding – Mt. Shasta Mall       | ~7 minutes                                      | ~12 - 30 minutes                                     |
| Bonnyview <sup>2</sup> – Mt. Shasta Mall | ~15 minutes                                     | ~50 - 75 minutes                                     |

## Scenario 1 Current Trend

Demand for transit service in Scenario 1 is expected to remain relatively consistent with current demand. The analysis of existing service should focus on identifying potential high-frequency

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<sup>1</sup> Travel times based on Google Maps estimates for automobile, RABA bus schedules, and Google Maps public transportation.

<sup>2</sup> Bonnyview origin location is assumed to be the intersection of S Bonnyview Rd & SR 273/Market St

corridors and lower population density areas that may not support fixed-route transit service but may be strong candidates for alternative mobility options. Transit service realignments may be smaller, incremental changes in this scenario but it is necessary to identify the opportunities for improvements or new services so they can be implemented quickly and efficiently when the opportunities arise.

## Scenario 2 The Next Step

In Scenario 2, demand for transit and funding availability are likely to increase to a level where high-frequency corridors are both warranted and financially feasible. These routes should be carefully planned, implemented, and marketed as the core of the transit network. Lower frequency coverage routes should focus on serving transit dependent populations that are not adjacent to the trunklines, providing transfer opportunities within the system. Additional commuter express routes may also be feasible in this scenario as the population continues to urbanize but smaller communities continue to exhibit demand for transit service.

## Scenario 3 A Giant Leap

The demographic and population trends in Scenario 3 would allow for significant investment in improving the fixed-route transit network. Multiple high-frequency trunk lines should be evaluated for both north-south and east-west travel. This network is likely to be more robust than the Scenario 2 network and include:

- High-frequency (better than 15-minute headway) trunk lines connecting key hubs in the community, as identified in the Big Data Analysis.
- Supplemental coverage services, including first- last-mile microtransit services connecting to high-frequency corridors.
- Neighborhood shuttles similar to the [DASH shuttle](#) to circulate areas like the Mt. Shasta Mall and connect residential neighborhoods to the trunk line services.

## IMPLEMENT TRANSIT ENHANCEMENTS COORDINATED WITH ACTIVE TRANSPORTATION IMPROVEMENTS

Transit infrastructure enhancements can help increase the speed of transit, such as off-board fare payment, transit signal priority, and queue jump lanes.

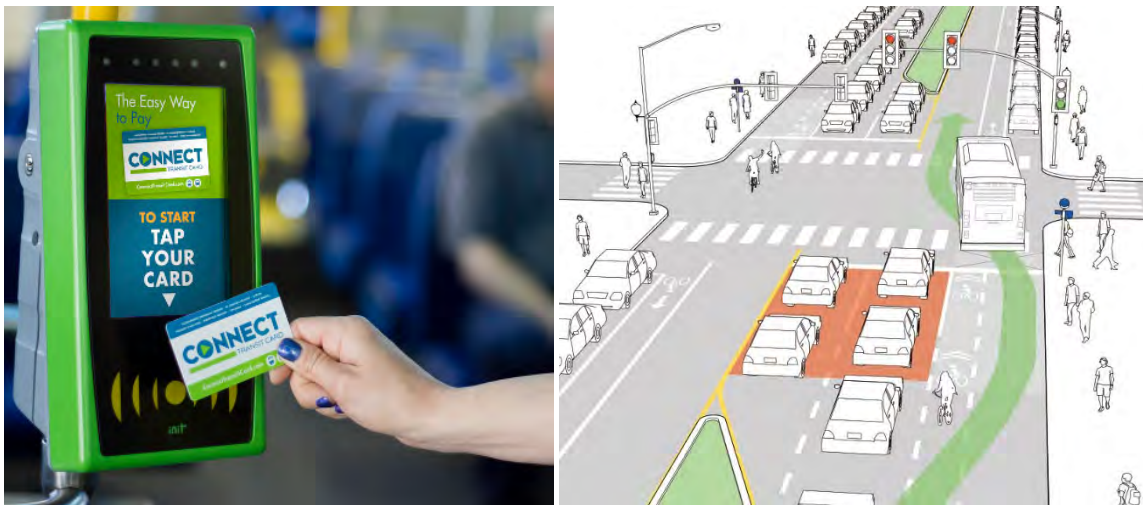
- **Off-board fare collection systems** allow passengers to board transit vehicles without waiting in line to pay fares.
- **Transit signal priority** is activated by an approaching transit vehicle and can be very effective on streets with long signal cycles or significant distances between signals.
- **Queue jump lanes** are short sections of exclusive transit lanes that allow transit vehicles to bypass congested areas.

Combining these transit enhancement projects with planned active transportation improvements may reduce the construction and implementation costs of the treatments. This strategy should be coordinated with the Improve Bicycle and Pedestrian Accessibility and Mobility strategy.

## Why is This Important

During the July 2020 Community Questionnaire, 64% of respondents indicated that convenience, including travel time, was a major concern when considering using an alternative transportation option to a personal automobile. Improving travel times for alternative modes, especially fixed-route transit, is necessary to make them more attractive relative to personal automobile use and to facilitate a mode shift.

Off-board fare payment can make each stop of the vehicle shorter and more efficient. Transit signal priority and queue jump lanes can significantly reduce delay and improve speed and reliability. By identifying key bottlenecks and heavily congested areas in the region and implementing these transit enhancements, travel times can be improved and made more competitive across transportation modes.



Off board fare payment readers (left) are typically located on the platform of light rail and bus rapid transit stations. Queue jumps (right) can help transit vehicles bypass congestion.

Source: City of Roseville (left); NACTO (right)

## What is SRTAs Role?

- Work with RABA and local public works departments to identify corridors and locations where transit service experiences the most delay due to traffic congestion and that are important corridors in the transit network.
- Where appropriate, become a funding partner on implementing transit signal priority or queue jump lanes. SRTA (and other operators) would be involved in the off-board fare payment.

## How Would it Work?

Transit enhancements are treated the same way as other capital improvement projects and are generally planned and programmed through the city or transit agency's capital improvements plan or transit asset management plan. Because these kinds of improvements have not been identified in previous planning efforts within the region, they are more suited to implementation as a long-term strategy. However, even to implement them as a long-term strategy, planning for

important transit corridors and improving transit speed and reliability in those corridors needs to start in the near-term.

Transit infrastructure improvements are relatively costly investments and would require planning and programming from RABA and local public works departments (Figure 4-3). Coordinating these investments with bicycle and pedestrian infrastructure improvements allows some construction costs to be shared between the projects and may improve project feasibility. Without coordination, a roadway may be restriped to add a bike lane only to be restriped again a few years later to include a bus only lane. By coordinating these investments, duplicative work can be eliminated, and overall lifecycle costs may be reduced.

**Figure 4-3 Transit Service Enhancement Capital Investment Generalized Cost Estimates**

| Strategy                     | Capital Investments                               | Level of Financial Investment |
|------------------------------|---------------------------------------------------|-------------------------------|
| Transit Service Enhancements | Off-board fare payment kiosks                     | \$\$                          |
|                              | Transit Signal Priority infrastructure            | \$\$\$\$                      |
|                              | Queue jump infrastructure or restriping if needed | \$\$                          |

## Scenario 1 Current Trend

The limited funding for additional capital projects in Scenario 1 limit the likelihood of this strategy being implemented. Additionally, the assumption that development patterns will continue closely resembling the status quo limits the effectiveness of this strategy. The continued low-density development and lack of significant traffic congestion in the urbanized area of the region does not present a strong case for these transit investments. As such, this strategy would not be prioritized in Scenario 1.

## Scenario 2 The Next Step

As people move closer to regional population centers and traffic congestion begins to worsen, transit service enhancements will become increasingly important to make travel times competitive and ensure that transit service is useful. In Scenario 2, it is crucial to make the case for combining bicycle, pedestrian, and transit related capital improvement projects into one cohesive program to both reduce costs and enhance program efficacy.

## Scenario 3 A Giant Leap

The demand for alternatives to driving is expected to increase significantly in Scenario 3. To maximize the usefulness of the transit network under these conditions, transit infrastructure enhancements will be critical for improving travel times and avoiding traffic congestion related delays. The greater availability of funding in this scenario provides the opportunity to incorporate more infrastructure treatments along key corridors, potentially resulting in BRT or BRT-like service on high-frequency trunk routes.

## **IMPROVED LOCALIZED CUSTOMER AMENITIES AT BUS STOPS**

Well-designed bus stops with customer amenities can improve the transit rider experience by making people feel more comfortable and safer at transit stops. Enhancements may include:

- Shelter from natural elements such as shade, wind, rain, snow, cold, etc.
- Other amenities such as benches, trash cans, etc.
- Real time bus arrival information
- Indicator signals to alert approaching buses that someone is at the stop
- Passenger information – printed or digital
- Wayfinding signage
- Safety-related features (e.g. lighting, open and visible shelters, enhanced security, etc.)

### **Why is This Important**

Bus stop enhancements provide several benefits for transit riders. Amenities make waiting for transit a more comfortable and inviting experience. Clear and simple passenger information that is accessible to a range of transit riders improves rider satisfaction. Wayfinding helps orient people, making it easier to navigate between transit connections and nearby destinations. Safety features improve passenger comfort and support transit ridership. Beyond benefits to the riders, these investments also important messaging to other members of the community about treating people who ride transit with dignity and equity, as well as serving as a constant reminder that transit is part of the infrastructure of the community.

In the Shasta region, transit service is used predominantly by transit dependent populations with relatively few “choice riders” consciously making the decision to take transit instead of driving their automobile. In part, this is because the transit system operates infrequently, is perceived as being unsafe or undesirable, and lacks basic amenities including shelters, information, and wayfinding at key transit stops. To meet regional goals of increasing the share of the population riding public transportation, it is necessary to make the service welcoming, approachable, and understandable. One of the first steps in achieving this goal is to invest in amenities and passenger information at key, high ridership bus stops.

### **What is SRTAs Role?**

- Work with local public works departments to inventory and identify enhancement needs at bus stops in Shasta County, Redding, Anderson, and Shasta Lake.
- Apply for funding to support bus stop enhancements, such as Federal Transit Administration (FTA) 5339 Bus & Bus Facilities Infrastructure Investment Program.

### **How Would it Work?**

This strategy falls under the category of programmed capital improvements, along with improving bicycle and pedestrian accessibility and implementing transit enhancements coordinated with active transportation improvements. The process is largely dependent on identifying and securing available funding, partnering with RABA and local public works departments, and programming funding into the relevant planning documents.

Prioritizing amenities improvements will be impacted by the amount of funding available, generalized cost estimates are shown in Figure 4-4. Including lighting and shelters at the highest ridership bus stops may emerge as a top priority with limited funding, while providing sufficient passenger information and wayfinding at a systemwide level may be prioritized under a higher funding scenario. However, projects are ultimately prioritized, ensuring bus stops are safe, comfortable, and that the system is easy to understand and navigate are the preferred outcomes of this strategy.

**Figure 4-4 Bus Stop Enhancements Generalized Cost Estimates**

| Strategy                 | Capital Investments           | Level of Financial Investment |
|--------------------------|-------------------------------|-------------------------------|
| <b>Enhance Bus Stops</b> | Benches                       | \$\$                          |
|                          | Shelters                      | \$\$                          |
|                          | Trash cans                    | \$                            |
|                          | Lighting                      | \$                            |
|                          | Passenger Information/Signage | \$                            |

## Scenario 1 Current Trend

The continuation of status quo funding levels would result in programmed capital improvements continuing as they do today. RABA has currently programmed minor bus stop improvements to ensure ADA compliance over a multi-year timeframe. Part of the strategy would be establishing a plan that is comprehensive, has clear goals, and is phased in such a way as to allow incremental delivery. The plan may be unfunded at first but would set a clear pathway to making this type of improvement. As funding becomes available in future years, additional improvements may be programmed to maintain existing amenities. SRTA may have the opportunity to contribute additional funding and partner with RABA or municipal partners on implementing specific amenities as funding opportunities allow. There may also be opportunities to apply for state and/or federal grants that can be used to implement this strategy.

## Scenario 2 The Next Step

As more funding becomes available, SRTA should take a more active role in working with RABA and municipalities to develop a coordinated bus stop enhancement program. This program should prioritize improvements at the highest ridership stops and on key transit corridors before moving onto improvements on secondary coverage routes. In Scenario 2, this strategy will be used to help facilitate mode attractiveness by making key bus stops appear more welcoming to potential new riders and ensuring a safe and comfortable experience for all passengers.

## Scenario 3 A Giant Leap

Transit ridership is expected to increase in Scenario 3, regardless of bus stop amenities. In this scenario, improving bus stop amenities focuses on improving the experience for all riders rather than attracting new riders. SRTA and RABA should partner on developing a coordinated bus stop enhancement program that establishes a minimum standard for amenities based on equity considerations, ridership, and other contextual factors prioritized by the agencies. The increased funding available in this scenario allows for a more robust capital improvements program that would allow for enhanced wayfinding, signage, and passenger information in addition to basic amenities.

## POLICY IMPROVEMENT STRATEGIES

While many of the strategies identified in this plan address service operations or capital improvements, there are a number of specific policies and governance approaches that can be used in response to emerging trends and enhance mobility in the region. These strategies primarily respond to trends related to policies and demographics and are often most effective when combined with other strategies identified in this plan.



Specific policy improvement strategies discussed in this section include:

- Pilot Program Identification, Planning, Execution, and Evaluation
- Low-Income Fare Strategy
- Establish Service Design and Performance Guidelines to Redefine Filling Unmet Needs
- Local Partnerships and Private Sector Participation for Funding Pilots and Ongoing Services
- Consider Reorganizing Transit Governance to be Comprehensive of All Modes and Jurisdictions in Shasta County

## PILOT PROGRAM IDENTIFICATION, PLANNING, EXECUTION, AND EVALUATION

Pilot programs are particularly useful for several reasons, including making effective use of limited funds, experimenting with new service types or technologies, and implementing services that may be unfamiliar to the general public. Pilot programs typically provide the flexibility to scale up or scale down the program based on public response or funding availability. Establishing a formal protocol for program identification, planning, execution, and evaluation helps to prioritize pilots that are more likely to be successful or that meet identified community needs.

### Why is this Important?

Pilot programs give SRTA a way to plan, develop, and test mobility services, such as on-demand transit service, Transportation Network Company (TNC) subsidies, and bike or scooter sharing. As pilot programs continue playing an important role in exploring and implementing new service types, establishing a process for identifying, planning, executing, and evaluating pilot programs will result in more successful, strategic pursuits.

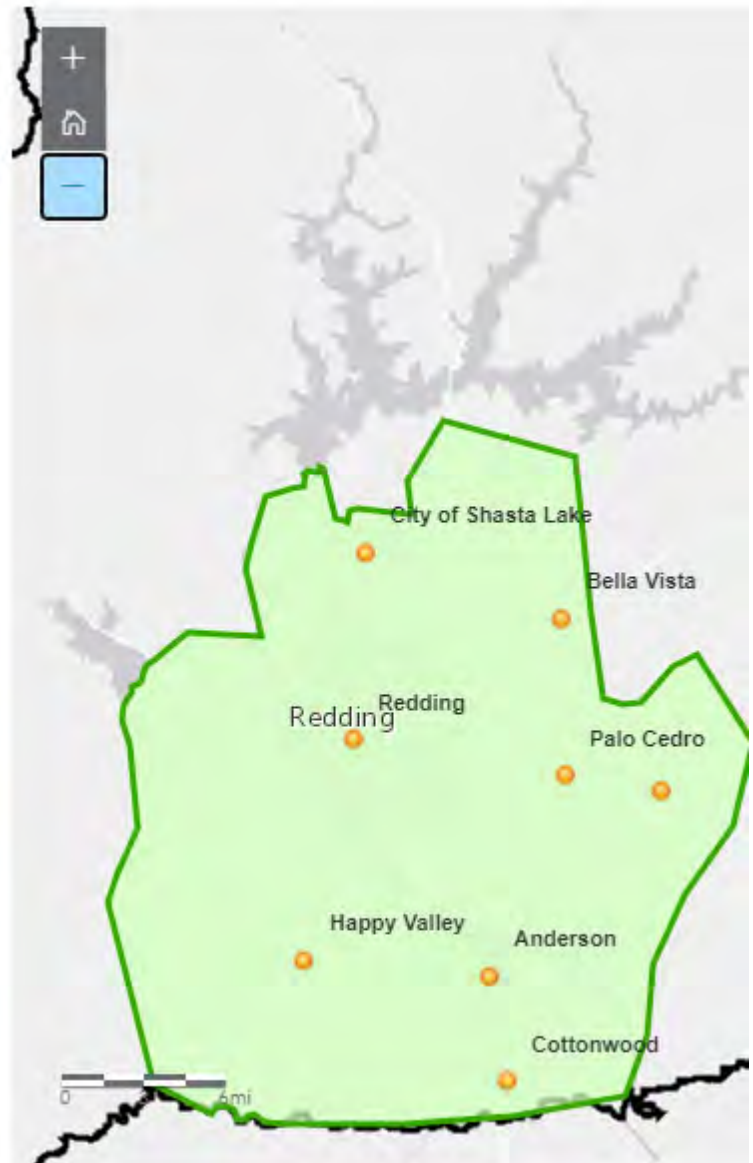
Notably, starting in October 2019 SRTA used a pilot project to provide on-demand, fare free Sunday Service branded as ShastaConnect. In November 2020, using LCTOP funding, service was expanded from Sunday-only service in parts of Redding to now include Monday through Friday service across the three-city urbanized area and surrounding rural communities. The map in the sidebar below shows the expanded service area. Ridership eligibility was also expanded and reverse trip service (i.e., grocery home delivery) was added.

Building upon the recent experience launching and expanding ShastaConnect, SRTA has an opportunity to learn from the pilot project experience and develop a consistent, detailed approach for future pilots. This approach will include a standardized process for:

- Identifying projects and programs based on funding availability (for the pilot as well as sustainable operations if the pilot continues) and community needs.
- Planning around the competing services and political jurisdictions in the region.
- Effectively executing the project through in-house or contracted operations.
- Evaluating the success, implications, and lessons learned to ensure continuous improvement for current and future projects.

## What is SRTA's Role?

This strategy would involve SRTA establishing a formal process for developing and implementing pilot projects. SRTA's role as the regional transportation agency would allow the agency to frame this process as a best practice for other local agencies in the region looking to refine their pilot program process.



Expanded ShastaCONNECT service area, November 2020.  
Source: <https://www.shastaconnect.org/rural-public-transportation-services-schedule-map>

## How Would it Work?

This strategy begins by developing a formalized, internal process regarding pilot projects to ensure best practices are met and potential pilots are appropriately planned, implemented, and evaluated. This internal process will use identified best practices from similar peer agencies and pilot projects to ensure a standardized approach and effective use of resources.

Following the development of this process, the actual pilot projects and programs that would be selected are dependent on funding availability, community needs, and additional context associated with future development patterns and public perceptions. Under scenarios with limited funding, pilots are focused on effectively using financial resources to address unmet

transportation needs in the community. As funding becomes more available, pilots may be used to test new service types and public perceptions of the services.



SRTA launched ShastaConnect as a pilot project in October 2019 to address an identified unmet transit need by providing fare free, on-demand Sunday service. In November 2020, service was expanded to include Monday through Friday service across the three-city urbanized area and surrounding rural communities.

Source: ShastaConnect

## **Scenario 1 Current Trend**

Pilot projects will play a pivotal role under Scenario 1 where financial resources are constrained. Under this scenario, the pilot program identification process should emphasize making the best use of scarce financial resources to meet unmet community needs and ensure flexibility to pivot or expand the program when necessary. Limited funding availability in Scenario 1 requires SRTA to be nimble and responsive to public needs through smart pilot project investments.

## **Scenario 2 The Next Step**

As new funding opportunities become available in Scenario 2 the nature of pilot projects will begin to shift. Rather than focusing on making the best use of limited resources, pilots can instead be used on a more experimental basis to test new mobility options and gauge public perceptions of new concepts. This pilot identification process should focus on identifying which mobility options may help achieve SRTA's goals and provide realistic alternatives to driving alone, rather than solely focusing on filling unmet needs and gaps in the transportation system.

## **Scenario 3 A Giant Leap**

Under Scenario 3, sufficient funding is available to fully implement permanent transportation projects and mobility options. Pilot projects are much less relevant for addressing unmet transportation needs in this scenario but are still useful for testing new mobility options and technologies, similar to Scenario 2. The identification process should continue to focus on identifying and testing new mobility options that provide realistic alternatives to driving alone.

## **LOW-INCOME FARE STRATEGY**

An effective low-income fare strategy, including a low-income fare category, fare capping, or providing free transfers, increases affordability of pass products and increases fare equity amongst passengers. Low-income fare strategies have become an emerging trend in many larger transportation systems with rising costs of living, including Seattle, Portland, and San Francisco. However, a comprehensive strategy to ensure the provision of affordable transportation alternatives is relevant for cities and regions of all sizes and income levels.

### **Why is This Important**

Currently in Shasta County, public transit fares are relatively inexpensive and consistent with similar sized agencies throughout the region. RABA, Turlock Transit, Porterville Transit, and City Coach (Vacaville, CA) all charge a base fare of \$1.50 per trip for fixed-route service. However, transit service in the region is most often used by transit dependent populations without access to a vehicle and tend to be lower income. Developing a comprehensive low-income fare strategy would ensure low-income residents continue to have access to affordable transportation options moving forward as transportation needs, development patterns, and transit service characteristics evolve. Another benefit is that agencies can focus on services where it is advantageous to charge rates that are more attuned to the mobility market. The low-income fare will allow people who qualify to access these services at lower than market rate, while benefitting from access to the new mobility service. A low-income fare could also be expanded to be a single fare system across multiple mobility choices. This would enhance equity as fare zones, transfer fees, and differential fares inherently place a heavier financial burden on low income riders.

### **What is SRTAs Role?**

- Partner with transportation providers in the region to develop a comprehensive, coordinated approach to low-income fares.
- Contribute funding to evaluate the potential for fare capping technology and the financial impacts related to a low-income fare program.

### **How Would it Work?**

There are numerous strategies employed by transit agencies and regional governments to ensure transit fares are affordable for low-income passengers, most notably, fare capping and low-income fare categories.

#### **Fare Capping**

Fare capping is an emerging strategy in which individual trips are tracked and fares are capped after reaching certain thresholds (i.e., two trips in a day or 30 trips in a month). Benefits of fare capping include increased affordability of passes, increased fare equity, and increased simplicity. Fare capping is particularly beneficial for low-income riders who may not have the cash on hand to purchase a 31-day pass and end up paying more in cash fares over the course of the month. Fare capping can be introduced through electronic smartcards, which track fare payments through an internal database, or through mobile ticketing, which tracks fare payments and automatically provides riders a pass once the payment threshold has been reached. Fare capping can be combined with fare integration between multiple services or service providers to create a seamless, affordable rider experience.

TriMet, in Portland, OR, introduced fare capping in conjunction with a new electronic smart card in 2018 and King County Metro is exploring fare capping as a part of the next generation of ORCA cards. Additionally, agencies in the San Francisco Bay Area offer a similar day pass accumulator program on Clipper cards.

### **Low-Income Fare Programs**

Low-income fare programs are currently being used by King County Metro, TriMet, and the San Francisco Municipal Transportation Agency (SFMTA) to provide discounted service for eligible adults making up to 200% of the federal poverty level. Low-income programs may be “high-tech,” requiring electronic smartcards and upgraded farebox infrastructure to verify rider identity and maintain discounts, or “low-tech,” which are more commonly photo ID cards to prevent fraud combined with magnetic card technology. Low-tech options are cheaper and faster to implement but require greater swipe administrative costs, while high-tech options could require costly upgrades to farebox infrastructure and may not be feasible in the short-term.



ORCA LIFT in the Puget Sound region and San Francisco's Lifeline Pass program are two examples of low-income fare programs initiated to reduce the impact of a fare increase on low-income passengers.

Source: King County, SFMTA

The ultimate low-income fare system may be embodied in transit systems that are going fare free, or more accurately, to a pre-paid fare mechanism. The current state transit funding system in California discourages this as the TDA funding mechanism uses fare-box recovery as the key performance indicator and determinate of eligibility for allocation of TDA funds. The fare revenue could be offset with use of another locally authorized revenue source, including the use of funds from the private sector and non-profits. But, to date, the TDA regulations have been a barrier to agencies considering a move to a system where fares are covered through other revenue sources rather than the fare-box. The transit funding crisis brought about by the COVID-19 pandemic has advanced discussions in the Assembly which may result in removal of this barrier. Should that occur moving to a system that does not collect fares directly from riders should be explored.

### **Scenario 1 Current Trend**

The transit network is likely to remain focused on serving transit dependent populations in Scenario 1 due to a lack of funding to enhance the fixed-route transit network and of public interest in alternatives to driving. In this scenario, funding is unlikely to be sufficiently high to justify upgrading farebox technology to accept smartcards capable of fare capping or high-tech low-income fare programs. This strategy would be best employed by fostering coordination

between transit providers and the community to identify low-income passenger needs and exploring the potential impacts of a low-tech, flash pass ID program for low-income passengers.

## **Scenario 2 The Next Step**

As the transit network begins to expand and more funding for technology is made available in this scenario, SRTA should coordinate closely with other transit providers on implementing high-tech low-income fare programs. Fare capping and smart card related low-income fare programs would require upgraded farebox technology on RABA vehicles that may become feasible in Scenario 2. Transit service is likely to remain relatively inexpensive in this scenario, but affordability should be closely monitored as population begins to concentrate in urbanized areas and the associated cost of living begins to increase.

## **Scenario 3 A Giant Leap**

Clustering population centers in the urbanized area of the region and actively expanding the local transit system has the potential to result in increased fares to support a larger, more robust transit network in Scenario 3. In this case, funding should be readily available to program and invest in farebox technology improvements, fare capping, and smart card low-income fare programs. As in Scenario 1 and Scenario 2, the financial impacts of such low-income fare programs should be evaluated, but the potential impacts to low-income transit dependent populations are expected to be notable in this scenario without a sufficient, comprehensive low-income fare strategy.

## **ESTABLISH SERVICE DESIGN AND PERFORMANCE GUIDELINES TO REDEFINE FILLING UNMET NEEDS**

Service design and performance measure guidelines are used by transit agencies to ensure they are able to achieve adopted goals and provide high quality service for their community. While they are related, service guidelines and performance measures are distinct inputs for monitoring service:

- **Service guidelines** serve as a framework for the provision, design, and allocation of routes, schedules, and stops. Guidelines are generally intended to be used with some flexibility.
- **Performance measures** describe the process by which existing services are evaluated in terms of ridership productivity, on-time performance, and passenger safety.

## **Why is This Important**

Every year, in accordance with TDA, SRTA is required to identify unmet transit needs in the Shasta Region and determine whether they are considered reasonable to meet. TDA funds must be allocated to these identified unmet transit needs that are considered reasonable to meet before funding can be allocated to local jurisdictions for non-transit purposes. An unmet transit need is defined by two conditions:

- A population group in the proposed transit service area has been defined and located which has no reliable, affordable, or accessible transportation for necessary trips. The size and location of the group must be such that a service to meet their needs is feasible.

- Necessary trips are defined as those trips which are required for the maintenance of life, education, access to social service programs, health, and physical and mental well-being, including trips which serve employment purposes.

In the Shasta Region, as in most other small but growing urban areas, there is growing discussion regarding the best use of LTF funds for transit and non-transit uses (i.e. streets and roads). By establishing well-defined service design guidelines and performance measures that are tied to unmet transit needs, the annual process of identifying unmet needs and leveraging position for funding availability can be simplified. This process can be used to foster greater collaboration between the agencies and work toward shared goals between the agencies to improve transit service throughout the region. As with considerations of a fare free system, a change to the TDA legislation which revises farebox recovery standards will help to create substantial opportunities.

## What is SRTAs Role?

- Coordinate with RABA on developing service design guidelines and performance measures that are realistic, achievable, and context sensitive.
- Update unmet transit needs identification process to incorporate alignment with service design guidelines and performance measures.
- Create a process to assess unmet needs in areas of the county not covered by RABA or the county with service guidelines to establish when it is appropriate to meet a need.

## How Would it Work?

Service design guidelines and performance measures can be developed to achieve a number of desired agency outcomes, including:

- **Community outcomes** including equity considerations and accessibility
- **Service coverage** guides the development of new services
- **Route design** focuses on the simple and efficient alignment and structure of service
- **Service span** guidelines sets route start and end times
- **Service frequencies** guide how often transit service is operated
- **Bus stop** guidelines cover stop spacing, stop placement and passenger amenities
- **Funding allocation**

While these guidelines help ensure services are planned according to best practices, performance measures are usually quantifiable metrics, including:

- On-Time Performance
- Route Productivity
- Passenger Loads
- Transit availability to residents
- Transit access to jobs, medical services, and education
- Passenger travel times
- Customer satisfaction

These service design guidelines and performance metrics can be developed in conjunction between RABA and SRTA based on past performance, service types, and shared goals between the

agencies to ensure high quality service is being offered to the community. There is an opportunity to establish a precedent that specific routes or alternative mobility services that fail to meet these established performance measures be considered an unmet transit need. The current focus of unmet transit needs process focuses on providing new services, while this approach would also allow the agencies to concentrate on improving the service that is already provided.

## **Scenario 1 Current Trend**

The allocation of TDA funding will likely remain a point of discussion in Scenario 1. This strategy will be best employed through coordination between RABA and SRTA to develop performance measures and service design guidelines that fit the needs of the community, without explicitly tying them to the unmet transit needs process in a formalized way. This approach will establish a base level quantitative evaluation of service and opens the door for future funding discussions. It also provides an opportunity to incorporate microtransit and other potential pilot programs as specific service types with their own formal design guidelines and performance measures.

## **Scenario 2 The Next Step**

As additional funding for transit becomes available and TDA funding discussions become less of a concern, there will be more flexibility for negotiations and opportunities for partnership between SRTA and RABA. Capitalizing on these opportunities, a concerted effort should be made to develop service design guidelines and performance measures that directly relate to identifying unmet transit needs. These guidelines and measures should include language identifying the circumstances in which alternative mobility options should be considered. Expanding beyond the fixed-route system in this scenario allows the agencies to be nimble in providing new transportation options while implementing improvements to the fixed-route network.

## **Scenario 3 A Giant Leap**

The combination of both higher levels of funding and increased public demand for alternative transportation options in Scenario 3 will naturally lead to improvements in the fixed-route transit network. This strategy should formalize design guidelines and performance measures to establish a base level of performance for the improved network and should specifically identify how new services should be used to address unmet transit needs outside of the developed, fixed-route network service area.

## **LOCAL PARTNERSHIPS AND PRIVATE SECTOR PARTICIPATION FOR FUNDING PILOTS AND ONGOING SERVICES**

Partnerships, both technical and financial, are crucial for developing multimodal, multi-jurisdictional connections to transit. It is also useful to partner with other municipalities and private sector actors, like TNCs, which would help bolster ridership and improve the passenger experience. There is an emerging role for private sector action to guide or supplement public sector mobility, including:

- Continued growth of Transportation Network Companies
- Expanding bike and scooter share
- Partnerships to provide targeted service, like the DASH shuttle
- Employer sponsored Transportation Demand Management (TDM) programs

- Contributions to offset fare revenues for low income fare programs or fare free transit.

Transportation demand management (TDM) promotes programs and policies that support the use of travel options (i.e., walking, biking, riding transit, ridesharing) or reduce travel demand (i.e., telecommuting, flexible work schedule) as people travel to work. Often these programs focus on employers as it is often easiest to connect with people at the place of employment. Some employers have found that investing in programs and incentives for employees to use alternate means to arrive at work have resulted in cost savings through reduced absenteeism, lower health care costs, lower costs to provide employee parking, better employee retention, improved productivity, and greater employee satisfaction.

## Why is This Important

Public transportation in the Shasta region has historically been financially constrained by the use of LTF funds for non-transit uses (ie. streets and roads. This is one of the factors limiting the capacity for improvements in conventional transit service. This creates an opportunity for the private sector to play a more prominent role in transportation operations. This strategy represents a broad swath of potential options, including directly operated transportation services like Uber and Lyft, partnerships to fund specific services like the DASH shuttle in downtown Redding, and employer sponsored programs to provide incentives to take alternative transportation modes, labeled as TDM (Transportation Demand Management) programs in this document.

Making connections and formalizing partnerships with other agencies and private service operators can help streamline funding process for current services and future pilot projects. Limited funding is a key issue currently facing transportation in the region, which makes coordination with other organizations increasingly important for funding local pilot projects. Establishing a guiding framework to encourage these partnerships and services at the local and regional level can be used to address unmet service needs more cost effectively than directly providing new services.

## What is SRTAs Role?

SRTA should consider what role would be most appropriate for the organization to serve the transportation needs of the community. This could range from being an information provider, promotional partner, or funding partner. SRTA should discuss partnership opportunities with RABA and private operators and explore avenues for potential collaboration ranging from shared fleet to fare integration. Below are examples of specific actions that could be taken by SRTA to develop this strategy:

- Develop guidance to encourage private service options and partnerships for transportation services.

## Case Study: DASH Shuttle

The Downtown Area Shuttle (DASH) is a fare free service that runs in downtown Redding. It was developed in partnership between the McConnell Foundation, City of Redding, Redding Police Department, and Redding Electric Utility with additional support from other downtown organizations.

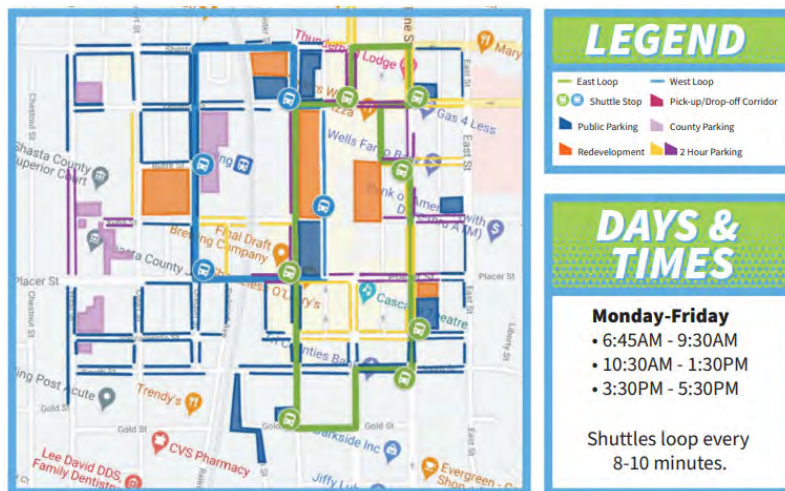
The service was planned in response to removing a central parking structure in downtown Redding to support ease of motion throughout downtown during the ongoing construction. DASH is intended to transport those who live, work, and play in downtown Redding into the city's center from outlying parking lots, connecting them with shops, restaurants, and attractions. The shuttle runs in two separate loops with service every eight to 10 minutes at the designated shuttle stops, as shown in Figure 4-5.

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- Establish a framework to encourage partnerships where those options are more cost-effective than an agency providing new services.
- Develop and coordinate a transportation demand management (TDM) program with local governments and major employers in the region.
- Consider direct partnerships with TNCs to provide rural transit service or software as a service, similar to Marin County.

SRTA could also partner with private operators who play a major role in providing a wide range of services from taxis and shuttles to bikeshare and scooter share.

**Figure 4-5 DASH Shuttle Map**



## How Would it Work?

In this strategy, SRTA would take on the role of “mobility manager,” which means the agency would play an integral role in evolving with new product offerings and changing customer expectations. SRTA would work with public and private sector actors to grow services provided by these actors, leverage assets, and influence policy.

### Grow Services

SRTA and RABA both currently oversee a network of mobility services that will continue to serve as the backbone of the public transportation network in Shasta County. To further improve mobility for residents, SRTA can extend the reach of the existing transportation system by incorporating new private sector services and exploring potential partnerships through targeted subsidized trip programs.

### Leverage Assets

While private sector service providers have an advantage in their nimble ability to attract new people to their services, public sector providers have the advantage of owning and operating capital assets like transit centers and park-and-ride lots. SRTA and RABA have the opportunity of leveraging these assets to provide service hubs for private sector mobility providers.

## **Influence Policy**

SRTA and local jurisdictions can also address legal and legislative questions by sharing information around new mobility services and other private sector transportation alternatives. Some specific examples include:

- Make progress towards better coordinating the responsibilities of the Consolidated Transportation Services Agency (CTSA) to identify and work towards achieving mutual goals. This may involve greater private sector involvement than at present.
- SRTA and RABA may also form partnerships with TNC's (such as Lyft/Uber) to expand their service and reach out to a wider audience by providing new mobility options. These services can be used to bridge the gaps in first- last-mile connectivity, provide service to low density and suburban areas, and provide late night service at lower cost than launching new directly operated services.

## **Scenario 1 Current Trend**

Assuming status quo funding levels, there is possibility for enhanced partnerships with local non-profit and private sector interests (such as DHCL or the McConnell Foundation) to coordinate and improve mobility services and launch new pilot programs. There is a strong possibility that some pilot programs might be successful, but program extension would depend on long-term funding availability. This approach will move some control of mobility options outside of public agencies, but it represents a cost-effective way to provide more service in specific markets that may otherwise have been infeasible. RABA would continue to be a partner and an actor in this development, but due to lack of financial resources, their role is likely to focus on coordination.

## **Scenario 2 The Next Step**

With increased funding availability, enhanced collaboration and partnerships could help launch pilot programs that are leveraged partnerships between public, non-profit, and private entities. Partnerships with local non-profits and businesses can help support and strengthen the impact of TDM programs. Through these partnerships, SRTA can also explore new sources of funding including new pass programs or funding partnerships with local businesses to provide discounted trips for customers and employees. As the fixed-route transit network begins to improve and expand, partnerships can be used to pilot service in new areas and test the potential for ridership before investing in higher quality, more costly service types. For example, ridership from a targeted, subsidized TNC program may be evaluated to determine if the area could support fixed-route service. This strategy could also be used to test new service types or services in new areas before making wholesale investments.

## **Scenario 3 A Giant Leap**

With increased funding and more residents inclined to use transit, there are better chances for funding pilot programs for longer periods of time. SRTA and other mobility partners will be able to provide overall improvements in mobility for the entire community. Higher population density and public demand for transportation alternatives expected in this scenario will make holistic TDM programs viable. TDM programs can include tax credits or employer provided incentives for employees to shift their commute mode away from the personal automobile. These incentives may include free bus passes, a stipend for alternative transportation options, parking buyout programs, or employer organized carpooling.

## **CONSIDER REORGANIZING TRANSIT GOVERNANCE TO BE COMPREHENSIVE OF ALL MODES AND JURISDICTIONS IN SHASTA COUNTY**

Integration and coordination with existing mobility modes will be a key strategy for adopting new mobility options as they emerge. The more mobility options that become available, the more important coordination will be to ensure people can conveniently access their transportation choices. Governance and oversight of mobility plays a significant role in the level of coordination between modes. Success or failure in multi-modal coordination can ultimately come down to governance, agency structure, and the conditions through which these partnerships are formed.

### **Why is This Important**

The Shasta Region's transportation governance is complex and disparate for an urbanized area of its size. For example, RABA provides local fixed-route and paratransit service, DHCL provides CTSA service only in areas of Shasta County that are not served by RABA, while the county of Shasta provides express service to Burney under contract with RABA, as well as fare free on-demand service that is contracted to DHCL for operations. These disparate, somewhat overlapping services and operators make the transit experience unnecessarily confusing for passengers and may dissuade some members of the community from riding. However, these are contracted services which are periodically re-bid which provides an opportunity to consider a new approach to how service is provided and branded.

Particularly as new alternative mobility options emerge throughout the region, a cohesive, coordinated approach to transportation governance is imperative. Making a good faith, concerted effort to assess the effectiveness of the current governance structure and identifying potential improvements will ensure a unified vision for transportation improvements and simple, understandable services for the public.

### **What is SRTAs Role?**

- Lead coordination and assessment of interagency governance structure.
- Consider identifying and contracting a neutral arbiter to guide discussions and evaluate the effectiveness of alternate governance strategies.

### **How Would it Work?**

Due to the relatively complicated existing governance structure and associated financial implications, this is likely to be among the most contentious strategies. Implementing this strategy would necessitate a shift in traditional and historic decision-making within organizations in the region. This process would likely involve a consultant or other neutral party to independently analyze current organizational structures, identify opportunities for improvement, and recommend a new governance structure that would maximize the region's resources, improve cohesion between services, and provide a simple, understandable transportation system for the community.

## **Scenario 1 Current Trend**

The division of transit resources among partners and purposes will continue to spur discussion. SRTA should take a light-handed approach in this scenario, focusing on efficiencies and improvements to the customer facing transportation system. This is likely to be a slowly evolving process that may take years of ongoing discussions to reach a meaningful agreement on restructuring or reorganizing transit governance. An example might be joint procurement of services to a single service contractor and a singular management structure.

## **Scenario 2 The Next Step**

The expanding transit network in Scenario 2 creates an opportunity to restructure governance as new service types are implemented and additional oversight is required. This may be an expansion of the example concept provided in Scenario 1. Negotiations should continue to focus on efficiency and improving the customer experience but may now include a discussion of how oversight should be performed for emerging mobility options.

## **Scenario 3 A Giant Leap**

As the fixed-route transit system becomes more robust in Scenario 3, there is potential to transition to housing RABA within a new independent transit agency. This would create more autonomy for the oversight, management, and operations of transit service, including traditional fixed-route service and emerging mobility options. Several counties in California have taken this pathway with one of those examples one county south in Butte County. There are examples of service provision models like RABA in other more rural parts of California, but the model is less utilized. However, the best model is often a reflection of the unique situation in each area. In Stanislaus County, for example, there is movement toward formation of a singular county-wide joint powers authority (JPA) with service provided under contract to the largest service provider in the City of Modesto. Whether in Butte, Stanislaus, Solano, San Joaquin, or east Alameda Counties one of the more significant considerations is creating a more seamless form of decision-making that directly benefits the riders. The central focus of successful efforts are to ensure better service for riders, as opposed to which organization retains some form of control. These efforts take time and effort to establish. Interestingly, all of the authorities under JPA's in California have stood the test of time. Once formed, they retain the best interests of the citizens of the member communities and none have returned to the former organizational structure or disbanded.

In this scenario, SRTA may still work to foster coordination of services and pursuing funding opportunities, but the transportation network can be concentrated within a single agency, improving the customer experience across the county.

Under any of the three scenarios, governance and organization is the least of the issues addressed among these strategies. More important is having a governance structure that retains the best interests of the riders and the community as the central focus. Careful, deliberate movement to a different structure is important and is highly unlikely to be a high priority under present circumstances.

## ALTERNATIVE MOBILITY AND TECHNOLOGY STRATEGIES



As new technologies and innovative approaches to mobility and transportation service delivery emerge, it is crucial to assess the role that these options play in the region's transportation system. Between complementary on-demand service, mobility integration, and strategies for effectively providing mobility in rural areas, the strategies discussed in this section build upon the Multi-Modal Accessibility and Fixed-Route Transit Service and Infrastructure strategies. These strategies are intended to create a more robust service network with cost effective mobility options that strive to meet community needs.

These strategies primarily address the emerging trends involving public perceptions, travel patterns, and demographics and include:

- Expand ShastaConnect to Supplant Transit in Areas with Low Transit Service and Low Ridership
- Human Service Transportation Coordination
- Rural Transit Mobility
- Mobility Integration
- Mobility as a Service Options

## EXPAND ON-DEMAND SERVICE TO SUPPLANT TRANSIT IN AREAS WITH LOW TRANSIT SERVICE AND LOW RIDERSHIP

The ShastaConnect pilot project is a fare free on-demand service providing point-to-point transit across the three-city urbanized area and surrounding rural communities. The program was initiated, October 2019, to address an unmet transit need in the community after area residents repeatedly requested Sunday service. The service was expanded further, November 2020, to further address unmet transit needs in other areas and on weekdays. The added service area includes Cottonwood, Mountain Gate, Palo Cedro, Shingletown, Lakehead and the Airport Road corridor. As the pilot program matures, there is an opportunity to generalize the service and use an on-demand service, such as the current ShastaConnect to replace low performing fixed route transit service throughout the region.

### Why is This Important

Transit can be provided in many ways. However, to be most effective, specific services must be matched to the markets and interconnected to form a strong network. Appropriate balances must also be developed between demand and coverage-based services, between commuter and frequent traveler services, between urban and suburban services, and other factors.

Transit service in the urbanized area of the Shasta region is primarily comprised of low frequency coverage routes and a handful of commuter express routes. While this type of service may be the simplest to coordinate, it may not be the most effective way to serve the community. Coordinating

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fixed-route transit service to provide high-frequency service on key corridors and expanding an on-demand service, like ShastaConnect, to provide more cost-effective coverage service in low-ridership areas are likely to result in a more cohesive and effective transit system for the community.



Multiple factors contribute to shaping how transit service is provided.

## What is SRTAs Role?

- Coordinate potential service changes with other service providing partners, including RABA and DHCL.
- Identify and secure additional funding to sustain on-demand service, such as the current ShastaConnect service as a permanent and expanded service.

## How Would it Work?

This strategy is one of several that would work in tandem to restructure transit service in the Shasta region. Other strategies necessary to refine and improve the holistic transit network include:

- Human service transportation coordination
- Rural transit mobility
- Establish service design and performance guidelines to redefine filling unmet needs
- Realign current transit network for future conditions

This process would require a dedicated operational analysis to identify which corridors would operate high-frequency transit and which areas are strong candidates for replacement by expanded services like ShastaConnect. This strategy requires significant coordination with partner organizations to ensure a smooth transition between service realignments, including the current fixed-route operator, RABA, and the current ShastaConnect operator, DHCL. Following technical analyses and community input, a preferred service scenario combining the improved fixed-route service and supplemental on-demand service, like ShastaConnect, would move toward implementation. It is also important to recognize this process will necessarily be iterative. As the community changes and new funding sources become available, to maintain the balance and the right service in each area, the planning, outreach, implementation and evaluation cycle will need to be repeated. It is unrealistic to assume that a planning effort undertaken in 2022 could possibly foresee or accommodate community needs ten years into the future.

## Scenario 1 Current Trend

Service expansion is constrained by the use of LTF funds for non-transit uses (i.e. streets and roads) in Scenario 1 and reduces the potential to expand ShastaConnect service beyond its current role in providing Sunday service. This strategy is likely to have a limited impact in this scenario as transit service continues to operate primarily low-frequency coverage service with a few higher frequency trunk routes. There is potential for RABA route restructuring to free up financial

resources that may contribute to the ShastaConnect expansion but would require ongoing negotiations and partnership across the governmental bodies in the region. There is also potential that new funding sources, such as LCTOP, may increase and allow expansion of on-demand service, such as the current ShastaCONNECT. That part of the scenario came to fruition in November 2020 as SRTA was able to allocate LCTOP funding to expand the area of ShastaCONNECT and improve it to a Sunday-Friday service offering.

## **Scenario 2 The Next Step**

New funding opportunities made available at the state and federal level provide the flexibility to expand on-demand service, such as the current ShastaConnect, without creating financial hardship for RABA. On-demand service, such as ShastaConnect, expansion in this scenario could occur as a standalone expansion of the pilot into new service areas or as a replacement for underperforming fixed-route service currently operated by RABA. Detailed implementation of service depends on funding availability, contingencies of funding, and coordination with RABA on service replacement and realignment strategies.

## **Scenario 3 A Giant Leap**

The shifting demographics and mobility patterns anticipated in Scenario 3 would necessitate improvements to the traditional fixed-route transit system with additional innovative mobility options to provide realistic alternatives to driving along throughout the region. In this scenario, the fixed-route transit network is likely to contain both a high-frequency core network with lower frequency coverage routes through high transit need neighborhoods. An expanded on-demand service, such as the current ShastaConnect, may be used to experiment with providing service to new locations that lack the necessary density to support fixed-route service or to pilot service connections in more rural areas of the region.

## **HUMAN SERVICE TRANSPORTATION COORDINATION**

Human service transportation are services that provide transportation to those who are disabled, elderly and clients of social service programs (substance abuse programs, day programs, and health centers). Since these services are organization specific, not all members of the public can use these services. The idea of coordination is to make all services less specialized and more available for people not necessarily directly attached to a program. The concept is to use available capacity to the greatest extent possible, rather than create new capacity for each separately identified group of people. In this way, more people have improved mobility options, but the total cost is only marginally increased, and it is shared between programs, thus leveraging program funding more effectively.

## **Why is This Important**

These organizations serve some of the most vulnerable members of the society including those who are unable to travel by themselves and require assistance. Coordination can make trips safer and more convenient for these people. Currently nine different organizations provide human service transportation. These include:

- RABA Demand-Response/Complementary Paratransit
- Far Northern Regional Center (FNRC)

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- Golden Umbrella, Inc. (GU)
- Good News Rescue Mission (GNRM)
- Northern Valley Catholic Social Services (NVCSS)
- Shascade Community Services
- Shasta Senior Nutrition Program (SSNP)
- Shasta County Opportunity Center
- Veterans Administration

## **What is SRTAs Role?**

SRTA would take on the role of a coordinator by managing the overall service area to address service overlap and ensure that community needs are met. They would work closely with provider



agencies and facilitate knowledge sharing and explore avenues for service consolidation to minimize duplication of costs, service area and increase the overall efficiency of the system.

RABA demand response service is one of the primary human service transportation providers in the region.

(Source: City of Redding)

## **How Would it Work?**

SRTA would work with the Consolidated Transportation Service Agency (CTSA) for the county or a contracted third-party. SRTA could also explore opportunities to take over the responsibilities of the CTSA which would make SRTA the sole coordinator of all human service transportation. SRTA has the role of CTSA coordination for the Shasta Region. DHCL currently provides CTSA service, under contract to SRTA; however, DHCL is not the region's overall mobility coordinator.

## **Scenario 1 Current Trend**

With limited resources and assuming status quo, SRTA would continue providing funds to Dignity Health Connected Living (DHCL) to operate mobility services for senior and disabled residents of the county. SRTA would continue coordinating the overall operations of paratransit service and each agency will be expected to provide adequate service to meet the needs of their customers. Due to program limitations, gains will be modest, but some riders may obtain/gain substantial benefit from closer coordination between the two main programs.

## **Scenario 2 The Next Step**

With new funding opportunities available at the state and federal level, SRTA could provide the financial backing that is usually necessary to proceed with consolidation of some services. SRTA

could also facilitate knowledge sharing, explore fleet sharing, and shared use of maintenance facilities between service providers.

## **Scenario 3 – A Giant Leap**

With additional funding and a focus on mobility, SRTA would consolidate service providers to provide streamlined services which includes no service overlap and ensures frequent and safe service for the most vulnerable citizens in the community.

## **RURAL TRANSIT MOBILITY**

While fixed-route transit service is best suited for areas with high population and employment density, rural areas typically cannot sustain the levels of ridership that make fixed route service efficient. Alternate services that are more customized to the situation than fixed-route transit service may better options for these areas. Rural transportation plays an essential role in providing valuable service for rural residents by connecting them to major employment centers, medical services, post-secondary education, and other social and recreational destinations. Furthermore, they are also seen as the lifeline in providing service to seniors, people with disabilities, and people with limited incomes who live in sparsely populated areas and who need assistance in travelling.

## **Why is This Important**

Although population growth is expected to be concentrated in the Redding-Anderson-Shasta Lake urban area, there is significant growth expected to take place in the unincorporated rural areas of Shasta County. These are also areas which are currently outside the RABA service area and are currently not served by any fixed route service. From an equity perspective, there are significant transit gaps which could leave rural residents with no option but to drive to their destinations. This is a task which is difficult for senior, disabled, and people with limited incomes. Low or fixed-income households in rural areas often do not have the resources to relocate to more costly urban locations with additional mobility services. With three tribal groups native to Shasta County, it is also important that residents receive adequate service to major destinations in the county.

## **What is SRTAs Role?**

SRTA would act as a coordinator between the different agencies to facilitate knowledge sharing, reduce duplicative costs, work towards fare integration, and improve service reliability and efficiency. There is also potential for SRTA to partner with private contractors such as coach charters, non-profit organizations, and taxi service operators to come up with programs to provide effective rural service.

## **Case Study: Green Raiteros**

In the city of Huron, CA a ridesharing program was launched in 2018 which connects the predominantly Latino and agricultural families in the Central California region to Fresno. This on-demand, rural service is completely run on electric vehicles and builds upon an existing informal system that local farm workers have used for decades. Disadvantages of the informal self-governed system included high costs which were unregulated and made it unaffordable to many. This service is an affordable and faster alternative to the fixed route network which requires a six hour round-trip from Huron to Fresno. The Raiteros are volunteer drivers who are provided insurance and reimbursed for miles traveled. The program currently has two vehicles which make around 25-30 trips per month. Due to increased demand, two more vehicles are expected to be launched in the near future.

Key laws that contributed to the success of this program include the SB 350 (Clean Energy and Pollution Reduction Act of 2015) and SB 1072 (Regional Climate Collaborative Program). These programs promoted clean transportation options and bridged technical assistance gaps for lower-income communities in California.

## **How Would it Work?**

When it comes to rural transit, there is no standard one-size-fits-all approach. Providing a mix of service types would address specific needs of the communities. A tailored mix of services is one way of providing effective and robust rural service. Rural service types that could be deployed in Shasta County include:

- On-Demand service
- Dial-A-Ride
- Flex or Deviated-Fixed Route
- Zone Service, Van Programs
- Worker/Driver Programs
- Volunteer Driver Programs
- Transportation Vouchers
- Ride-Share Partnerships

Since there is significant overlap with human service transportation, there are possibilities for collaboration and possible consolidation of human service transportation provided by the various organizations and agencies in the county. SRTA might be able to draw funding for rural transit from the Federal Highway Administration's Federal Lands Highway Program, Federal Transit Administration (FTA) Section 5311 Rural Formula program, Tribal Program, and Rural Transit Assistance Program (RTAP). With rural communities in the county spread out, SRTA could also consider investing in fuel efficient vehicles to save on fuel, energy, and maintenance costs.

## **Scenario 1 Current Trend**

The transit network is likely to remain focused on serving transit dependent populations in Scenario 1 due to a lack of funding to expand the system. There would likely be no available funds to launch pilot projects to connect the rural, auto-dependent areas of the county. However, cultivation of individuals who may be able to creatively establish funding streams and community-based programs should not be overlooked as an option. These options may not be suitable county-wide, but may provide new options to people living in the more remote areas of the county.

## **Scenario 2 The Next Step**

With new funding options available at the state and federal level, there is a strong possibility that pilot projects for rural transit programs can be launched for residents to try out for a limited period of time. The Federal Highway Administration's Federal Lands Highway Program could be a major source for funding transit in rural national forest areas and tribal areas. Further, there are FTA Section 5311 funds available to facilitate development of tribal transportation options. Note that this may be equally applicable under scenario 1.

Assuming more residents live in urban areas, there is a possibility for a more focused rural transit service if population moves to clusters of rural development rather than being spread out. Depending on the response to the pilot projects, SRTA could lay the groundwork for a more permanent service connecting rural residents of Shasta County.

## **Scenario 3 A Giant Leap**

Under this scenario, the rural areas are expected to be sparsely populated with few to no new people moving in. Potentially rural population occurs in clusters. With a demand for alternative modes of transit, there could be limited, but still robust, rural transit service which serves the remaining rural communities. To make this possible, SRTA would continue to tap into the state and federal funding but more local funding sources may also be available. With more people moving to urban areas, SRTA could afford to spend more money on improving rural services by drawing on funds from 5311 Rural Formula and Rural Transit Assistance Program (RTAP).

## **MOBILITY INTEGRATION**

Creating an environment where non-auto mobility options are easy to use and present a spectrum of choices without the potential rider having to think about who provides the service or what website to access is a critical element in ensuring the success of a transit system as well as other forms of alternate mobility. In essence this is building a integrated marketing approach that enhances the rider experience by including tailored communications, strong branding, promotional programs and events, and improving access to information to customers at stations about all their options.

## **Why is This Important**

An integrated approach to presentation of mobility options is important as transit is currently provided by RABA and SRTA, with multiple services being offered by both the agencies. Currently, these services are branded as stand-alone entities:

- RABA provides local fixed-route service
- Burney Express is operated by RABA under contract to the county of Shasta but branded as a different service
- ShastaConnect is operated by DHCL under contract to SRTA but has unique branding
- Paratransit service is operated by RABA, while DHCL provides CTSA service, operating in different, but sometimes overlapping markets.

The disparate branding of these services is overly complicated and confusing for passengers. A coordinated approach to marketing and creating a single brand for all services would simplify the service and improve the customer experience.

Another issue faced by customers who travel through different agencies is the multiple fare payments needed for different agencies and even different services for the same agency. Fare integration thus plays another major role in the marketing effort.

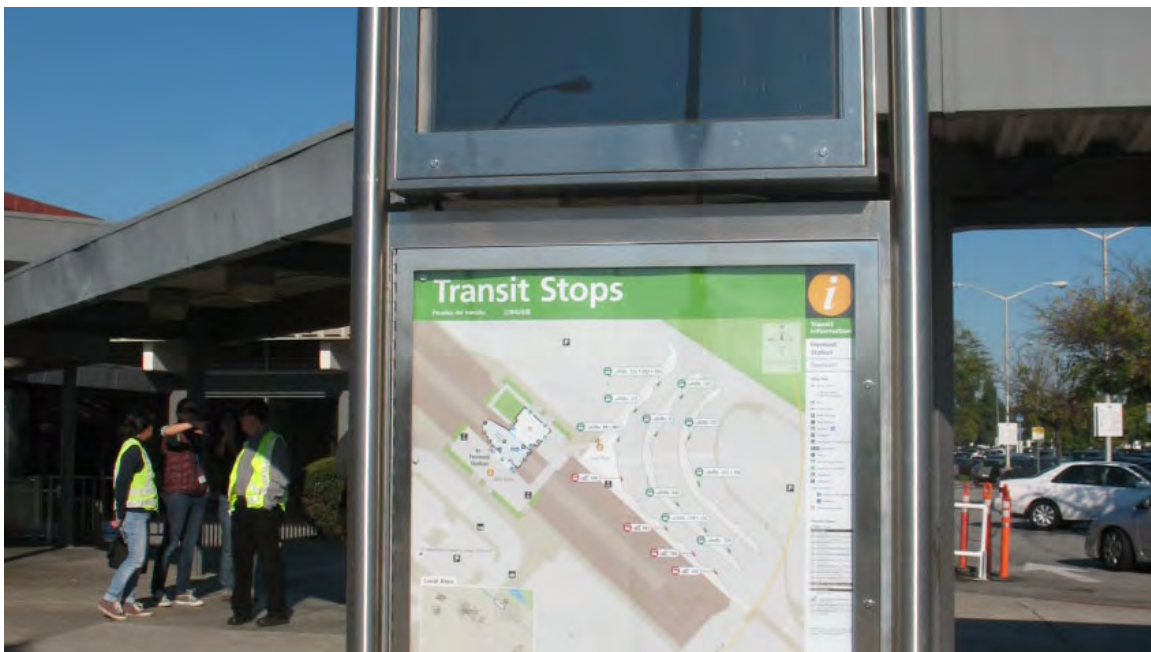
## **What is SRTAs Role?**

SRTA would lead coordination efforts to integrate the presentation of the systems along with RABA investing in systems to enhance the rider experience. This strategy is not intended to imply a need to consolidate the agencies. While that may or may not make sense for other reasons, this strategy is to focus on how services appear, how they are accessed, how information is presented, and how people pay for them, regardless of which organization is actually providing the service. SRTA could focus on demarketing the use of automobiles by educating the public on the benefits of public transit and the variety of services offered in the county.

## How Would it Work?

The integration strategy would entail provision of all mobility travel information in the region under one application which would simplify and educate riders on travel options available in the county. This single communication platform, along with simplified maps would enhance the transit experience for riders. Real-time information would be provided to riders as well as information about alternate means to travel to their desired destination. This could be achieved through multiple means including the installation of digital display screens at major bus stops and on board- buses to relay this information for riders who do not use or own smartphones. The same information could also be streamed through any number of apps, such as The Transit App, that are already available on the open market at no cost.

Apart from integration of information, payment integration is another component that could ease the ability for people to choose an alternate mode. With an integrated fare system, riders would be able to make seamless transfers using a common fare instrument. This would not only include transfers between the public buses, but also across other modes like bikeshare, rideshare, and carpool/vanpool. Riders can avoid creating duplicate accounts for each mode and would be able to manage all their fare payments and trip planning under a single platform.



Information kiosks as a part of BART's station modernization includes arrival time and stop information for multiple transit agencies serving the station.

Source: Nelson\Nygaard

## Scenario 1 Current Trend

With limited funding, it is assumed that by maintaining status quo, SRTA would not be able to bring in any major infrastructural upgrades to its bus stops. SRTA could however, lead a branding effort to simplify the services offered by both the agencies and make it simpler for the transit riders to understand the system. They could also sponsor local events and partner with local business to offer discounts to passengers which would eventually help in ridership growth. In the presence of the general community attitude being one of interest and willingness to experiment, a

major surge in ridership is not expected, but greater familiarity with mobility options will be a desired outcome.

## **Scenario 2 The Next Step**

SRTA could help procure new funding at the state and federal level. SRTA could work with the cities in Shasta County and RABA to invest in upgrading major bus stops to install real-time information systems, improve wayfinding, and enhance the customer experience. This could make the system more reliable and build trust among its riders. SRTA could also market the system at local events to educate and eventually gain more potential riders.

## **Scenario 3 A Giant Leap**

With the majority of the population in the county expected to live in the urban area, SRTA could procure more funding at the state and federal level. There is potential to coordinate with the cities and RABA in upgrading infrastructure at bus stops. There is also potential to identify alternative modes of communications to cater to riders who do not use smartphones or mobile phones. This would ensure greater accessibility and make public transit accessible for all.

## **MOBILITY AS A SERVICE OPTIONS**

This is really the option that follows development of an integrated information network. Mobility as a Service (MaaS) is an approach to providing mobility services by integrating planning and payment into a single platform, typically accessed through a mobile phone application. The application allows customers to plan a trip using different modes of transportation and to pay for those services all in the same place. MaaS has not been deployed at a large scale in North America but has been deployed successfully in several European cities and has emerged as a promising approach for transportation in the future.

## **Why is This Important**

The transportation network in the Shasta region is relatively disparate, including fixed-route and on-demand service that is funded and operated by multiple providers, TNCs like Uber and Lyft, and Scooter share operated by Wolf Scooters. With so many different transportation options available, planning and paying for a trip involving multiple modes can be challenging. Developing a comprehensive MaaS program would allow a rider to view all of the available transportation options, plan a point-to-point trip involving any or a mix of these modes, and pay for each service in one comprehensive platform. An earlier discussed strategy of fare capping and low-income fare discount programs are also easily integrated into these platforms and can also extend their reach to multiple modes.

There are many financial, informational, and legislative hurdles that must be overcome before MaaS can be implemented on a wide scale. However, pilot projects for integrated trip planning and payment apps have been introduced as recent pilot projects in Los Angeles, Portland, and Denver and represent a potential pilot project for the Shasta region in the future.

## **What is SRTAs Role?**

- Engage in information sharing on MaaS pilot project best practices with peer and aspirational cities and regions.

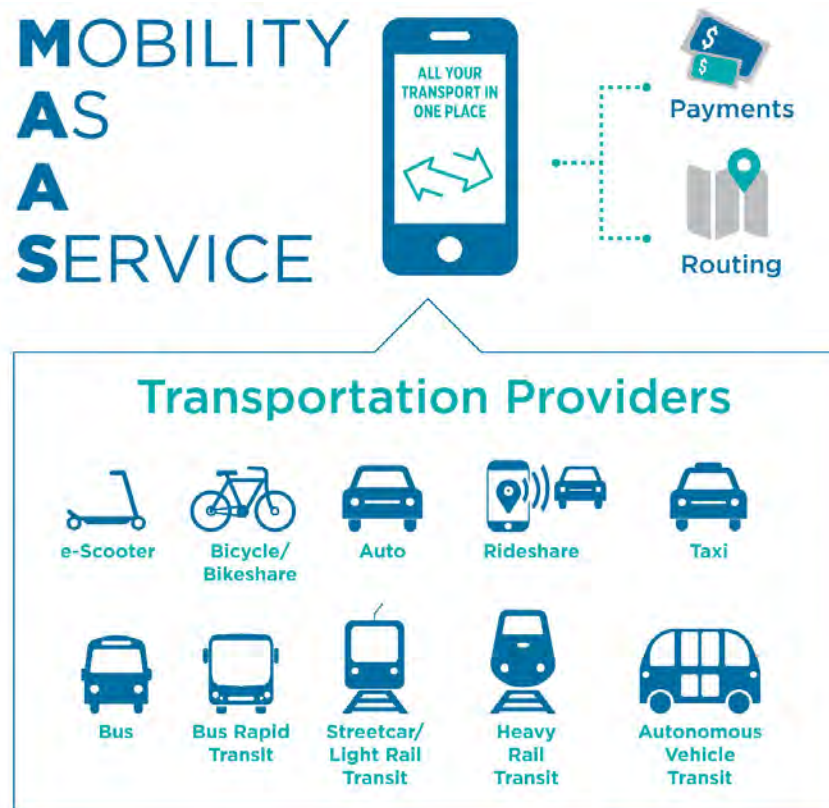
- Coordinate trip planning and payment options for service providers in the region including RABA, SRTA, DHCL, Wolf Scooters, Lyft, and Uber.
- Identify potential funding sources for pilot programs to explore and launch MaaS applications.

## How Would it Work?

The technical details regarding best practices for MaaS implementation are still being developed across the country but generally involve aggregating multiple mobility options within a single digital platform (Figure 4-6). MaaS applications should begin with coordination between service providers to ensure transparency and a willingness to cooperate on this shared undertaking. Once all relevant parties have agreed to continue, an outside contractor will likely be needed to develop the mobile application, integrate each agency's service information, and establish a combined payment platform. Additional negotiations over payment processing or revenue sharing may be required. Once the application is fully developed, riders will be able to view all available transportation options in the region, plan a trip across modes, and pay for their trip in one place.

While most examples of MaaS in North America are still in the pilot phase, it would be beneficial to monitor the progress of these programs and identify any lessons learned and implementation experience before initiating a similar program in Shasta County.

Figure 4-6 MaaS Applications Aggregate Mobility Options



## **Scenario 1 Current Trend**

The role of MaaS would be very limited under Scenario 1. There would be insufficient funding available to develop a cohesive mobile application and integrated payment platform. Agencies in the region may be able to start coordinating for trip planning and information sharing but would not have sufficient resources to fully integrate MaaS. SRTA should continue monitoring this trend moving forward to identify opportunities for partial implementation that may emerge as a best practice from other agencies.

## **Scenario 2 The Next Step**

MaaS will begin to appear more feasible in Scenario 2 but larger regions often identify best practices for implementation first so that they can be applied more easily and with greater economy for smaller regions with fewer resources. SRTA should continue to closely monitor the progress of MaaS applications in other larger cities and identify best practices for pilot projects or upgrades related to fare technology or interagency coordination that may serve as a pathway to MaaS in the future.

## **Scenario 3 A Giant Leap**

The onset of more robust and diverse mobility options, increased funding, and public willingness to try new transportation modes make MaaS a much more viable option in this scenario. SRTA should lead coordination discussions with other agencies and private sector transportation providers, focusing on the mutual goals and improvements to the customer experience of successful MaaS platforms. As in Scenario 1 and Scenario 2, SRTA should monitor other agencies and regions to learn from their experiences and ensure best practices and lessons learned are observed in the development of any MaaS application.

## 5 IMPLEMENTATION PLAN

While all strategies are applicable for each of the three scenarios, some are more relevant or are likely to have a higher intensity of investment under certain scenarios. For example, implementing transit enhancements in coordination with active transportation improvements in the GoShasta Active Transportation plan is a desirable improvement in Scenario 1, but the lack of expected funding limits the extent to which this strategy can be implemented. By remaining flexible and continuously monitoring regional trends, SRTA can make informed decisions about when and how to prioritize these improvements throughout the horizon of the LRTP.

A complete summary of the LRTP strategies is included in Figure 5-1.

**Figure 5-1 Summary of LRTP Strategies**

| Strategy                                                                                                                             | Strategy                                                                           | Applicability to Scenarios |             |             | Phase                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------|-------------|-------------|-------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                      |                                                                                    | Scenario 1                 | Scenario 2  | Scenario 3  |                                                                                                                   |
| <br><b>Multi-Modal Accessibility</b>              | Improve bicycle and pedestrian accessibility and mobility                          | ✓✓✓<br>High                | ✓✓✓<br>High | ✓✓✓<br>High | <br><b>Near-Term</b>         |
|                                                                                                                                      | First- and last-mile connectivity enhancements                                     | ✓✓✓<br>High                | ✓✓✓<br>High | ✓✓✓<br>High | <br><b>Near-Term</b>         |
| <br><b>Fixed-Route Service and Infrastructure</b> | Realign current transit network for future conditions                              | ✓✓<br>Med                  | ✓✓✓<br>High | ✓✓✓<br>High | <br><b>Mid- to Long-Term</b> |
|                                                                                                                                      | Implement transit enhancements coordinated with active transportation improvements | ✓<br>Low                   | ✓✓✓<br>High | ✓✓✓<br>High | <br><b>Mid- to Long-Term</b> |
|                                                                                                                                      | Improved localized customer amenities at bus stops                                 | ✓<br>Low                   | ✓✓<br>Med   | ✓✓✓<br>High | <br><b>Mid-Term</b>          |

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| Strategy                                                                                                           | Strategy                                                                                                     | Applicability to Scenarios |             |             | Phase            |
|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------|-------------|-------------|------------------|
|                                                                                                                    |                                                                                                              | Scenario 1                 | Scenario 2  | Scenario 3  |                  |
| <br><b>Policy Improvements</b>    | Pilot project identification, planning, execution, and evaluation                                            | ✓✓✓<br>High                | ✓✓✓<br>High | ✓✓✓<br>High | ➡➡➡<br>Near-Term |
|                                                                                                                    | Low-income fare strategy                                                                                     | ✓✓✓<br>High                | ✓✓✓<br>High | ✓✓✓<br>High | ➡➡➡<br>Near-Term |
|                                                                                                                    | Establish service design and performance guidelines to redefine filling unmet needs                          | ✓✓✓<br>High                | ✓✓✓<br>High | ✓✓✓<br>High | ➡➡➡<br>Near-Term |
|                                                                                                                    | Local partnerships for funding pilots and ongoing services                                                   | ✓✓✓<br>Med                 | ✓✓✓<br>High | ✓✓✓<br>High | ➡➡➡<br>Near-Term |
|                                                                                                                    | Consider reorganizing transit governance to be comprehensive of all modes and jurisdictions in Shasta County | ✓✓✓<br>Low                 | ✓✓✓<br>Med  | ✓✓✓<br>High | ➡➡➡<br>Long-Term |
| <br><b>Alternative Mobility</b> | Expand on-demand transit to supplant transit in areas with low transit service and low ridership             | ✓✓✓<br>Low                 | ✓✓✓<br>Med  | ✓✓✓<br>High | ➡➡➡<br>Mid-Term  |
|                                                                                                                    | Human service transportation coordination                                                                    | ✓✓✓<br>High                | ✓✓✓<br>High | ✓✓✓<br>High | ➡➡➡<br>Mid-Term  |
|                                                                                                                    | Rural transit mobility                                                                                       | ✓✓✓<br>High                | ✓✓✓<br>High | ✓✓✓<br>High | ➡➡➡<br>Near-Term |
|                                                                                                                    | Mobility Integration                                                                                         | ✓✓✓<br>High                | ✓✓✓<br>High | ✓✓✓<br>High | ➡➡➡<br>Near-Term |
|                                                                                                                    | Mobility as a Service (MaaS) options                                                                         | ✓✓✓<br>Low                 | ✓✓✓<br>Med  | ✓✓✓<br>High | ➡➡➡<br>Long-Term |

## NEAR-TERM IMPROVEMENTS

Implementing the long-range planning strategies will require SRTA to flexibly use existing and future planning and development processes to monitor and react as conditions and needs change. Specific elements from the emerging trends and scenarios may progress at different rates and it is likely that the prioritization and implementation approach for specific strategies will change with technological advances, innovations by partner agencies, and changes to funding and program risks.

Near-term improvements are low risk, potentially low cost, strategies that can be implemented with existing funding sources. Near-term improvements strike a balance between affordability, ease of implementation, and impact for the community. These improvements are considered “quick wins” and can be implemented within the first 1-2 years of the planning horizon.

### **Multi-Modal Accessibility**

While the transit and mobility services environment is evolving quickly, there are several low-cost steps that the region can take to improve the local and regional mobility services. This is partly because the investments can benefit more than one mode, can be re-purposed, or have already been identified in previous planning and budgeting cycles. These infrastructure and service improvements include:

- Improve bicycle and pedestrian accessibility and mobility
- First- and last-mile connectivity enhancements

### **Policy Improvements**

Many of the near-term improvements strategies begin with changes to internal policies or enhanced coordination between regional partners. SRTA's organizational and administrative capacity, therefore, is the backbone to successfully implementing these near-term improvements and laying the groundwork for mid-term and long-term improvements. These strategies include:

- Low-income fare strategy
- Pilot project identification, planning, execution, and evaluation
- Establish service design and performance guidelines to redefine fulfilling unmet needs

### **Alternative Mobility**

Most of the alternative mobility strategies require more resources or time for technological advancement and public perceptions to adjust to new service options. However, the mobility integration strategy, which incorporates all mobility travel information in the region under a single, easy to use application, and rural transit mobility can be done relatively quickly and affordably and would make an immediate impact on the customer experience of taking transit in the region. The alternative mobility strategies identified for near-term implementation include:

- Mobility integration
- Rural transit mobility

## MID-TERM IMPROVEMENTS

Mid-term improvements are targeted in the 2 to 10-year planning horizon and may build upon near-term strategy implementation or require additional financial planning and interagency coordination. These strategies generally involve larger programs that will take longer to implement and may be contingent upon the specific conditions identified in the three scenarios, including:

- **Funding** – availability of funding to implement new programs and strategies.
- **Resilience** – changing demographic, population, and employment dynamics in the region.
- **Perspective** – public perceptions and willingness to try new mobility options.

The further into the 20-year planning horizon, the more clarity there will be regarding which scenario most accurately represents the conditions of the region. Subsequently, which strategies identified for mid-term implementation are most relevant will become clear. Continually monitoring the emerging trends and scenarios will allow SRTA to effectively prioritize strategy implementation in the mid- and long-term.

### **Fixed-Route Service and Infrastructure**

Fixed-route service strategies in the mid-term include more extensive capital and infrastructure improvements that are not currently programmed in local and regional capital planning documents. As funding availability becomes more clear in the future, the extent to which these strategies can be made will also become more clear and improvements may be prioritized accordingly.

In addition to the financial implications, realigning the fixed-route transit network is also contingent on detailed demographic and travel demand analysis that will continue to evolve throughout the life of this plan. The detailed planning and public outreach required to implement this strategy preclude it from near-term implementation and require a longer-term implementation for immediate service changes in the mid-term and potential service expansion in the long-term. The fixed-route service and infrastructure strategies identified for mid-term implementation include:

- Realign current transit network for future conditions
- Implement transit enhancements coordinated with active transportation improvements
- Improved localized customer amenities at bus stops

### **Policy Improvements**

Many of the policy improvement strategies were identified as near-term implementation priorities because they are relatively low-risk and affordable. However, some policy improvements require a higher level of coordination and interagency buy-in to effectively implement. The policy improvement strategy identified for mid-term implementation includes:

- Local partnerships for funding pilots and ongoing services

### **Alternative Mobility**

Similar to policy improvements, the mid-term improvements for alternative mobility strategies require additional coordination and funding to achieve effective implementation. These strategies focus on meeting the needs of specific population groups, particularly those with special mobility needs or outside of the urbanized area of the county. These strategies generally build upon the policy improvements identified in the near-term implementation timeframe to facilitate enhanced coordination and new service programs. These strategies include:

- Expand on-demand service, such as the current ShastaConnect to supplant transit in areas with low transit service and low ridership
- Human service transportation coordination

## **LONG-TERM IMPROVEMENTS**

Long-term improvements are those that require significant changes in funding availability, technological advancement, or public perceptions of mobility alternatives to become viable for implementation. These improvements are aimed at the 10 to 20-year timeframe and include significant changes to existing services, infrastructure, and governance.

Similar to the mid-term improvements, the viability of these strategies is largely determined by the unknown future conditions explored in the three scenarios. Strategies prioritized for implementation in the long-term should be carefully considered and reviewed according to changing conditions in the future to ensure they remain relevant and align with community needs and regional priorities.

### **Fixed-Route Service and Infrastructure**

The fixed-route service improvements identified for long-term implementation are the same as those identified for mid-term implementation. While these improvements can begin in the mid-term, some aspects require additional funding and incremental implementation, which extends this timeframe into the long-term planning horizon. Changes to the fixed-route service network should be continuously analyzed and updated or expanded according to shifting population, employment, and demographic dynamics.

Additionally, some transit priority infrastructure would require more financial resources and local coordination than others. These more intensive improvements are more likely to be applicable in the long-term than the mid-term. These strategies include:

- Realign current transit network for future conditions
- Implement transit enhancements coordinated with active transportation improvements

### **Policy Improvements**

Long-term policy improvements revisit the holistic approach to transportation governance and oversight in the region. This strategy builds upon the previous policy improvements that encourage enhanced coordination and improvements to identifying, developing, and implementing new services. Successful implementation of this strategy may result in different outcomes based on how future conditions unfold in the region. The most effective way to govern and oversee transportation policy and services in the region may not remain constant throughout

this planning horizon. However, making a concerted, good-faith effort to best serve the community should be evaluated in the long-term. This policy improvement strategy includes:

- Reorganize transit governance to be comprehensive of all modes and jurisdictions in Shasta County



### **Alternative Mobility**

Alternative mobility strategies in the long-term are dependent on technological innovation and long-term improvements to the fixed-route transportation system. These strategies involve expanding existing alternative mobility options, developing new options, and integrating transportation services through new technologies. These strategies are highly dependent on the potential future outcomes identified in the three scenarios.

Implementing Mobility as a Service infrastructure also requires changing public perceptions, the emergence of new mobility options, and technological innovation to coordinate services. These strategies include:

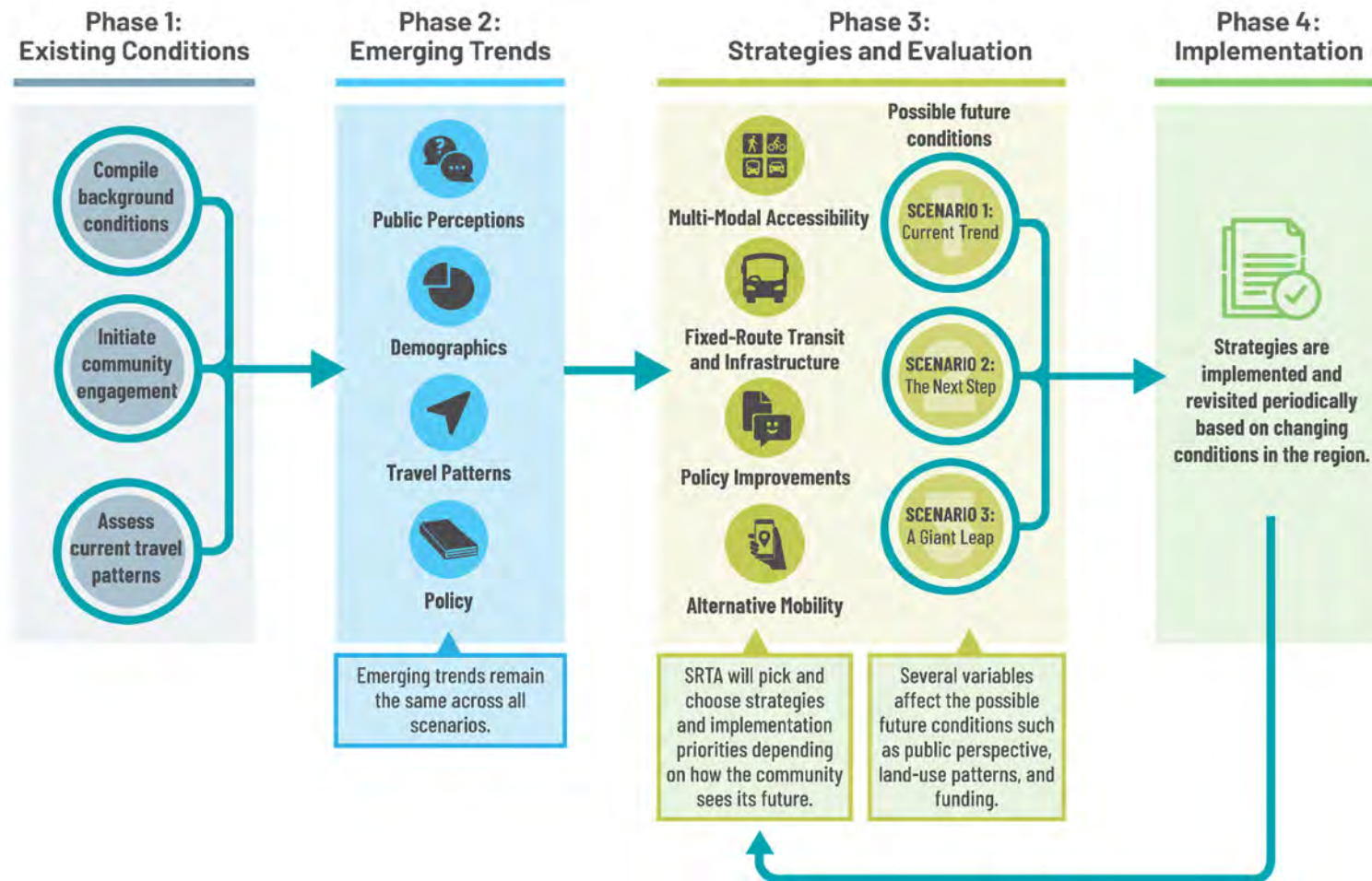
- Mobility as a Service (MaaS) options

## **NEXT STEPS**

Implementing the strategies identified in this LRTP is intended to be a flexible, iterative process. This approach is shown in more detail in Figure 5-2. Strategies should be prioritized based on the best information available at any given time. In the near-term, this means prioritizing low-risk, affordable strategies that effectively respond to the emerging trends identified in the region. As the uncertainty of future conditions becomes more clear, certain strategies may emerge as more important than others.

Strategies may be reprioritized or altered to reflect the existing conditions. Strategies are selected to respond to specific emerging trends and conditions identified in the three scenarios and are moved to implementation. During the implementation process, strategies are continuously evaluated and reprioritized to ensure they continue to meet the needs of the communities and reflect observable conditions. New strategies may be selected and implemented accordingly to ensure SRTA remains flexible and responsive to changing factors outside of the agency's control.

Figure 5-2 Long-Range Planning Process and Implementation



# **Appendix A Fact Book**



# FACT BOOK

## Long-Range Transit Plan

July 2020 Updated February 2021



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# 1 INTRODUCTION

The Existing Conditions Fact Book is the first element of the Shasta Regional Transportation Agency (SRTA) Long-Range Transit Plan (LRTP) effort. The purpose of the report is to summarize the background conditions in which transit operates in Shasta County and to provide a comprehensive evaluation of existing service characteristics, demographics, and system performance. This Fact Book is intended to serve as the foundation for the development of recommendations as part of the SRTA LRTP.

The Fact Book is comprised of three main sections:

- Summary of Existing Data
- Potential New Transit Funding Sources
- Evaluation of Recent Transit Enhancement Initiatives

## KEY FINDINGS

- Priority service improvements identified in existing planning documents include improving on-time performance, extending service span to provide later evening service, adding Sunday service, and improving service frequency.
- Transit demand and propensity are highly concentrated in the Redding urbanized area, particularly in downtown Redding, the Hilltop Dr corridor, and the Hartnell Ave corridor.
- Shasta County population is expected to increase by 17% between 2020 and 2040.
- Today the Shasta region's mobility is dominated by use of private autos. Alternate modes, including transit, are not well situated to offer a broadly attractive or viable alternative.
- Future projections of employment, population, and land use suggest a need to develop attractive mobility alternatives to conserve the Shasta region's livability.
- The cost to operate Redding Area Bus Authority (RABA) service is rising and farebox recovery ratio for the agency is decreasing.
- Ridership on RABA has decreased by approximately 19% since 2014.
- RABA express service is underperforming relative to other fixed-route service types.
- Transit funding in the county has been limited. Options exist to increase transit funding but require local support to access those funding sources. Recent history has shown a lack of voter support for local ballot measures to fund other community needs.
- Local Transit Fund (LTF) funding is limited based on current law and SRTA policy regarding designated uses, agency performance, and sufficient funding availability to accomplish expansions. While unmet transit needs may exist, they must also be deemed reasonable to meet with the financial resources available.
- Farebox recovery ratio for RABA has been steadily declining from a high of 19.6% in 2013 to a low of 15.4% in 2018.

- Recent transit initiatives have focused on alternative service models as opposed to traditional fixed-route service. Those include a planned zero-emission intercity bus (Salmon Runner), on-demand (ShastaConnect service pilot), expanded express service (Crosstown Express) and downtown circulator service (DASH Downtown Area Shuttle).
- Recent transit improvements have generally focused on alternative service models because they have been grant funded (LCTOP, AHSC, etc.) projects which must meet specific criteria to ensure funding eligibility.

## ISSUES AND CHALLENGES

The Fact Book has identified several key issues and challenges facing public transportation in Shasta County.

### Farebox Recovery

- **ISSUE:** RABA's farebox recovery ratio is declining and is projected to fall below minimum Transportation Development Act (TDA) standards within the next two years unless operating costs are reduced or additional farebox revenue is generated. Farebox recovery and system performance for Consolidated Transportation Services Agency (CTSA) services are also trending downward.
- **CHALLENGE:** How can the region's public transportation services evolve to be more sustainable? What new and emerging tools, technology, and service delivery strategies might increase the efficiency and expand the appeal of public transportation? What is the ideal role for SRTA and other service providers in realizing these opportunities?

### Interagency Coordination

- **ISSUE:** As administrator of TDA funds for the Shasta Region, SRTA is responsible for ensuring public transportation services are coordinated, efficient, and effective. SRTA is leading the Long-Range Transit Plan to guide this effort but must partner with independent agencies and organizations to implement the plan. These entities often have different approaches and must balance public transportation objectives with other objectives.
- **CHALLENGE:** What is SRTA's legal responsibility for the oversight of RABA and other operators? What key policy decisions should the SRTA Board of Directors explore or revisit in order to clarify the role of SRTA, RABA, and Dignity Health Connected Living (DHCL) in implementing the long-range vision for public transportation?

### Achieve Sustainable Communities Strategy Goals

- **ISSUE:** In order to meet the region's greenhouse gas emission reduction target for 2035, the region's Sustainable Communities Strategy (SCS) assumes a 20% increase in transit service. There is no definitive long-range plan or list of strategies to realize these assumptions and performance outcomes. Several trial services have been introduced in recent years using non-TDA funding sources (e.g. Low Carbon Transit Operations Program); however, the region cannot continue to introduce new services without improved performance or additional non-TDA funding.

- **CHALLENGE:** What are the alternatives? If public transportation services were being designed for the first time based on current performance targets and without the constraints of existing assets and practices, what would be the optimal public transportation service delivery approach?

## Urban Growth

- **ISSUE:** Downtown Redding is experiencing a resurgence, including over 150 new housing units, new commercial development, new complete streets, and a new urban trail system. Paid parking as well as a reduction and redistribution of parking inventory are also being considered.
- **CHALLENGE:** How can public transportation facilities, services, and programs be coordinated with these changes to increase ridership and reduce the operating cost per trip? How can public transportation be better integrated with the Sustainable Communities Strategy?

## Emerging Mobility Options

- **ISSUE:** Public expectations for mobility are changing as a result of Mobility as a Service (MaaS), such as Uber or Lyft. As an alternative to fixed-route service, SRTA has introduced 'on-demand' transit service as a pilot project. Using smartphones or by calling in, individuals may summon a van or small cutaway bus for curb-to-curb service within a limited geographic area.
- **CHALLENGE:** If successful, how might on-demand service be integrated with conventional fixed route services (e.g. replace fixed-route services for low ridership areas/days/times)?

## Organizational Capacity

- **ISSUE:** Operation of the aforementioned on-demand service pilot project was declined by RABA. SRTA expanded its contract with Dignity Health Connected Living (DHCL) as the Consolidated Transportation Services Agency (CTSA) to serve as the operator. DHCL's expanded role required an organizational stretch in terms of technical and human resources capacity.
- **CHALLENGE:** As on-demand transit moves beyond the pilot project, what is the ideal strategy for operating these services? Are there additional ways that SRTA might develop and utilize this relationship to test new public transportation service delivery strategies? What role might DHCL or another organization play in administering Mobility Management and Mobility Coordination?

## Regional Service Coordination

- **ISSUE:** Public transportation services are divided among a number of operators within the region, including:
  - RABA (fixed-route and complementary paratransit)
  - County of Shasta (Burney Express)

- SRTA (Salmon Runner intercity bus service, CTSA curb-to-curb service for seniors and disabled individuals outside of the RABA service area (performed under contract to DHCL), and on-demand general public service (also performed under contract with DHCL)
- Fifteen other providers specializing in medical service transportation, home health care service transportation, and tribal transportation services
- **CHALLENGE:** How might SRTA consolidate the administration of the following services to reduce duplicative costs and make them more coordinated and seamless to utilize and manage? For example, can fares, passes, and ticketing be integrated and streamlined? Are there opportunities to reduce redundancy in transit services and administration, including fleet management and administrative functions, vehicle maintenance, driver and dispatcher training, purchasing, and driver recruitment and retention programs?

## Budget and Expenditures

- **ISSUE:** Public transportation budgets are cobbled together using a number of state and federal sources – each with unique requirements and eligible uses.
- **CHALLENGE:** Is the region making the most effective and strategic use of flexible funding sources such as Federal Transit Administration (FTA), Low Carbon Transit Operations Program (LCTOP), State of Good Repair (SGR), and other existing and upcoming fund sources? Are there potential funding sources that the region is not taking advantage of? What is the optimal farebox pricing strategy – one that effectively balances operational needs and increasing ridership? What can be learned from recent no-fare services (e.g. on-demand transit, Crosstown Express, Shasta College, and IASKO Flight School)?

## Zero-Emission Fleet Transition

- **ISSUE:** The Innovative Clean Transit regulation was recently approved by the California Air Resources Board, requiring a transition to zero-emission buses.
- **CHALLENGE:** How should the region transition to a zero-emission fleet, what are the challenges, and how can they be addressed?

## Increasing Ridership

- **ISSUE:** Public transportation riders in the Shasta Region are predominately transit dependent. Efforts to attract choice riders have not been greatly successful.
- **CHALLENGE:** How can public transportation reach beyond transit dependent individuals? Can new specialized services such as future Salmon Runner intercity bus and expanded on-demand transit be leveraged to attract new riders?

## Local Funding Allocations

- **ISSUE:** It is longstanding practice in the Shasta Region for local jurisdictions to fund public transportation through formula-based contributions of LTF funds. Local agencies have explored the cost-benefit of other transit service delivery alternatives but ultimately decided to remain within the RABA joint powers agreement (JPA). As

constituted, the TDA can put transit funding at odds with vital local streets and roads needs.

- **CHALLENGE:** How might each jurisdiction's needs and expectations be better met – either through more effective local transit service delivery methods, an alternative funding arrangement, or other means? Are there innovative financial strategies that should be considered? Building upon past partnerships between RABA and Bethel Christian School, Shasta College, and IASKO Flight School, are there other specific partnerships or broader programmatic solutions that should be explored?

## Marketing

- **ISSUE:** Efforts to market and promote public transportation in the Shasta Region have yielded little if any performance benefits.
- **CHALLENGE:** What are the most effective public transportation marketing strategies and public outreach methods? How can the region promote public transportation, create positive experiences for potential new riders, and achieve other cross-purpose needs such as economic development? For example, providing free service for popular community events and subsidized passes for the residents of new affordable housing near the Downtown Redding Transit Center.

## 2 SUMMARY OF EXISTING DATA

### PLANS

Current transit planning efforts in Shasta County exist within a broader planning context that has evolved over time. This section reviews that municipal and regional planning context, identifying key findings, goals, strategies, and priorities from each document that establish the context and framework for transportation planning in the region. These documents and findings are shown in Figure 2-2.

### Values, Goals, and Guiding Principles

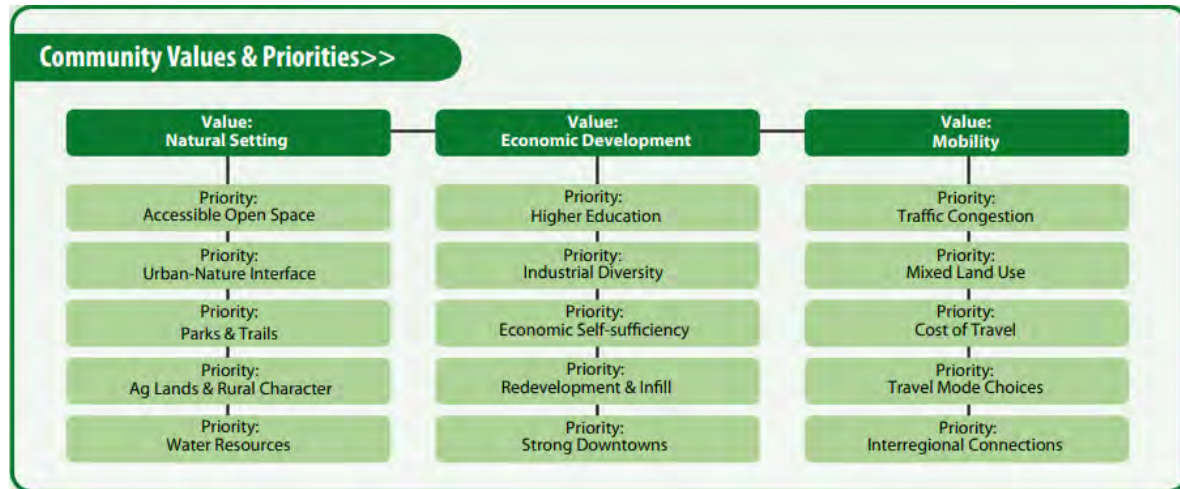
Guiding principles and priorities are relatively consistent between SRTA and RABA, including:

- Improving regional accessibility
- Meeting federal and state requirements
- Prioritizing Sunday service and service frequency as new service improvements

Guiding principles from the Regional Sustainable Communities Strategy (SCS) are shown in Figure 2-1.

The primary disconnect in values, goals, and guiding principles is between the short-range planning documents (SRTP, Shasta Coordinated Transportation Plan, Transit Asset Management Plan, Shasta Lake Microtransit Feasibility Study) and the SCS. The SCS calls for significant improvements in transit service frequency, increased revenue hours and ridership, and investments in emerging mobility strategies. Because each agency in the region develops their own short-range plans and lacks an overarching long-range plan to guide interagency development, there has not been an identified strategy or approach to achieve these goals established in the SCS. A key priority of this LRTP will be to determine the necessary steps and funding strategies that will bridge the existing services with the guiding principles and goals identified in the SCS.

Figure 2-1 Communities Values & Priorities



Source: ShastaFORWARD Regional Blueprint, SRTA, 2010

## Priorities

Priority service improvements have consistently included improving on-time performance, extending service span to provide later evening service, adding Sunday service, adding service to unserved areas, and improving service frequency. These priority improvements have been identified in the 2014 RABA's Short-Range Transit Plan (SRTP) and the SRTA Annual Unmet-Transit Needs Assessment. Documentation from both agencies are consistent in their assessment that more funding is necessary to extend service span and improve service frequency, as well as reconfiguring service to improve travel times. The Sunday service pilot project is currently grant funded and will need to secure a long-term dedicated funding source if the service is to continue after grant funding is exhausted. A summary of key findings, goals, strategies and priorities from regional and local documents are shown in Figure 2-2.

Figure 2-2 Document Review Summary

| Plan   Lead Agency                                                       | Findings, Goals, Strategies, and Priorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ShastaFORWARD<br>Regional Blueprint Draft<br>Report<br><b>SRTA, 2010</b> | <ul style="list-style-type: none"> <li>▪ The document analyzes the county and plans future growth in the region</li> <li>▪ Sets the stage for the 'Sustainable Communities Strategy' for the county to reduce greenhouse gas emissions in the transportation sector</li> <li>▪ Elements to support this include: <ul style="list-style-type: none"> <li>– Creating a 'Regional Priorities Compact' which combines the community's values, preferred land use patterns, and specific action-items for uniform local agency consideration</li> </ul> </li> <li>▪ Based on active community engagement, three alternative scenario concepts were finalized for the future of the county which includes: <ul style="list-style-type: none"> <li>– Focus on rural and peripheral areas</li> <li>– Focus on urban core and corridors</li> <li>– Focus on maintaining distinct cities and towns</li> </ul> </li> </ul> |

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| Plan   Lead Agency                                          | Findings, Goals, Strategies, and Priorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                             | <ul style="list-style-type: none"> <li>▪ Of the three scenarios, a combination of focusing on the urban core and corridors while maintaining a distinct identity between urban and rural areas was chosen</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Coordination of CTSA Services Review<br><b>SRTA, 2014</b>   | <ul style="list-style-type: none"> <li>▪ Potential Coordinated Transit Service Agreement performance measures include:               <ul style="list-style-type: none"> <li>– Number of trips coordinated</li> <li>– Average operating cost of trips</li> <li>– Cost to administer trips</li> <li>– Percent of requested trips successfully accommodated</li> <li>– Demonstrable cost savings through trip coordination</li> <li>– Number of people trained to use fixed-route service</li> </ul> </li> <li>▪ RABA wanted to evaluate the impacts of their own service before taking up a CTSA role</li> <li>▪ Under the JPA agreement RABA could expand its capabilities and provide a wide range of transportation services for Shasta County and has declared an interest in doing so in the future</li> </ul>                                         |
| Short-Range Transit Plan<br><b>RABA, 2014</b>               | <ul style="list-style-type: none"> <li>▪ Highest priority improvements include:               <ul style="list-style-type: none"> <li>– Improving on-time performance</li> <li>– Extending weekday service to 8:30 pm</li> <li>– Adding Sunday service</li> <li>– Improving peak period frequency to 30-minutes</li> </ul> </li> <li>▪ Plan determined that extending service span, improving frequency, and adding Sunday service could not be done with existing budget</li> <li>▪ Approximately 66% of RABA funding is derived from the TDA program</li> <li>▪ Coordination               <ul style="list-style-type: none"> <li>– Plan recommends SRTA sponsor multiple studies to increase coordination between Human service agencies and RABA</li> <li>– Calls for better coordination SNP and RABA demand response services</li> </ul> </li> </ul> |
| Transit Technology Plan<br><b>SRTA, 2014</b>                | <ul style="list-style-type: none"> <li>▪ Recommendations include:               <ul style="list-style-type: none"> <li>– Smart Bus System Deployment</li> <li>– Integrated electronic fare boxes</li> <li>– Advanced Traveler Information Systems</li> <li>– Install APC systems on all vehicles</li> <li>– Install Transit Signal Priority</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Shasta Coordinated Transportation Plan<br><b>SRTA, 2017</b> | <ul style="list-style-type: none"> <li>▪ Plan identified 8 priority strategies:               <ul style="list-style-type: none"> <li>– Evaluate, strengthen, and maintain existing transportation services and projects</li> <li>– Marketing and education of services</li> <li>– Mobility management</li> <li>– Multi-organizational approach to solutions and overall coordination</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**Fact Book | Long-Range Transit Plan**  
SRTA

| Plan   Lead Agency                                                          | Findings, Goals, Strategies, and Priorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                             | <ul style="list-style-type: none"> <li>– Driver recruitment, development, screening, and training programs</li> <li>– New or expanded services and projects to meet identified gaps and needs</li> <li>– Infrastructure projects</li> <li>– Shared use of agency vehicles</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>Transit Asset Management Plan<br/><b>RABA, 2018</b></p>                  | <ul style="list-style-type: none"> <li>▪ RABA assets are generally in a state of good repair</li> <li>▪ Only server equipment and non-revenue vehicles were beyond Useful Life Benchmark</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>Microtransit Feasibility Study<br/><b>City of Shasta Lake, 2019</b></p>  | <ul style="list-style-type: none"> <li>▪ Stakeholder interviews found strong dissatisfaction with both frequency and reliability of existing RABA service</li> <li>▪ Potential strategies for Microtransit or fixed-route improvements include: <ul style="list-style-type: none"> <li>– Using smaller vehicles types and electric vehicles</li> <li>– Developing express fixed-route service with connections to local service</li> <li>– Improving connections to Redding</li> <li>– Potential service extensions to Mountain Gate and along Shasta Dam Boulevard</li> </ul> </li> <li>▪ Plan identifies key challenges with replacing RABA service with microtransit service</li> <li>▪ Proposes three scenarios for the administration of microtransit for City of Shasta Lake and SRTA to choose.</li> </ul> |
| <p>2019/2020 Unmet Transit Needs Assessment<br/><b>SRTA, 2019</b></p>       | <ul style="list-style-type: none"> <li>▪ Highest priority transit needs include Sunday service, expanding service span, and more frequent service</li> <li>▪ Outcomes from the assessment include: <ul style="list-style-type: none"> <li>– Grant funded Sunday service pilot in Redding</li> <li>– Expanded crosstown express service</li> <li>– Continue working with partners reinstitute Whiskeytown Lake Beach Bus</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                    |
| <p>2020/2021 Unmet Transit Needs Assessment<br/><b>SRTA, 2020</b></p>       | <ul style="list-style-type: none"> <li>▪ Sunday service pilot was launched and is close to meeting performance expectations</li> <li>▪ Grant funds are allowing for the continuation of Crosstown Express service between Downtown Redding and the Canby Transit Center</li> <li>▪ Whiskeytown Beach Bus was approved for funding and scheduled to return to operations in Summer 2020</li> <li>▪ Several responses to public comments suggested service improvements would be assessed in the long-range planning process, including: <ul style="list-style-type: none"> <li>– New service to Lakehead, Shingletown, Palo Cedro, and Riverland Drive</li> <li>– Exploring potential for intercity passenger rail</li> </ul> </li> </ul>                                                                          |
| <p>North State Intercity Bus System Business Plan<br/><b>SRTA, 2018</b></p> | <ul style="list-style-type: none"> <li>▪ This project was identified as the highest priority intercity connectivity project in the region</li> <li>▪ Supported by the 16 county North State Super Region</li> <li>▪ Project would contribute to alleviating congestion and meeting California's goal of reducing greenhouse gas emissions to 40% below 1990 levels by 2030, as</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                         |

**Fact Book | Long-Range Transit Plan**  
SRTA

| Plan   Lead Agency                                                                                                     | Findings, Goals, Strategies, and Priorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                        | <p>defined by State Bill 32. However, greenhouse gas reductions only count toward reduced vehicle miles traveled inside the respective region.</p> <ul style="list-style-type: none"> <li>▪ Service is not yet in operation</li> <li>▪ SRTA requested around \$900,000 for operating funds to connect the missing links between Redding to Orland, Orland to Sacramento, and the Valley Feeder to Chico.</li> </ul>                                                                                                                                                                                                                                                                                                             |
| <p>ShastaConnect Sunday On-Demand Transit Service Demonstration Project Business Plan<br/><b>SRTA, 2019</b></p>        | <ul style="list-style-type: none"> <li>▪ This study found that the introduction of a general public demand response service for Sunday service would be fairly easy for RABA passengers and other potential riders to understand and utilize.</li> <li>▪ Several key strategies for the pilot program include: <ul style="list-style-type: none"> <li>– Using a smartphone app to access and use the service, improving overall productivity</li> <li>– Education and marketing is a key prioritized strategy for informing the public of the pilot project</li> <li>– Partnering with Dignity Health Connected Living to be a service provider</li> </ul> </li> </ul>                                                          |
| <p>Triennial Performance Audit of the RTPA<br/><b>SRTA, 2019</b></p>                                                   | <ul style="list-style-type: none"> <li>▪ SRTA is largely in compliance with TDA requirements except for 3 minor compliance issues and 1 functional finding: <ul style="list-style-type: none"> <li>– SRTA submitted the state controller report for FY 16/17 late</li> <li>– SRTA allocated TDA funding to RABA between the start of the fiscal year and the completion of the audit</li> <li>– SRTA did not provide evidence that it certified RABA's triennial performance audit</li> <li>– There are internal inconsistencies related to the RABA farebox recovery ratio in SRTA's TDA Handbook policies and procedures</li> </ul> </li> </ul>                                                                               |
| <p>Regional Transportation Plan &amp; Sustainable Communities Strategy for the Shasta Region<br/><b>SRTA, 2018</b></p> | <ul style="list-style-type: none"> <li>▪ Sustainable Communities Strategy calls for several transit improvements, including: <ul style="list-style-type: none"> <li>– Increased frequency on select routes in 2020 and more extensively by 2035</li> <li>– Invest in on-demand transit in targeted areas and at specific times</li> <li>– Develop subsidized transit pass programs</li> </ul> </li> <li>▪ Sustainable Communities Strategy includes several service expansion and ridership projections, including: <ul style="list-style-type: none"> <li>– Increase daily service hours by 21 hours in 2020 and 104 hours by 2035</li> <li>– Increase daily boardings by 867 in 2020 and 3,098 in 2035</li> </ul> </li> </ul> |
| <p>Go Shasta Regional Active Transportation Plan<br/><b>SRTA, 2018</b></p>                                             | <ul style="list-style-type: none"> <li>▪ Provides a regional vision, identifies projects, and action lists for Shasta County and its incorporated cities</li> <li>▪ Major themes highlighted in this plan include: <ul style="list-style-type: none"> <li>– Increase active transportation mode share</li> <li>– Increase safety and comfort of active transportation users</li> <li>– Invest in healthy, vibrant, sustainable, and people-centered communities</li> </ul> </li> <li>▪ Provides five performance metrics to evaluate the progress of the projects highlighted in the plan</li> </ul>                                                                                                                            |

| Plan   Lead Agency | Findings, Goals, Strategies, and Priorities                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | <ul style="list-style-type: none"> <li>– Active transportation modal split for the region and for Strategic Growth Areas</li> <li>– Miles of active transportation facilities accessing transit stops and schools in Strategic Growth Areas</li> <li>– Miles of low-stress bike facilities in Strategic Growth Areas</li> <li>– Number of collisions resulting in serious injuries and fatalities in Strategic Growth Areas</li> <li>– Average daily vehicle miles traveled per household in Strategic Growth Areas</li> <li>▪ Recommends five different programs to be implemented by SRTA which include: <ul style="list-style-type: none"> <li>– Education – includes Bicycle Ambassador program and Safe Routes to School programs</li> <li>– Bicycle Theft Prevention Initiatives – create a bicycle registration program, anti- bike theft signage and bait bike program</li> <li>– Encouragement – includes encouragement through infrastructure, programs, and land use policies</li> <li>– Enforcement – through campaigns and safety patrols on trails</li> <li>– Evaluation – maintaining a robust database with bike and pedestrian counts</li> </ul> </li> <li>▪ Action lists at the regional level focus on providing funding for projects undertaken by local municipalities whose projects are of regional significance</li> <li>▪ Action lists for local jurisdictions focus on improving walking, biking, and transit environment for its residents</li> </ul> |

## PEOPLE AND PLACES

Identifying the market for transit within the region provides relevant context for the role of transit today and how that role may change in the future. Assessing where people live and work, where the key markets for transit exist, and how people in the region perceive transit are all relevant for assessing the role of public transportation in the region. Taking stock of the current state of transit in Shasta County provides the starting point for charting a path forward and achieving regional goals.

### Population and Employment

Population and employment density are key determinants of transit demand. Higher density residential areas have more people within walking distance of streets that buses can operate along. Therefore, these areas are more likely to support frequent service than lower density areas. Additionally, studies have shown that a doubling of population density is correlated with as much as a 30% decrease in driving.<sup>1</sup> Many of these driving trips are replaced with transit trips.

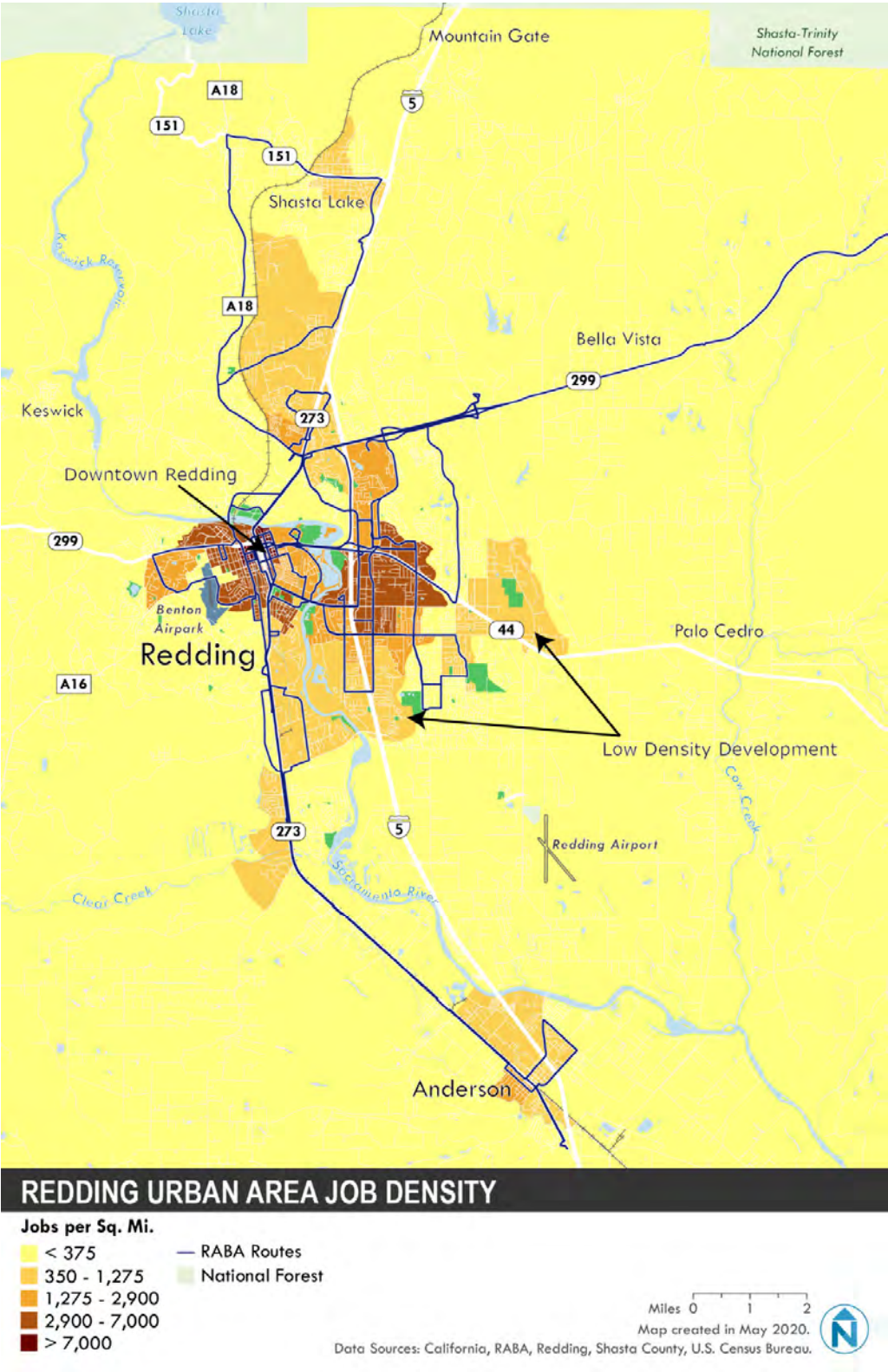
<sup>1</sup> *Patterns of Automobile Dependence in Cities*. Newman and Kenworthy, 1989

Population in Shasta County is concentrated in the Redding urbanized area along the I-5 corridor. This urbanized area is comprised of the cities of Redding, Shasta Lake, and Anderson. Population density in the Redding urbanized area (Figure 2-3) is concentrated in:

- Downtown Redding.
- Along the Hartnell Ave corridor on the east side of Redding.
- The neighborhood adjacent to the south of Shasta Dam Blvd in Shasta Lake.
- The neighborhood adjacent to the north of Lake Blvd in the northwest portion of Redding.

Despite being the population center for the Shasta region, the Redding urbanized area is generally characterized by low-density, automobile-oriented development over a large geographic footprint, including the neighborhoods surrounding downtown Redding. As mentioned above, there are a few pockets of density in the area but the region as a whole is relatively low-density. Stakeholder interviews conducted with local businesses, non-profits, advocacy groups, and government agencies indicated that Redding has low levels of traffic congestion and a large inventory of available, mostly free, parking. The combination of low-intensity land use and ease of automobile use in the region presents challenges for providing alternative mobility that offers competitive travel times with driving.

Figure 2-3 Redding Urbanized Area Population Density

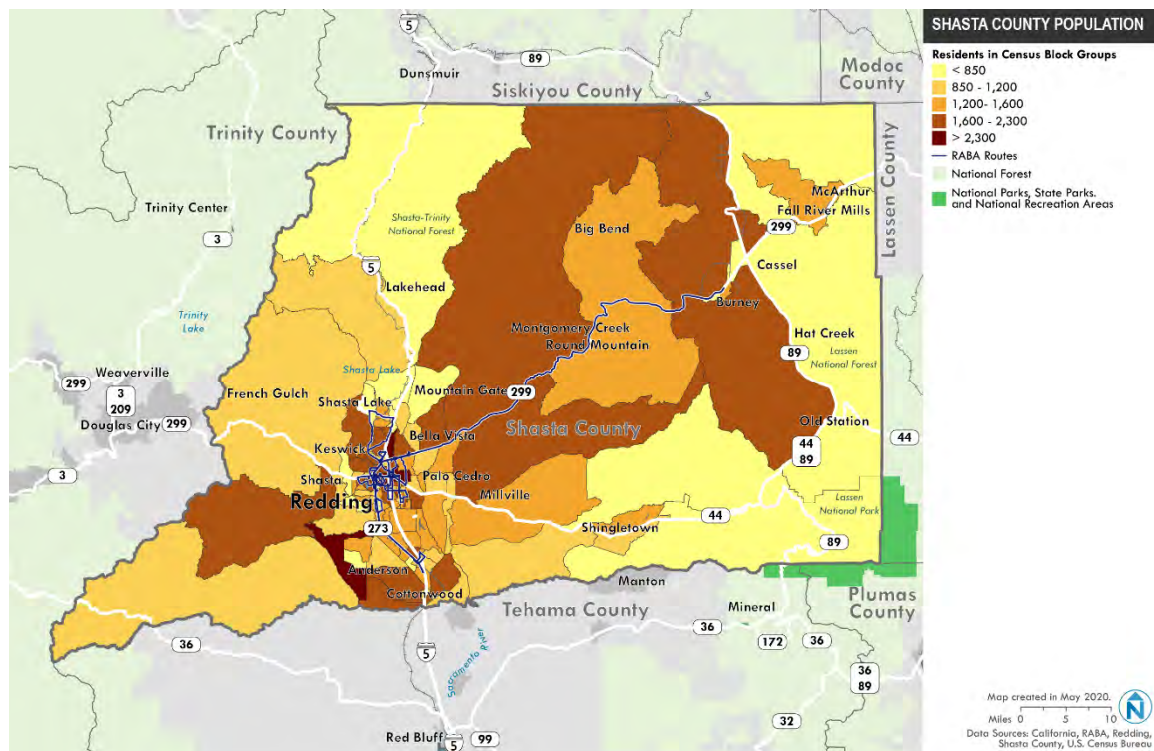


While population density is a common metric used to identify transit demand, it is a measure that involves both the absolute number of people within an area and the land area itself. Low density does not mean that no one lives in an area; it simply means that people are more spread out. In conventional fixed route transit, this is a significant challenge as lower density means fewer people within easy reach of a fixed route, thusly limiting the market for the service being offered. To display the difference between “density” and where people are actually living consider Figure 2-4, which shows the total population within each block group in Shasta County.

Outside of the Redding urbanized area, there are several small, low-density residential communities throughout the county. These communities represent significant populations with their own unique transportation needs. However, the remoteness, topography, and lack of established transportation infrastructure presents challenges for providing public transportation services. These communities include:

- Unincorporated communities of Cottonwood, Igo, and Centerville to the southwest of the Redding urbanized area.
- Unincorporated communities of Burney, McArthur, and Fall River Mills along SR 299 in the northeast of Shasta County.
- Unincorporated communities of Palo Cedro, Millville, and Shingletown along SR 44 to the east of the Redding urbanized area.
- The data suggests that there are significant populations spread throughout the northern and central areas of Shasta County near Shasta-Trinity National Forest and Latour State Forest. These Census block groups are relatively large and contain low density residential development across a large area.

Figure 2-4 Shasta County Population



Employment density shares a similar nexus with transit demand as population density. Areas with a higher density of jobs are more popular destinations and have a higher demand for transit trips, particularly during the morning and afternoon peak periods. In Shasta County, employment is highly concentrated in the Redding urbanized area, as shown in Figure 2-6. Analyzing the total employment within each Census block group for the entire county (Figure 2-5) shows some additional employment outside of the Redding urbanized area, but to a much lesser degree.

Key employment hubs are concentrated in a roughly 3 by 5 mile are of Redding and include:

- Downtown Redding.
- The Shasta County Health and Human Services facility on Breslauer Way.
- The Hilltop Dr corridor and East Redding Industrial Subdivision.
- Mt. Shasta Mall and Shasta Crossroads shopping center located to the northwest of the I-5 & SR 44 interchange.

Figure 2-5 Shasta County Employment

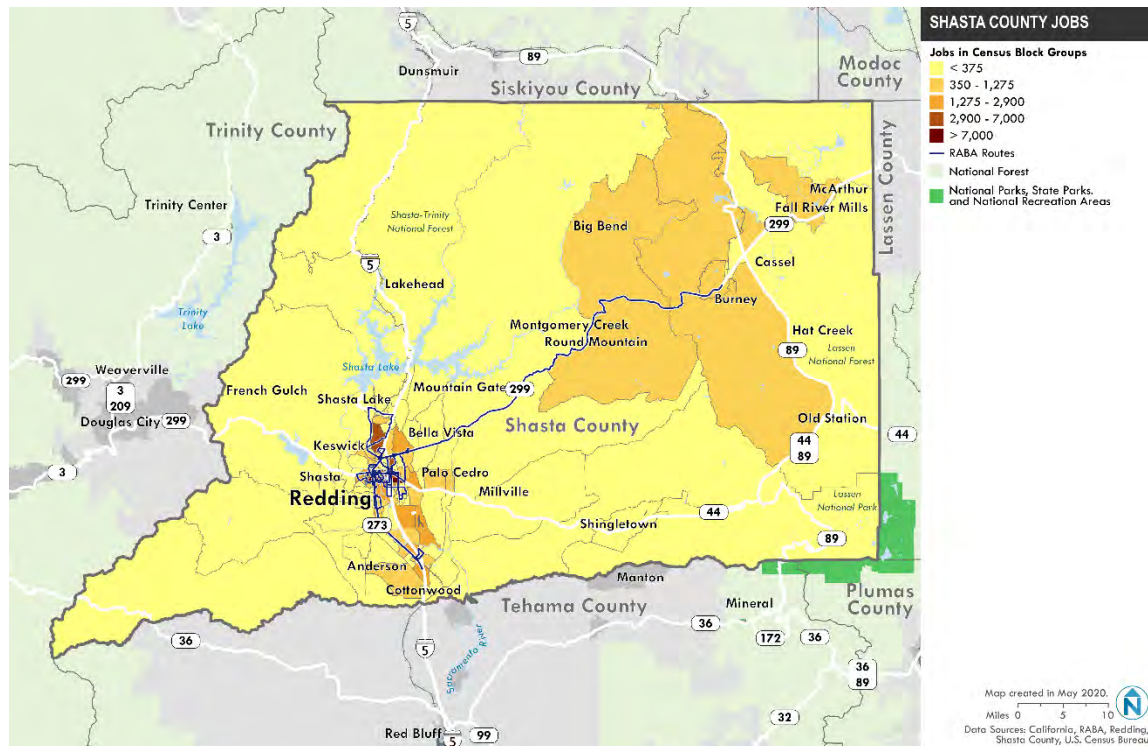
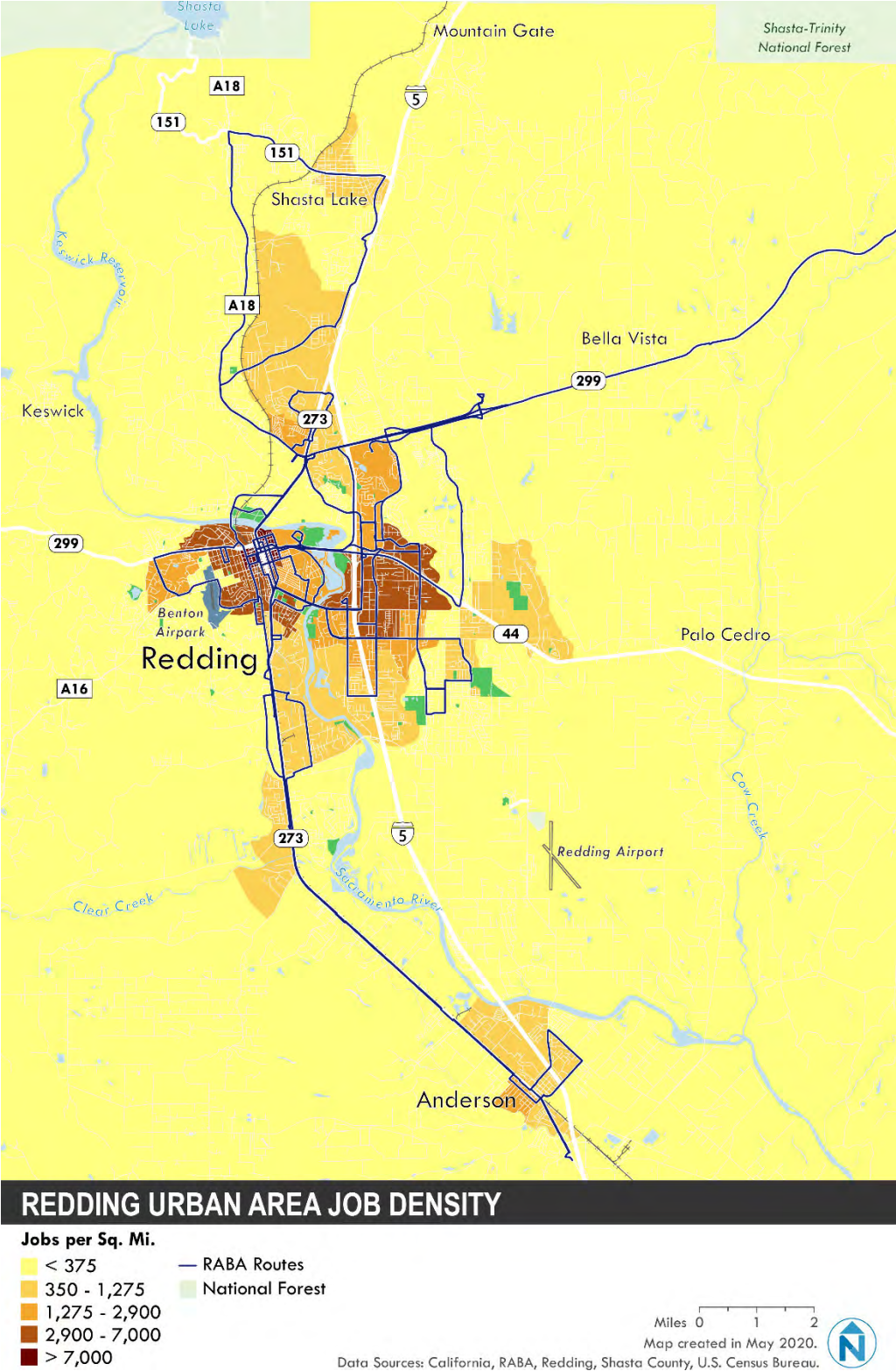


Figure 2-6 Redding Urbanized Area Employment Density



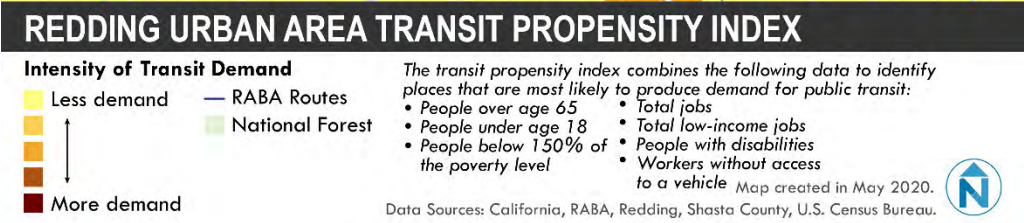
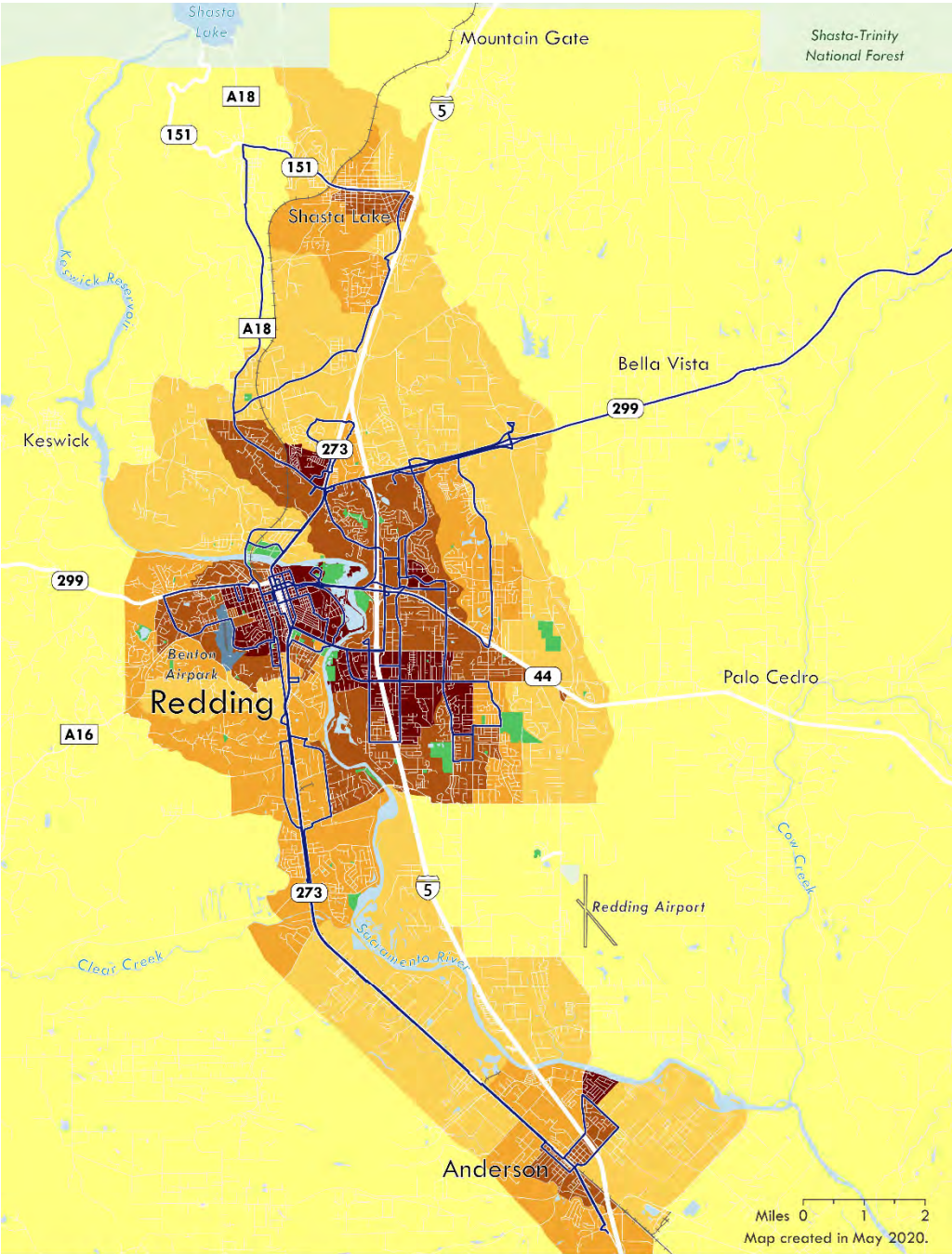
## Demographics

Certain population groups and demographics are more likely to use transit than others. While population and employment density is useful for broadly determining demand for transit, identifying the concentrations of these population groups is useful for understanding where people with a typically high propensity for transit use live. These specific demographics include seniors (ages 65 and older), youth (ages 17 and younger), people with low-incomes (150% of the federal poverty level), total jobs, total low-income jobs, people with disabilities, and zero-vehicle households. These factors can be combined into a single Transit Propensity Index (Figure 2-7) to identify the areas of the region with the highest concentration of these demographics.

Based on this index, the largest demand for transit is clustered in:

- Downtown Redding and the surrounding neighborhoods.
- Turtle Bay and the Park Marina Dr corridor.
- The Hilltop Dr and Hartnell Ave corridors in east Redding.
- Mt. Shasta Mall and Shasta Crossing shopping centers.
- The Lake Blvd corridor in north Redding, including Redwoods Mobile Home Community, Northpoint Apartments, and Heather Ridge Apartments.
- Downtown Anderson and residential developments in northeast Anderson.

Figure 2-7 Redding Urbanized Area Transit Propensity



## Strategic Growth Areas

In 2011 SRTA worked with city and county planners to update the population forecasts for the region and incorporated those updates within the regional demand model. The results of this updated forecasting are shown in Figure 2-8. Countywide population is expected to increase by 17% by 2040, an increase of about 32,500 people.

**Figure 2-8 Shasta County Region-Wide Population Forecasts**

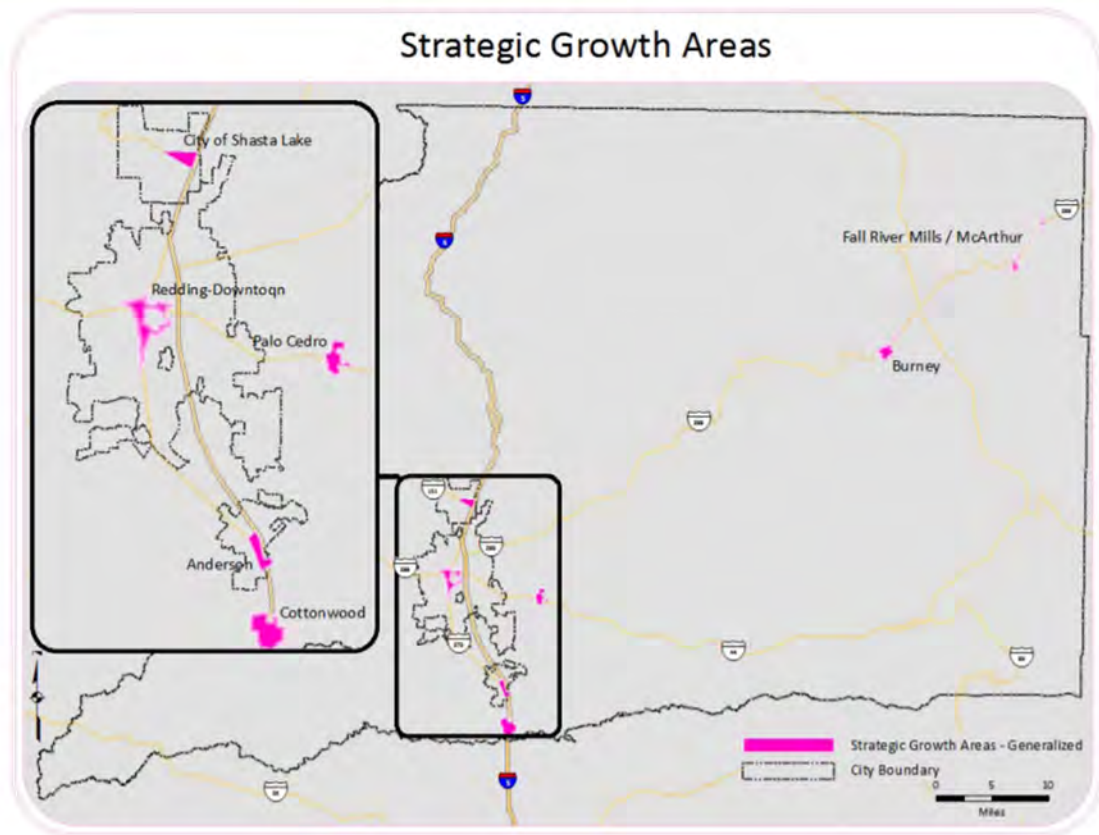
| Year                      | Recommended<br>Countywide<br>Forecast | Anderson   | Redding       | Shasta<br>Lake | Unincorporated<br>Shasta County |
|---------------------------|---------------------------------------|------------|---------------|----------------|---------------------------------|
| 2020                      | 190,192                               | 10,353     | 99,071        | 11,210         | 69,558                          |
| 2025                      | 197,747                               | 10,426     | 103,539       | 11,845         | 71,938                          |
| 2030                      | 205,990                               | 10,498     | 106,666       | 12,478         | 76,348                          |
| 2035                      | 214,364                               | 10,925     | 111,002       | 12,985         | 79,451                          |
| 2040                      | 222,738                               | 11,352     | 115,339       | 13,493         | 82,555                          |
|                           |                                       |            |               |                |                                 |
| <b>Total<br/>Change</b>   | <b>32,546</b>                         | <b>999</b> | <b>16,268</b> | <b>2,283</b>   | <b>12,997</b>                   |
| <b>Percent<br/>Change</b> | <b>17%</b>                            | <b>10%</b> | <b>16%</b>    | <b>20%</b>     | <b>19%</b>                      |

Source: SRTA 2018 RTP/SCS Growth Projections

The 2018 SCS features seven Strategic Growth Areas (SGAs), shown mapped in Figure 2-8, where various strategies can be focused to effectively reduce per capita vehicle miles traveled and associated greenhouse gas emissions. These SGAs build upon the 2010 ShastaFORWARD blueprint which establishes a vision for the region that includes a compact urban core, transit-oriented corridors, and maintains the balance between urban/rural areas. Strategies are intended to increase population and employment density within SGAs and to provide a range of practical mobility alternatives. The seven SGAs, shown in Figure 2-9, include downtown Redding, the City of Shasta Lake, the City of Anderson, Palo Cedro, Cottonwood, Burney, and Fall River Mills/McArthur.

In addition to designating these SGAs, the 2018 RTP also develops goals and strategies for targeted implementation within these areas. This section will outline the transit specific goals, region-wide adopted strategies, and potential strategies for future consideration.

**Figure 2-9 Shasta County Strategic Growth Areas**



Source: SRTA 2018 Regional Transportation Plan

The 2018 RTP identified three goals for the 2018-2022 cycle, which have all made significant progress since the plan's adoption. These goals include:

- **Long-range transit plan** – develop a plan that articulates regional priorities; SRTA's transit coordination role; future transit capital needs; and an overarching transit funding strategy.
- **On-demand transit pilot project service** – beginning with pilot projects for Sunday service in high-demand areas and in the city of Shasta Lake. Based on real-world performance and lessons learned, explore possible service expansion to additional areas and times of day, in accordance with the adopted long-range transit plan.
- **Intercity bus to Sacramento** – Implement North State Express service in accordance with the project grant award, including completion of interagency agreements and ticketing, marketing and launching of new service, and fund seeking for feeder services.

Beyond these transit specific goals for the four-year RTP cycle, SRTA has adopted seven goals necessary to accomplish the regional vision established in the plan:

- **Optimize the use of existing interregional and regionally significant roadways** to prolong functionality and maximize return-on-investment.
- **Strategically increase capacity** on interregional and regionally significant roadways to keep people and freight moving effectively and efficiently.

- Provide an integrated, context-appropriate range of **practical transportation choices**.
- Create **people-centered communities that support public safety, health, and well-being**.
- Strengthen **regional economic competitiveness** for long-term prosperity.
- Promote **public access, awareness, and action** in planning and decision-making processes.
- Practice and promote **environmental and natural resource stewardship**.

Opportunities for additional improvements have been identified should additional funding for planning and implementation be made available to SRTA, local jurisdictions, and community development partners, including:

- **Expanded plug-in electric vehicle charging infrastructure**, including fast charging stations needed to accelerate the market penetration of zero-emission electric vehicles.
- **Expansion of interregional public transportation options**, with a focus on replacing long-distance interregional vehicle trips to airports and other large-urban destinations.
- **Consolidated goods and freight hub**, including capital infrastructure investments needed to support aggregation, wholesale, and distribution of agricultural commodities, natural resources, and other key industries in Shasta County and the North State.
- **Expanded bicycle and pedestrian infrastructure**, including completion of network gaps, enhanced integration with public transportation, and connections between regional trail corridors and the roadway network.
- **Incentives for infill and redevelopment projects**, needed to spur location-efficient development patterns.
- **Technology-based strategies**, including intelligent transportation systems (ITS) applications designed to enhance traffic operations and provide real-time travel information to system users.

## SERVICE AND USAGE

This section describes the operating characteristics of transit service in Shasta County, including available service types, operating hours, fare structures, service guidelines, on-time performance characteristics, ridership and travel patterns, and the impacts of recent transit enhancement initiatives.

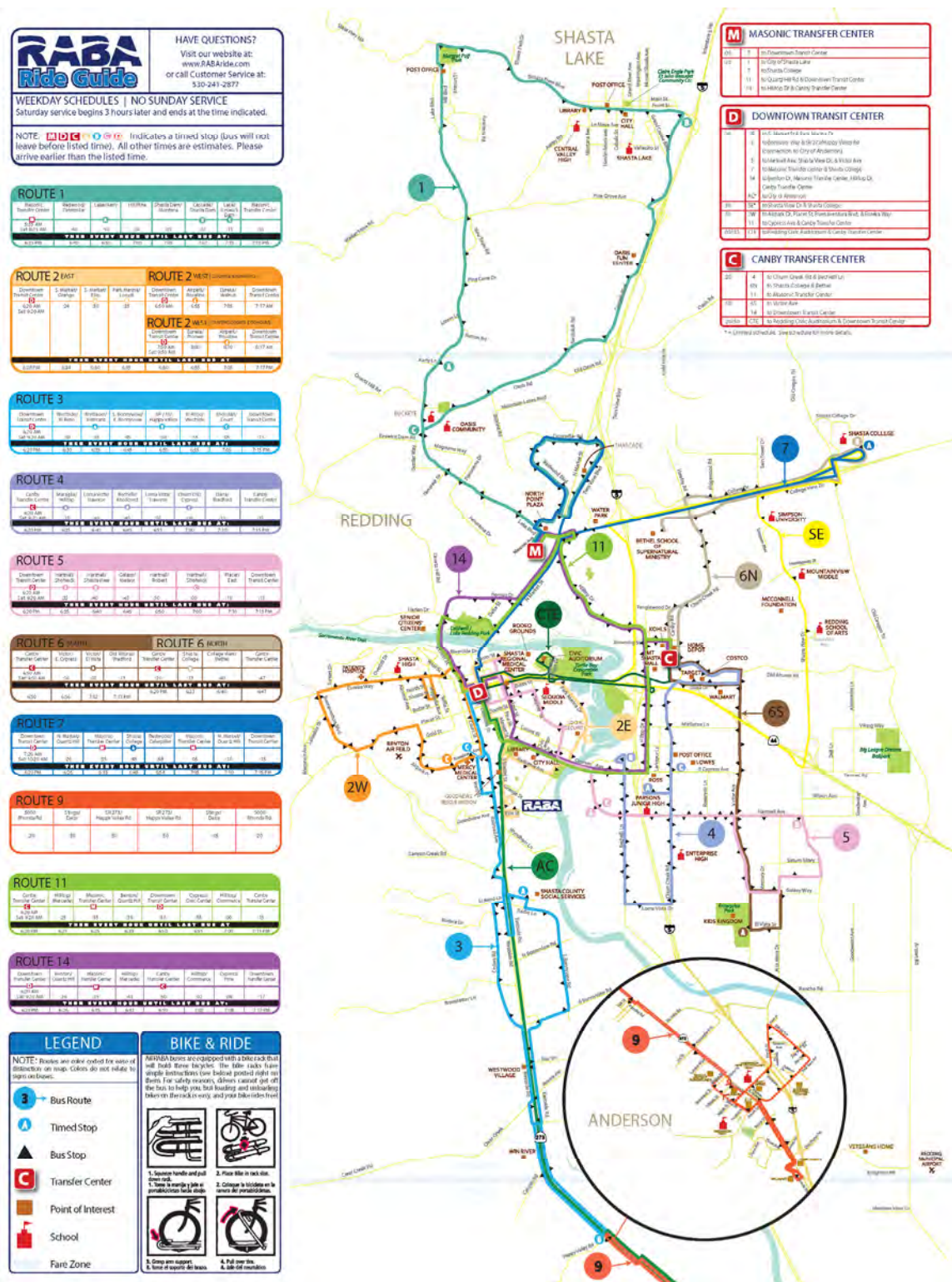
### Service Description

#### Redding Area Bus Authority

RABA currently provides fixed-route bus service, commuter bus service, and complementary paratransit service within the City of Redding. RABA operates ten fixed-routes and three commuter routes, Anderson Commuter (AC), Crosstown Express (CE), and School Express (SE). The RABA system map is shown in Figure 2-10.

**Fact Book | Long-Range Transit Plan**  
SRTA

**Figure 2-10 RABA System Map**



### Fixed-Route and Commuter Service

Fixed-route service is operated on weekdays and Saturdays, with most routes operating every 60 minutes between 6:20 am and 7:30 pm on weekdays and between 9:20 am and 7:30 pm on Saturdays. Fixed-route service primarily operates within the City of Redding with connections to the City of Shasta Lake and the City of Anderson.

Commuter routes operate on weekdays only and the School Express route only operates during the school year. The Anderson Commuter provides one round trip per day between the Anderson Walmart and downtown Redding before interlining with the local Route 9 service. The Crosstown Express provides 30-minute service during peak periods only between the Canby Transfer Center near Mt. Shasta Mall and the Downtown Transit Center. The School Express provides two round trips per day between the Downtown Transit Center and Shasta College, once in the morning and once in the afternoon. Fares for fixed-route and commuter service are shown in Figure 2-11.

**Figure 2-11 RABA Fixed-Route and Commuter Fare Structure**

| Passenger                         | 1-Way Trip |                  | Monthly Pass |                       |                    |
|-----------------------------------|------------|------------------|--------------|-----------------------|--------------------|
|                                   | 1 Zone     | Each Addt'l Zone | Redding      | Redding & Shasta Lake | Redding & Anderson |
| Children (0-5)                    | Free       | Free             | --           | --                    | --                 |
| Youth (6-17)                      | \$1.50     | \$0.75           | \$29.00      | \$29.00               | \$29.00            |
| Adult (16-61)                     | \$1.50     | \$0.75           | \$48.25      | \$82.00               | \$82.00            |
| Senior (62+)<br>Disabled/Medicare | \$0.75     | \$0.75           | \$24.00      | \$41.00               | \$41.00            |

### ADA Paratransit Service

RABA paratransit operates within  $\frac{3}{4}$  mile of the fixed-route system. Service hours are the same as fixed-route service on weekdays and Saturdays. Paratransit service is only available to passengers who submit an eligibility application and demonstrate that they are functionally unable to use the fixed-route bus system. Once eligibility has been verified, passengers may schedule trips using a call in number. Trips must be scheduled at least one day in advance and up to two weeks in advance. Cancellations must be made within three hours of a reservation. Trip reservations are made in 30-minute pick up windows. Paratransit fares are shown in Figure 2-12.

Complementary Americans with Disabilities Act (ADA) Paratransit service for the Redding urbanized area is provided by RABA. However, for residents with an origin and/or destination not served by RABA, paratransit service is also provided by Dignity Health Connected Living (DHCL) which is a non-profit organization. DHCL is the designated Consolidated Transportation Services Agency (CTSA) within Shasta County and provides service under contract to SRTA through June 2022.

**Figure 2-12 RABA Paratransit Fare Structure**

| Passenger      | 1-Way Trip |                  |
|----------------|------------|------------------|
|                | 1 Zone     | Each Addt'l Zone |
| All Passengers | \$3.00     | \$1.50           |

## Burney Express

The Burney Express route provides three round trips per day between Burney and Redding on weekdays only. Although funded by Shasta County, this service is operated by RABA. Fares for the Burney Express are also distanced based and shown in Figure 2-13.

**Figure 2-13 Burney Express Fare Structure**

| From    | To                           |                         |        |         |
|---------|------------------------------|-------------------------|--------|---------|
|         | Shasta College / Bella Vista | Round Mtn / Montg Creek | Burney | Redding |
| Redding | \$2.00                       | \$3.50                  | \$5.00 | --      |
| Burney  | \$3.50                       | \$2.00                  | --     | \$5.00  |

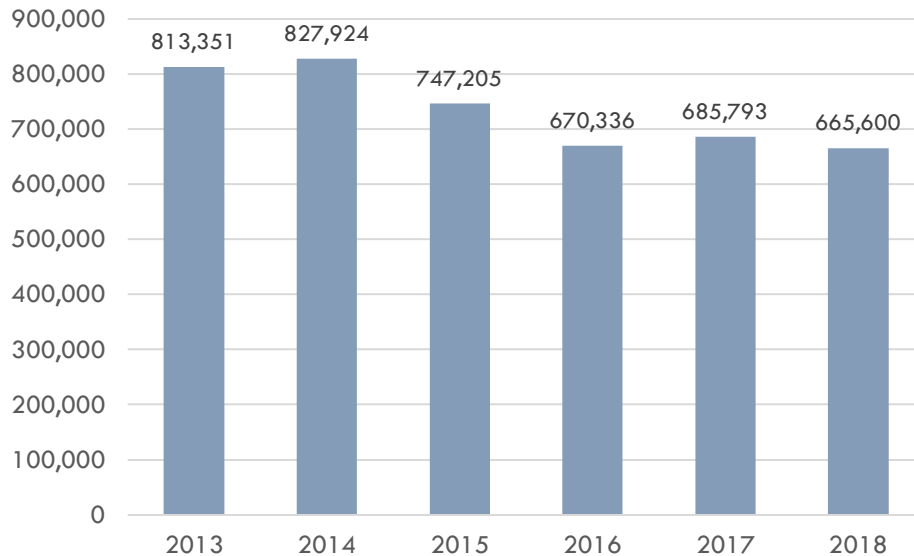
## ShastaConnect

ShastaConnect is a brand name for transit services operated by DHCL under contract with SRTA. Services under ShastaConnect include: CTSA service and the fare free, on-demand service Monday through Friday from 7:30 am to 3:30 pm and on Sundays between 6:30 am and 7:30 pm. The weekday service encompasses a larger area that stretches to include Shasta Lake, Redding, Anderson, Cottonwood, Mountain Gate, Palo Cedro, Shingletown, Lakehead areas and the Airport Road corridor. Sunday service is currently provided in a smaller geographic area that is generally within the sphere of Redding. ShastaConnect service is discussed in more detail in Chapter 4 of this report. Figure 4-6 shows the weekday service area.

## Ridership and Productivity

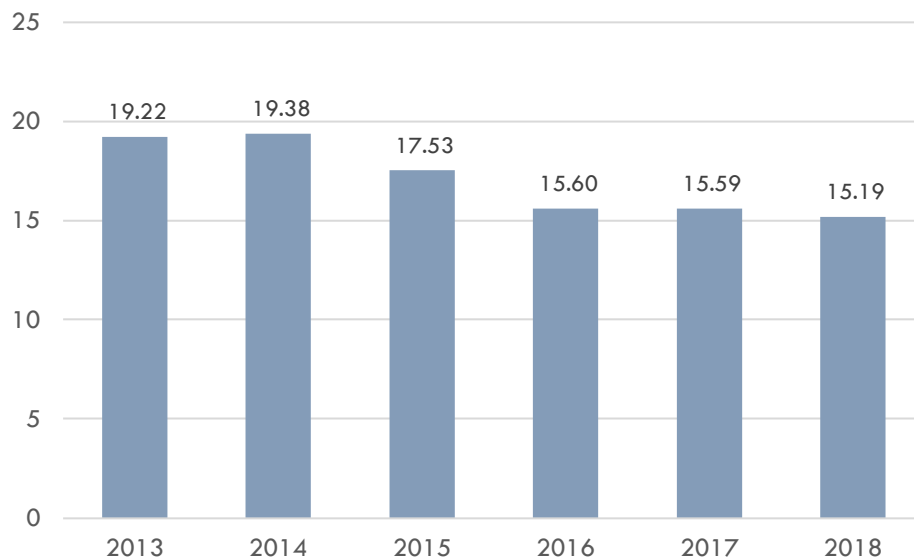
Ridership (annual passenger trips) and productivity (annual passenger trips per revenue hour) are two commonly used performance indicators for public transportation. Systemwide ridership on RABA, as shown in Figure 2-14, decreased by 19% from 2014 to 2016 and has been relatively stable since. Passenger trips per revenue hour, as shown in Figure 2-15, followed a similar trend as ridership, decreasing by 19.5% from 2014 to 2016. Passenger trips per revenue hour have stabilized since 2016.

**Figure 2-14 RABA Annual Passenger Trips 2013-2018**



Source: NTD 2013-2018

**Figure 2-15 RABA Annual Passenger Trips per Revenue Hour 2013-2018**



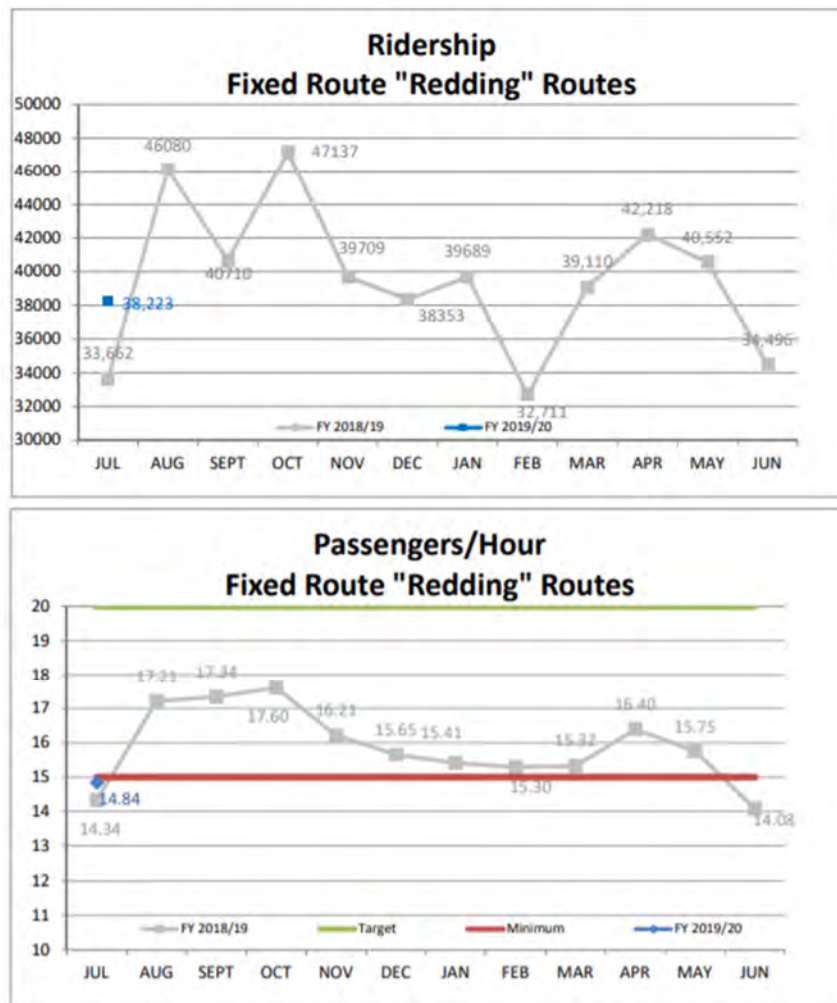
Source: NTD 2013-2018

RABA assesses ridership and productivity based on four different route classifications:

- Intra-city routes (routes 2, 3, 4, 5, 6, 7, 11, and 14)
- Inter-city routes (routes 1 and 9)
- Express routes (airport, school, and crosstown express)
- Burney express contract service

Intra-city routes generally operate within the city of Redding and make up the bulk of the routes in the RABA system. Monthly ridership and productivity for intra-city routes in FY2018-2019 are shown in Figure 2-16. Total ridership on these routes fluctuated between a high of 46,080 boardings in August 2018 and a low of 32,711 boardings in February of 2019. Productivity fluctuated between a high of 17.34 boardings per revenue hour in September 2018 and a low of 14.08 boardings per revenue hour in June 2019. The agency established a target productivity of 20 boardings per revenue hour with a minimum of 15 boardings per revenue hour. RABA intra-city routes failed to reach this target during FY 2018-2019 and was below the minimum standard in July 2018 and June 2019.

Figure 2-16 RABA Intra-city Ridership and Productivity (July 2018-July 2019)

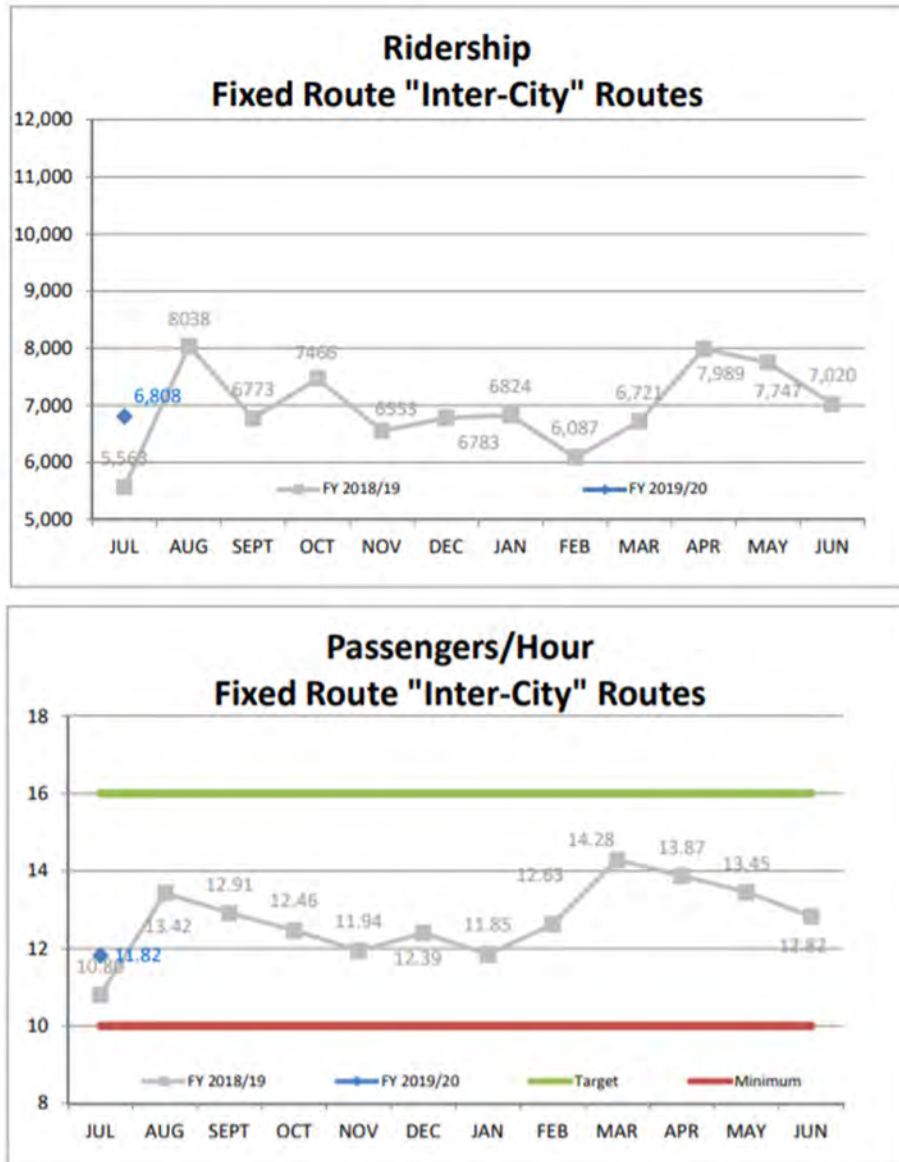


Source: RABA, 2020

RABA inter-city routes include two routes that connect the city of Anderson and the city of Shasta Lake with the city of Redding. Total ridership for these two routes, as shown in Figure 2-17, ranged from a high of 8,038 in August 2018 to a low of 5,563 in July 2018. Productivity ranged from a high of 14.28 boardings per revenue hour in March 2019 to a low of 10.80 boardings per revenue hour in July 2018. These inter-city routes generally operate over longer distances and through less densely populated areas. To reflect these differences in operating characteristics,

RABA established target and minimum productivity levels of 16 and 10 boardings per revenue hour, respectively, lower than for intra-city routes. During FY2018-2019, inter-city routes did not reach target productivity, but were consistently above the minimum productivity threshold.

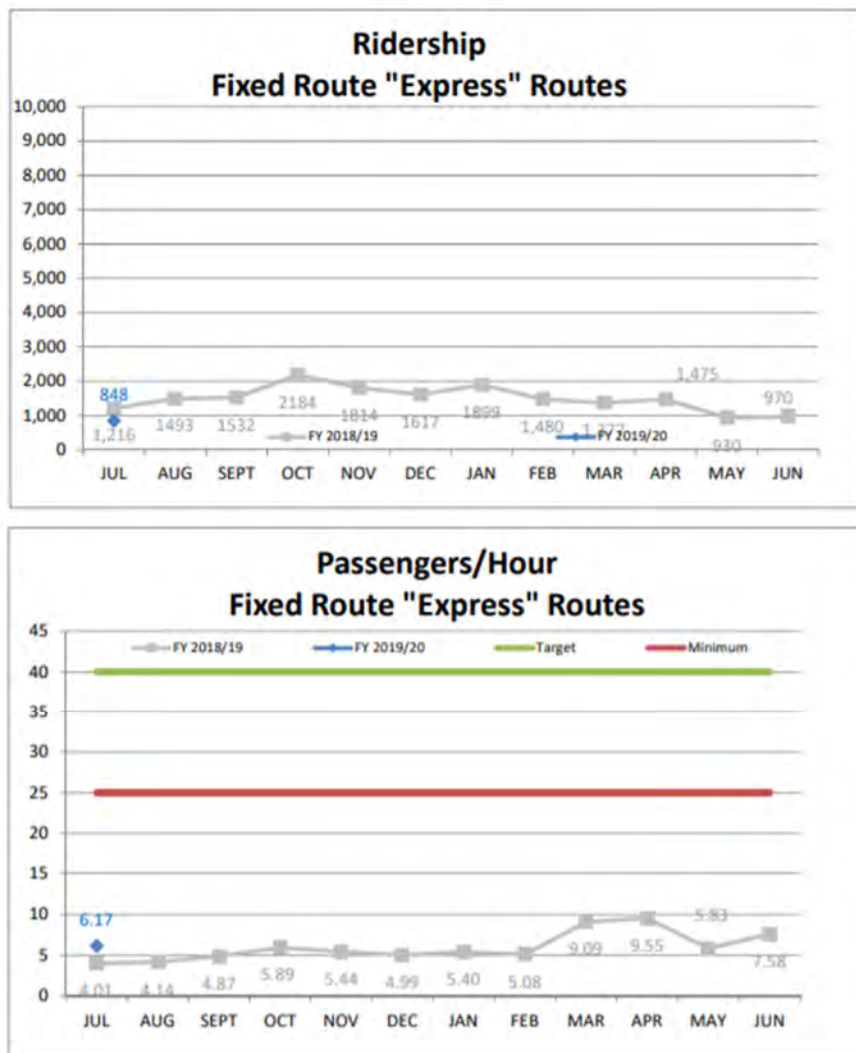
Figure 2-17 RABA Inter-city Ridership and Productivity (July 2018-July 2019)



Source: RABA, 2020

Express routes in the RABA system operate during peak periods only and are tailored to specific markets, including schools, and the Mt. Shasta Mall. Ridership and productivity for RABA express routes in FY2018-2019 are shown in Figure 2-18. Ridership ranged from a high of 2,184 boardings in October 2018 to a low of 930 boardings in May 2019. Productivity ranged from a high of 9.55 boardings per revenue hour in April 2019 to a low of 4.01 boardings per revenue hour in July 2018. Productivity for express routes was significantly lower than the minimum productivity standard of 25 boardings per revenue hour. This suggests that express routes are underperforming and may need to be adjusted in the future.

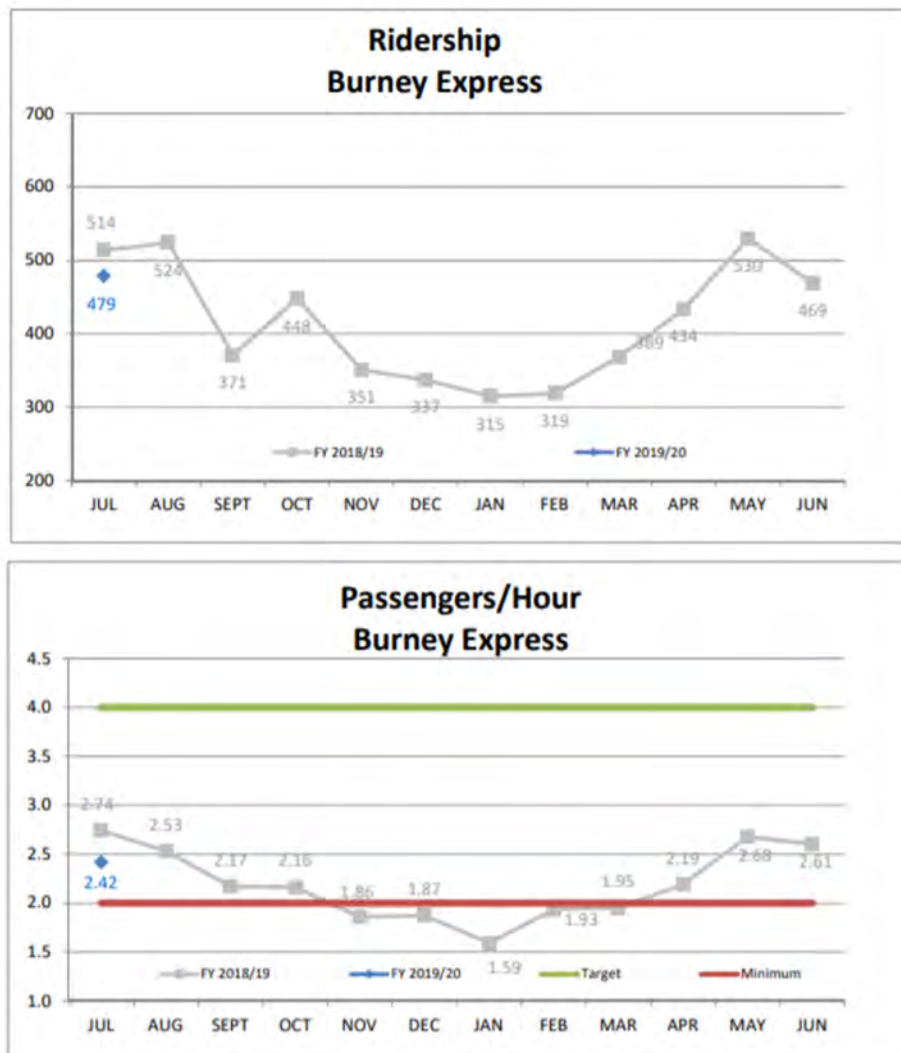
Figure 2-18 RABA Express Ridership and Productivity (July 2018- July 2019)



Source: RABA, 2020

The Burney Express route is funded by Shasta County and operated by RABA. Ridership on the Burney Express, as shown in Figure 2-19, appears to be highest in the spring and summer months. In FY2018-2019, ridership ranged from a high of 530 boardings in May 2019 to a low of 315 boardings in January 2019. Productivity ranged from a high of 2.74 boardings per revenue hour in July 2018 to a low of 1.59 boardings per revenue hour in January 2019. The Burney Express did not reach its productivity goal of 4 boardings per revenue hour during FY2018-2019 and was below the minimum threshold of 2 boardings per revenue hour for five months between November 2018 and March 2019.

Figure 2-19 Burney Express Ridership and Productivity (July 2018- July 2019)



Source: RABA, 2020

## BUDGETS

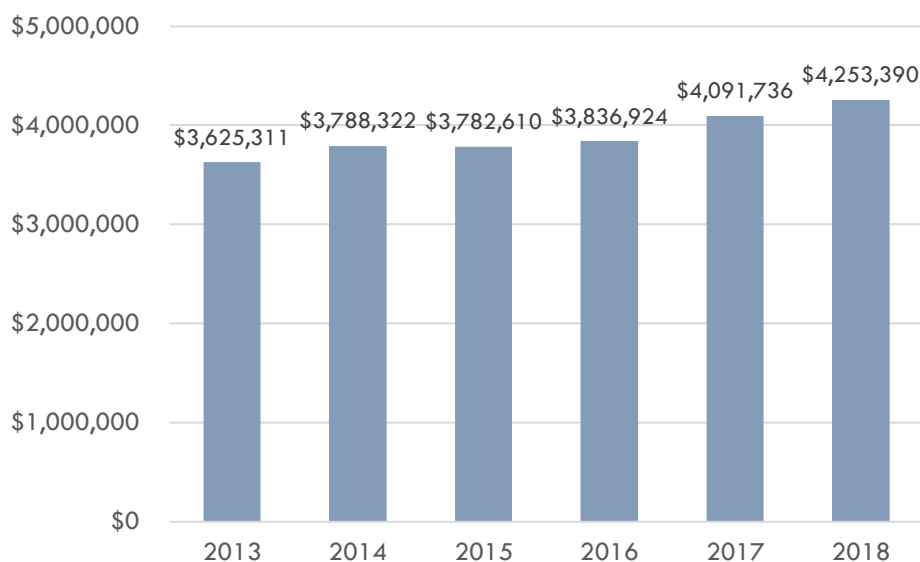
### Transit Revenues, Expenditures, and Financial Sustainability

This assessment compares RABA's current financial performance with previous years. The trends identified in this section paint a data-driven picture of performance which helps to shape the vision and potential for future service priorities. This section assesses five transit performance indicators for the six-year period from 2013 through 2018. The five indicators include:

- Annual Operating Cost
- Operating Cost per Revenue Hour
- Operating Cost per Revenue Mile
- Operating Cost per Passenger Trip
- Farebox Recovery Ratio

Annual operating expenses, shown in Figure 2-20, have been steadily increasing since 2013, reaching a peak of \$4.25 million in 2018. Annual operating costs have increased by approximately 17% since 2013.

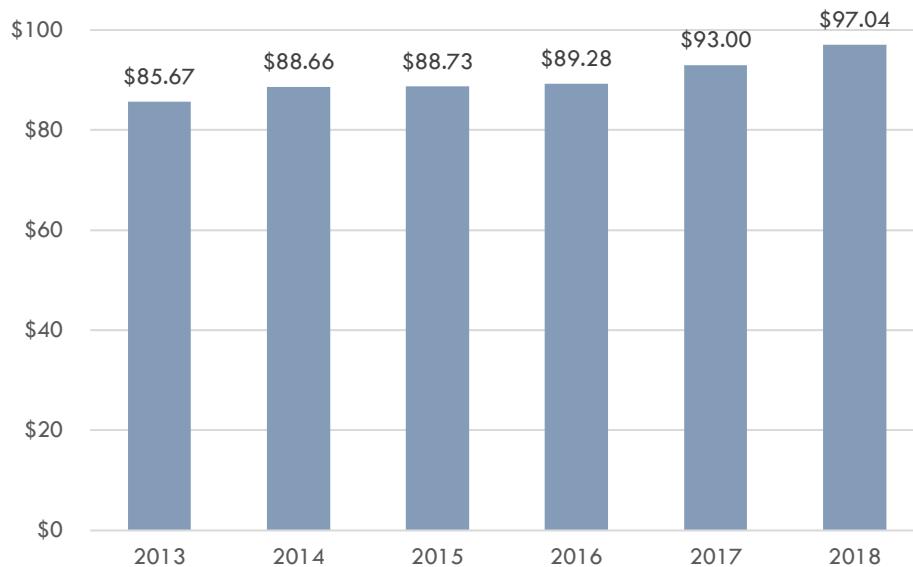
**Figure 2-20 RABA Annual Operating Expenses (2013-2018)**



Source: NTD 2013-2018

Similar to annual operating cost, the operating cost per revenue hour of service has also been increasing steadily since 2013, shown in Figure 2-21. Operating cost per revenue hour has increased by 13% since 2013.

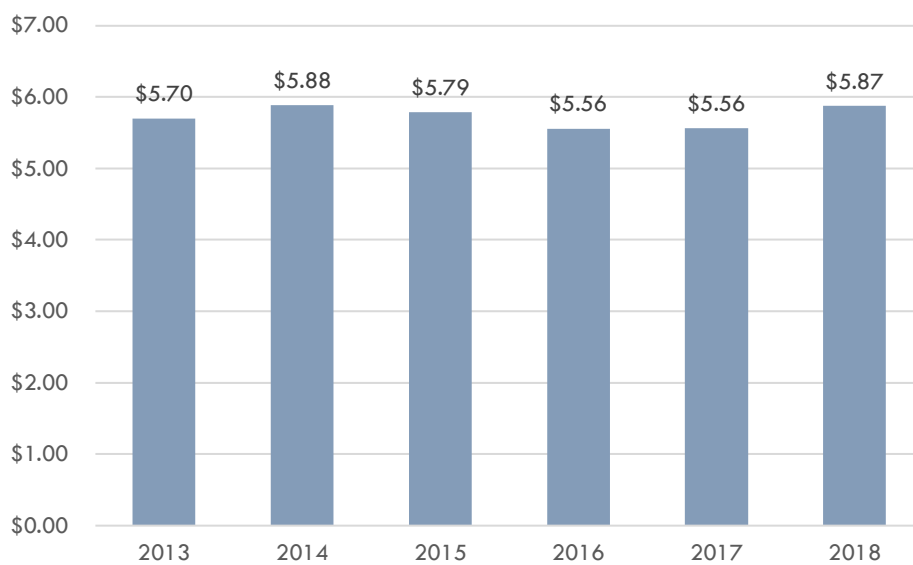
**Figure 2-21 RABA Operating Cost per Revenue Hour (2013-2018)**



Source: NTD 2013-2018

Operating cost per revenue mile, shown in Figure 2-22, have remained relatively stable between 2013 and 2018. Between 2013 and 2018, operating cost per revenue mile increased by 3%. Despite increases in annual operating cost and operating cost per revenue hour, the operating cost per revenue mile decreased between 2014 and 2017 before increasing in 2018. This is a result of revenue miles increasing at a significantly higher rate than revenue hours between 2015 and 2017. Over this two-year period, revenue hours increased by 3.2% while revenue miles increased by 12.6%. This is likely due in part to the implementation and expansion of the Crosstown Express service in 2016 and 2017, which operates over longer distances and at faster speeds.

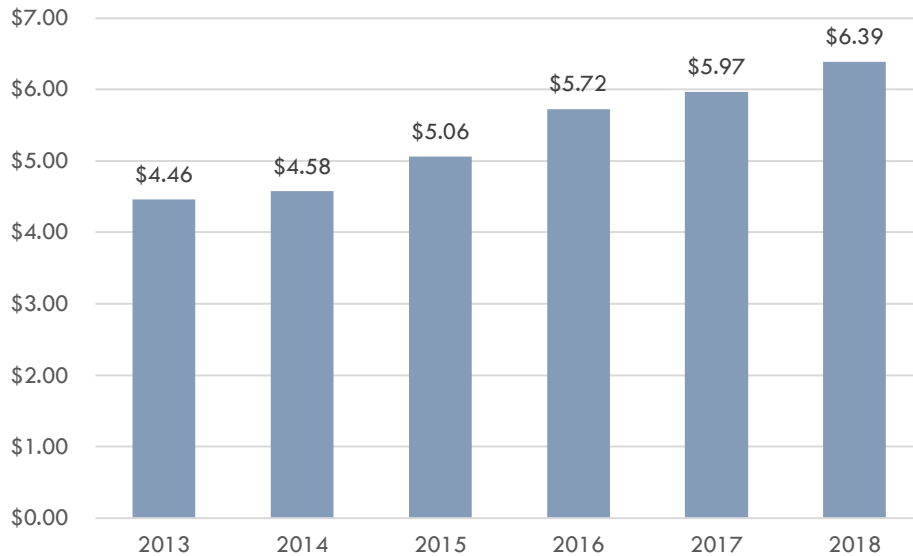
**Figure 2-22 RABA Operating Cost per Revenue Mile (2013-2018)**



Source: NTD 2013-2018

As operating costs have increased over this six-year period, the operating cost per passenger trip, shown in Figure 2-23, has also increased. Operating cost per passenger trip has increased by 43%, from a low of \$4.46 in 2013 to a high of \$6.39 in 2018.

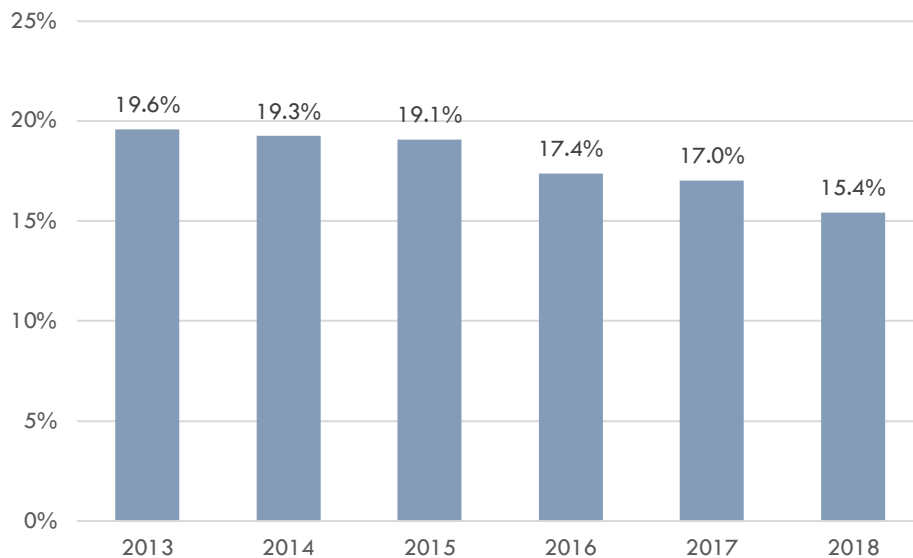
**Figure 2-23 RABA Operating Cost per Passenger Trip (2013-2018)**



Source: NTD 2013-2018

Farebox recovery ratio is the ratio of operating expenses met by farebox revenue. Farebox recovery ratio has been steadily decreasing since 2013. This decrease coincides with the increase in annual operating costs over the same time period. Farebox recovery ratio decreased by 21% from a high of 19.6% in 2013 to a low of 15.4% in 2018.

**Figure 2-24 RABA Farebox Recovery Ratio (2013-2018)**



Source: NTD 2013-2018

## Capital Investments

Recent planned capital expenditures for RABA were detailed in the 2014 Short Range Transit Plan (SRTP). These expenditures fall into three main categories:

- Vehicle acquisition and replacement
- Passenger amenity capital procurements
- Equipment and minor facilities

Actual capital investment expenditures were shown in RABA's annual Transportation Asset Management (TAM) plans. This cross comparison between the SRTP and TAM identifies how priorities may have shifted over the SRTP planning horizon and how expenditures and investments were actually made in the following years.

### Vehicle Acquisition and Replacements

The 2014 SRTP determined that planned optional services would result in a peak vehicle pullout of 30 vehicles, including 12 buses and 16 cutaways, in FY 2018/19. This represented a two vehicle increase in the peak fleet from the time the SRTP was written. Maintaining a 20% fleet spare ratio would increase the total fleet size to 36 buses. Over the 5-year period from 2014-2019, RABA planned to replace 21 buses at a total cost of \$3.3 million.

Following the adoption of the SRTP, RABA has received its first 100 percent electric, zero emissions bus, received four new paratransit vans, and has ordered five new 35-foot buses to replace vehicles in the current fleet which have reached the end of their useful life. From 2014 – 2019, RABA's fixed-route fleet decreased from 18 buses to 17 buses and the demand response fleet decreased from 20 cutaways to 17 cutaways. RABA has continued to invest in new vehicles, replacing those at the end of their useful life but has not achieved the fleet size identified in the SRTP.

### Passenger Amenity Capital Procurements

RABA allocated approximately \$1,000,000 for bus stop improvements over the course of the 5-year planning horizon. The majority of this funding was needed to improve pedestrian and ADA-compliant access to and from the bus stop in a strategic manner.

As documented in RABA's Comprehensive Annual Financial Reports for fiscal years 2014/15 through 2018/19, RABA continuously improved bus stops by adding additional bus benches, lighted shelters, sidewalk connections, crosswalks, and other concrete improvements in accordance with the SRTP. RABA also retrofit existing shelters with solar safety lighting in 2018. RABA is also continuing to acquire solar/safety bus stop lighting with an anticipated completion by the end of fiscal year 2019/20.

### Equipment and Safety

The 2014 SRTP also planned for the acquisition and installation of automatic vehicle location (AVL) hardware, automatic passenger counters (APC), vehicle annunciators, and real time passenger information between 2014 and 2019. There were a number of other equipment and security enhancements that RABA identified in the SRTP, including:

- Upgrades to the farebox equipment
- Replacement and upgrades to the Demand Response Mobile Data Terminals
- Security upgrades as part of the bus stop and transfer center upgrades
- Office equipment and computer replacement
- Shop equipment replacement
- Miscellaneous minor equipment

Since the adoption of the SRTP, RABA has acquired new fareboxes and the associated hardware and software. Automatic Vehicle Location (AVL) was also procured by RABA which tracks buses and aids in relaying real-time bus information. RABA has also acquired Real Time Passenger Information Systems (RTPIS) that will be used to continue work developing traffic signal priority in the city. RABA is also continuing to acquire video/safety cameras in coordination with the City of Redding IT Department with an anticipated completion date by the end of fiscal year 2019-2020. RABA's expenditures on equipment and safety appear consistent with the goals and priorities identified in the SRTP.

## CHALLENGES AND OPPORTUNITIES

An in-depth assessment of the existing data, including local and regional planning documents, demographics, service characteristics, performance trends, and financial status has identified several opportunities and challenges in providing transit service in the Shasta region:

- Regional population is highly concentrated in the Redding urbanized area. however, Redding is a low-density city. The development patterns in Redding encourage automobile travel and present significant challenges for making fixed-route transit, as well as other mobility alternatives, reliable or attractive.
- Outside of Redding, Shasta County is predominantly rural with only a few focused but scattered communities throughout the county. These dispersed populations are difficult to serve with traditional fixed-route transit but present an opportunity to continue exploring innovative approaches to service delivery. Several other counties in California and Oregon face similar challenges and many have found at least partial solutions to the mobility challenges presented by this population pattern.
- There is a perceived high value on maintaining rural character and improving mobility, but it is unclear what that takes or means to everyday life.
- The cost to operate RABA service is rising and farebox recovery ratio for the agency is decreasing. To remain eligible for TDA funding, RABA must increase the farebox recovery ratio for agency and reverse the trend in declining ridership. These trends represent both a challenge for the revenue flow of RABA and an opportunity to continue improving transit service and addressing unmet needs in the community to reverse these trends. TDA funding requirements are unique to the state of California and may be altered or removed with legislative action. While farebox recovery ratio remains a key metric in the short-term, its importance may change in the long-term.

## 3 POTENTIAL NEW TRANSIT FUNDING SOURCES

This chapter discusses the funding sources that are currently available for transit in Shasta County and identifies potential alternative funding sources that could be leveraged to finance expanded service or capital improvements identified through this LRTP process.

### CURRENTLY AVAILABLE REVENUES

#### Fare Box Revenues

Passenger fares are collected for all RABA and SRTA services in Shasta County, with the exception of the grant funded ShastaConnect service pilot project.

#### Local and State Funding Sources

##### Transportation Development Act (TDA)

The Transportation Development Act (TDA) provides two major sources of funding for public transportation: the Local Transportation Fund (LTF) and the State Transit Assistance fund (STA). These funds are for the development and support of public transportation needs that exist in California and are allocated to areas of each county based on population, taxable sales and transit performance. The LTF funds are generated by a ¼ cent local sales tax and STA funds are generated by a statewide sales tax on diesel fuel. STA funds may only be used for transit purposes, while LTF funds may be used for streets and roads purposes when there are no unmet transit needs that are determined reasonable to meet.

The availability of TDA funds is of critical importance to Shasta County. Approximately two-thirds of all RABA funding is derived from the STA and the LTF. Historically, a significant share of these funds has been used for street projects. State law requires that each year TDA funds first be made available for transit purposes. If no transit needs exist that can reasonably be met, the funds can then be used for street projects. The TDA distributions for fiscal year 2019/20 are shown in Figure 3-1. Total TDA funding for the region was over \$10.6 million, 48% of which was allocated to local streets & roads, compared to 24% allocated for public transit.<sup>2</sup>

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<sup>2</sup> 24% LTF to public transit does not include LTF that SRTA dedicates to CTSA service, which is shown as a separate line item in the TDA Budget Summary

**Figure 3-1      Fiscal Year 2019/20 TDA Budget Summary**

| <b>TDA<br/>Funding<br/>Claim</b> | <b>SRTA</b>        | <b>CTSA</b>      | <b>Anderson</b>  | <b>Redding</b>     | <b>Shasta<br/>Lake</b> | <b>Shasta<br/>County</b> | <b>Regional<br/>Total</b> |
|----------------------------------|--------------------|------------------|------------------|--------------------|------------------------|--------------------------|---------------------------|
| Public Transit                   | --                 | --               | \$96,303         | \$2,124,209        | \$102,892              | \$231,588                | \$2,554,991               |
| Local Streets & Roads            | --                 | --               | \$389,179        | \$1,707,181        | \$394,482              | \$2,652,965              | \$5,143,806               |
| Other*                           | \$1,593,326        | \$370,054        | --               | \$950,482          | --                     | --                       | \$2,913,863               |
| <b>Total</b>                     | <b>\$1,593,326</b> | <b>\$370,054</b> | <b>\$485,481</b> | <b>\$4,781,872</b> | <b>\$497,373</b>       | <b>\$2,884,553</b>       | <b>\$10,612,660</b>       |

\*Other includes administrative costs, non-motorized funding, CTSA allocations, and spillover to non-motorized and city reserves

SRTA has also relied on Low Carbon Transit Operations Program (LCTOP) and Transit and Intercity Rail Capital Program funding to implement new services, including the planned Salmon Runner intercity bus service and the ShastaConnect service on-demand pilot project.

Additional non-TDA state funding sources are shown below in Figure 3-2.

**Figure 3-2 Non-TDA State Funding Sources**

| Programs                                           | Acronym | Purpose                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low Carbon Transit Operations Program              | LCTOP   | Provides operating and capital assistance for transit agencies to reduce greenhouse gas emissions and improve mobility, with a priority on serving disadvantaged communities. Approved projects in LCTOP will support new or expanded bus or rail services, expand intermodal transit facilities, and may include equipment acquisition, fueling, maintenance and other costs to operate those services or facilities. |
| State of Good Repair Program                       | SGR     | The Road Repair and Accountability Act of 2017 (Senate Bill 1) established the SGR program to help fund transit infrastructure repair and service improvements. SGR funds are directed annually to the State Transit Assistance (STA) Account for eligible transit maintenance, rehabilitation, and capital projects.                                                                                                  |
| Transit and Intercity Rail Program                 | TIRCP   | Funds capital improvements and operational investments that reduce greenhouse gas emissions, expand rail service to increase ridership, integrate different rail and bus systems, and improve rail safety. Eligible projects include rail and bus capital projects, and operational improvements that result in increased ridership and reduced greenhouse gas emissions.                                              |
| Affordable Housing Sustainable Communities Program | AHSC    | Funds sustainable transportation infrastructure, services, and programs that complement affordable housing projects and that reduce greenhouse gas emissions.                                                                                                                                                                                                                                                          |
| Sustainable Transportation Equity Project          | STEP    | Funding helps disadvantaged and low-income communities identify residents' transportation needs and prepare these communities to implement clean transportation and supporting projects. One to three implementation grants for clean transportation and supporting projects are also funded.                                                                                                                          |
| Clean Mobility Options Voucher Program             | CMO     | Provides voucher-based funding for zero-emission carsharing, carpooling/vanpooling, bikesharing/scooter-sharing, innovative transit services, and ride-on-demand services in California's historically underserved communities.                                                                                                                                                                                        |

## Federal Funding

Federal Transit Administration (FTA) 5307 funds are federal formula funds administered by Caltrans for small urbanized areas, including the RABA service area. RABA has increased 5307 operational funding from its original amount of \$750,000 in 2015-16 to approximately \$1.5 million in 2019-20.<sup>3</sup>

Shasta County also relies on FTA 5311 funds, which provide capital, planning, and operating assistance to states and federally recognized Indian tribes to support public transportation in rural areas with populations less than 50,000. Between 2010 and 2019, Shasta County received between \$238,000 and \$341,000 per year from 5311 funds. SRTA and Shasta County also rely on and FTA 5311(f) funds, which provide funding for public transportation equipment and services

<sup>3</sup> SRTA FY 2019/20 Unmet Transit Needs and Transportation Development Act Budget Staff Report Attachment C: SRTA 2019/20 TDA Apportionments and Transit Obligations

connecting rural areas to urbanized areas. Previously, this funding has been used for an airport service feasibility study and to fund the Burney Express service. In 2019, SRTA distributed over \$84,000 to Shasta County in 5311(f) intercity bus program funding and over \$328,000 to Shasta County in 5311 rural area formula grants funding.

Specifically for capital expenditures, FTA 5339 funds provide capital funding to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities. SRTA has only distributed 5339 funds to RABA and has not distributed this funding since fiscal year 2016. Between fiscal year 2013-2016, RABA received an average of approximately \$166,000 per year in 5339 funding.

Federal formula fund programs are shown in more detail in Figure 3-3 and federal competitive grant programs are shown in Figure 3-4.

**Figure 3-3 Federal Transit Administration – Formula Funds**

| Formula Programs                        | Acronym | Purpose                                                                                                                                      |
|-----------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Metropolitan Planning Program           | 5303    | Supports urban areas in planning activities to develop and improve public transportation systems.                                            |
| Small Urbanized Area Formula Program    | 5307    | Supports public transit capital and operating in urbanized areas with populations under 200,000.                                             |
| Rural and Small Transit Formula Program | 5311    | Supports public transit capital and operating in non-urban areas.                                                                            |
| Bus and Bus Facilities Program          | 5339    | Provides capital funding to replace, rehabilitate, and purchase buses, vans, and related equipment, and to construct bus-related facilities. |

**Figure 3-4 Federal Transit Administration – Competitive Grant Programs**

| Grant Programs                                         | Acronym | Purpose                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intercity Bus Program                                  | 5311(f) | Designed to address intercity travel needs of residents in non-urbanized areas of the state by funding services that provide access to the intercity bus and transportation networks in California.                                                                                                                                          |
| Statewide or Urban Transit Planning Grant Studies      | 5304    | Addresses transit planning issues of statewide or regional significance. Planning studies are intended to improve transit services and to facilitate congestion relief by offering an alternative to the single occupant vehicle.                                                                                                            |
| Elderly and Disabled Specialized Transit Program       | 5310    | Provides capital grants for meeting the transportation needs of elderly persons and persons with disabilities in areas where public mass transportation services are otherwise unavailable. Allows for the purchase of ADA accessible vehicles, communication equipment, mobility management activities, and computer hardware and software. |
| Low or No Emission Vehicle Program                     | 5339(c) | Provides funding to purchase or lease low or no emission transit buses and related equipment, or to lease, construct, or rehabilitate facilities to support low or no emission buses.                                                                                                                                                        |
| Mobility on Demand (MOD) Sandbox Demonstration Program | 5312    | Funds projects that promote innovative business models to deliver high quality, seamless and equitable mobility options for all travelers.                                                                                                                                                                                                   |

| Grant Programs                   | Acronym | Purpose                                                                                                                                                                                               |
|----------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accelerating Innovative Mobility | AIM     | Includes \$11 million in challenge grants to help transit agencies experiment with new ways of doing business, such as exploring new service models that provide more efficient and frequent service. |

## Alternative Funding Strategies

In addition to fare revenue and government funding programs, there are several alternative funding strategies available to public transit agencies, including public private partnerships and resource pooling.

### Public-Private Partnerships

Public-private partnerships have become a commonly used strategy for transit agency revenue generation in recent years. Among the most common of these partnerships is negotiating service delivery and pass products with large employers, universities, or advocacy groups in a city or region. In Redding, RABA currently uses such a partnership to provide passes to students at Shasta College and Bethel School of Supernatural Ministry.

These partnerships are unique in nature and generally negotiated on a case-by-case basis. Bulk pass programs typically involve negotiating a lump sum price or a price per trip to be paid to the agency by the organization receiving passes. As these programs mature, renegotiation may be necessary as ridership patterns evolve and costs change for the agency.

Public-private partnerships can also be used for an agency to directly fund specific services or improvements to specific services. In these cases, major employers may make direct payments to the agency to as reimbursement for services to and from their office locations or to improve frequency of existing routes. The negotiations and marketing for this type of partnership is more complicated than providing bulk passes but has the potential to significantly increase ridership with little to no additional costs to the agency.

### Resource Pooling

While less of a direct financing strategy, pooling resources with existing social service transportation providers and other partner agencies makes resource allocation more efficient and allows for better economies of scale. In the Shasta region, this type of resource pooling partnership is not currently in use but could be explored with RABA or Dignity Health Connected Living to identified opportunities to share resources and reduce overall financial constraints around the planning, administration, and operations of fixed-route and paratransit service.

In the 2017 Shasta Coordinated Transportation Plan, the first challenge to coordination identified is resource constraints. The plan notes that coordination is an ongoing process and organizations may find it challenging to pursue coordination due to limited resources in terms of staff availability, interest, leadership, and funding. While this is certainly a real challenge, the constraints on resources also provide an opportunity to pool shared resources with partners and improve service delivery by using existing resources more efficiently. This approach could include things like shared dispatch centers and software procurement or collaborative planning processes to reduce duplicative work and explore interagency grant opportunities.

## POTENTIAL NEW SOURCES OF REVENUE

### Local Funding Sources

#### Local Sales Tax

Transit service in Shasta County is currently funded with a 0.25% local sales tax. In the state of California, counties, municipalities, and districts are allowed to increase the sales tax in specific jurisdictions up to a total of 10.25%. The current state and local sales tax rate for Shasta County is 7.25%, except in the city of Anderson, which has instituted its own 0.5% local sales tax for a cumulative rate of 7.75%. This means that Shasta County has the option of increasing sales taxes by as much as 2.75% (2.25% in Anderson) through a voter approved sales tax increase. Such a sales tax increase would contribute to the LTF and be eligible for:

- TDA administration costs
- General public transit operations and capital
- Transit-related research and development projects
- Consolidated Transportation Services (CTSA)
- Administration of transit contracts
- Elderly and disabled transit
- Bicycle and pedestrian projects
- Contract payments for transit services
- Local streets and roads
- Multimodal transportation terminals

**Potential Revenue.** In fiscal year 2018-2019, Shasta County generated approximately \$8.5 million in sales tax revenue for the LTF. Increasing the sales tax rate for the LTF from the existing 0.25% to 2.00% would reach the maximum allowable tax rate of 10.25% in Anderson and 9.75% countywide. This increase to the tax rate dedicated to transit represents a maximum potential annual revenue of approximately \$67.6 million based on fiscal year 2018-2019 tax revenues. While this figure represents the maximum potential sales tax revenue, a smaller increase would be more realistic to pursue.

**Reliability.** Increased reliance on sales tax would make revenue more dependent on economic conditions. Sales tax is volatile; receipts can vary substantially with the ups and downs of the state, regional, and local economy. Very little administrative costs would be added since there is an existing administrative apparatus that levies, collects, and remits the tax revenues.

**Equity.** Tax structures that rely on sales tax are generally regressive, with the lowest income households paying a higher percent of income for total excise and property taxes and the highest income households paying a smaller percent of income for the same taxes. Sales tax is the main cause of this regressive impact. The impact of the regressive tax also falls harder on low-income and minority populations. Relying on a sales tax for additional funding further pushes the balance of state and local funding toward local sources.

**Political Feasibility.** Recent sales tax measures in Shasta County have had mixed success in terms of voter support. A proposed 1% sales tax increase under Shasta County Measure A (March 2020) and 0.5% sales tax increase under Redding Measure D (November 2016) were both rejected by voters. While neither Measure A (public safety) nor Measure D (general fund) would

have provided transportation specific funding, they may be indicative of the local appetite for sales tax increases. In 2014, voters in the Shasta Lake approved the Measure C Medical Marijuana Sales Tax (November 2014) and voters in Anderson approved a 0.5% sales tax increase for public safety through Measure A (June 2014). While a voter approved sales tax increase represents the largest potential new revenue stream, the political feasibility in Shasta County makes this an unlikely source of funds until the voting citizens of the area decide that additional funding for any public purpose can improve the community in some important way.

## State and Federal Funding Sources

Shasta County has generally relied on available state and federal funding sources more heavily than local sources. SRTA and RABA should emphasize coordination in service investments and program delivery to leverage the available funding identified in Figure 3-2, Figure 3-3, and Figure 3-4 on a regional level to maximize the effectiveness of limited funds.

In terms of state funding, LCTOP, SGR, TIRCP, and AHSC have all been used or pursued in the past for ongoing operations, pilot projects, and new service investments. There are additional opportunities to continue exploring potential funding from STEP and CMO programs. Federal formula funding from Section 5307 and 5311 will continue to play a large role in transit funding for RABA and SRTA. Competitive grant programs in the past have been pursued on a targeted basis and may provide an opportunity for additional ongoing funding.

## Alternative Funding Strategies

While previously identified as currently available funding sources, public-private partnerships and resource pooling should continue to be explored as ongoing potential new sources of revenue. Engaging in ongoing discussions with major employers in the region is a key step for consensus building, identifying needs and priorities, and securing partnerships throughout the region.

Potential partners include:

- Bethel Church
- Blue Shield-California
- Mercy Medical Center
- Redding Medical Center
- Redding Rancheria
- The McConnell Foundation

## CHALLENGES AND OPPORTUNITIES

A thorough assessment of existing and potential public transit funding sources in Shasta County has identified potential challenges and opportunities within the region:

- The requirement that unmet transit needs be “reasonable to meet” with a locally adopted policy that defines “reasonable to meet” as likely to achieve the TDA required fare box recovery threshold for the entire transit system in order to apply TDA funding to meet the need has presented significant challenges for transit in Shasta County, requiring a greater reliance on grant funding. Application of this definition results in about between 75% and 40% of available TDA revenues being used for purposes other than transit in the region. This situation is the direct result of the structure of the state’s TDA funding laws. The

- primary metric deployed to determine the feasibility or desirability of new or improved transit service is farebox recovery rather than any other potential measure of community or rider benefit as a way to measure the “reasonable to meet” standard.
- Exploring additional public-private partnerships with major regional employers, healthcare and hospital networks, and non-profit organizations provides an opportunity for additional agency revenue and resources, either through bulk pass programs, directly funded service, or partnership programs.
  - While politically unlikely in the current financial climate, a sales tax increase represents the largest potential opportunity for additional transit funding in Shasta County. The potential revenue from such an increase should be assessed in greater detail along with all other potential sources of revenue to create a maximum alternative funding scenario for the California Air Resources Board (CARB)-dictated regional greenhouse gas reduction target setting and SCS evaluation process. However, it must be recognized that these state laws cannot force local voters to approve a sales tax increase for transit. That is, and will remain for the foreseeable future, a process directly dependent on local determination.
  - While new funding sources and partnerships are possible and highly desirable it is highly unlikely that these sources will be adequate to meet the aspirational goals in the Sustainable Community Strategy to either increase transit service to the goal levels established in the SCS or reach the desired mode split for travel in the region. While accessing these alternative funding sources to improve public transit may create community momentum for broader financial support of transit funding, transit improvement in the Shasta region will be an on-going challenge. The continued effort to create new funding sources will create significant “friction” for forward progress absent some exogenous factor that shifts local thinking about mobility.

## 4 EVALUATION OF RECENT TRANSIT ENHANCEMENT INITIATIVES

This chapter discusses recent transit initiatives which have been planned for Shasta County. Out of the three services, only one service – ShastaConnect Sunday Service was running briefly from October 2019 to March 2020. All of these services were suspended due to COVID-19. Re-start, or start, dates for some of these initiatives remain unknown at the time this document was written and updated (June 2020/February 2021). Of the three services ShastaConnect was both re-started and expanded in November 2020. Because of the current nature of these pilots, it is too early in the process to reach conclusions about the success of the service or lessons learned from the pilots. Those over-arching conclusions will need to be revisited as the pilots mature.

The locally adopted TDA allocation process only allows LTF funds to be utilized for transit improvements if the unmet needs are determined to be “reasonable to meet.” Recent transit initiatives have not been deemed to meet this criterion and instead have primarily been grant funded or funded through philanthropic organizations. Due to the nature of these funding sources, recent initiatives have largely explored alternative services, rather than traditional fixed-route transit. Exploration of alternatives is a positive step. The demographic and geographic make-up of the region make the area an ideal location for greater deployment of non-traditional transit services and designs. These service types are designed to meet the unique criteria associated with the funding source, including intercity bus service and new, fare free on-demand service to qualify for LCTOP funding.

These are pilot, or demonstration, services. A key reason to use this method of introducing new services is to learn if an alternative service type could be deployed long-term to meet specific community goals. It is also important to learn the specific ins and outs of operating a specific service. In offering pilot services either success or failure are legitimate outcomes. Test the concept for fit and operational feasibility, learn what can be learned, then decide on the long-term. There are two key factors that must be a part of a successful pilot service, regardless if the service is adopted for long-term deployment.

- 1.) Ensure “success” is defined ahead of the pilot. What metrics, specifically, will be used to determine the potential for the pilot service to meet community needs in the future?
- 2.) Set up the pilot to allow changes in deployment or use as the pilot proceeds. Too often some seemingly minor detail of a service becomes a pivotal factor in a service success or failure. A mid-stream adjustment to that minor detail may make the difference between discovering a service that has community benefit versus running a pilot just to run a pilot.

## SALMON RUNNER INTERCITY BUS

The Salmon Runner service has not yet been implemented, so there are few identifiable operating costs, impacts, and lessons learned associated with this service. However, the assumptions and projections outlined in the Salmon Runner business plan provide context and estimates for potential impacts and outcomes of the service.

The Salmon Runner Intercity Bus service was developed to address an unmet need in the North State region and to provide convenient, cost effective transportation between Redding and Sacramento. The service is connected to a feeder system from Butte, Glenn, and Tehama counties with future connections planned to other rural northern California counties. The Salmon Runner was awarded \$8.461 million in 2018 from the Transit and Intercity Rail Capital Program (TIRCP) which was for capital equipment use.

Using multiple source data, including mobile source data, annual ridership for the entire system's first year is estimated to be approximately 58,500. Annual ridership is projected to increase annually based on marketing, system familiarity, system optimization, and planned expansion. Figure 4-1 shows the estimated ridership at full implementation of the Salmon Runner bus system as being implemented with the I-5 Backbone and North Valley Feeder.



**Figure 4-1 Salmon Runner Ridership Projections**

| Route               | Ridership Estimates |                   |               |
|---------------------|---------------------|-------------------|---------------|
|                     | Year 1 Ridership    | Year 12 Ridership | Daily Average |
| I-5 Backbone        | 31,218              | 31,402            | 85.79         |
| North Valley Feeder | 27,288              | 27,450            | 75.00         |
| Full System         | 58,506              | 58,852            | 161.00        |

The Salmon Runner will eventually use seven battery-electric buses. Each bus will be selected during the procurement process to meet the range and capacity needs of the route it serves. An overview of vehicle needs to operate the Salmon Runner is shown in Figure 4-2. The I-5 Backbone will use five 40 foot plus buses, with three vehicles charging in Redding each night and two charging in Sacramento. The North Valley Feeder will use two smaller transit vehicles with a higher mileage range.

**Figure 4-2 Salmon Runner Vehicle Requirements**

| General Vehicle Needs |                    |              |                          |       |                         |
|-----------------------|--------------------|--------------|--------------------------|-------|-------------------------|
| Route Name            | Number of Vehicles | Trip Mileage | Absolute Range Necessary | Seats | Approximate Charge Time |
| I-5 Backbone          | 5                  | 170          | 238                      | 30+   | 3 hours                 |
| North Valley Feeder   | 2                  | 140          | 196                      | 20+   | 2hours, 20 minutes      |

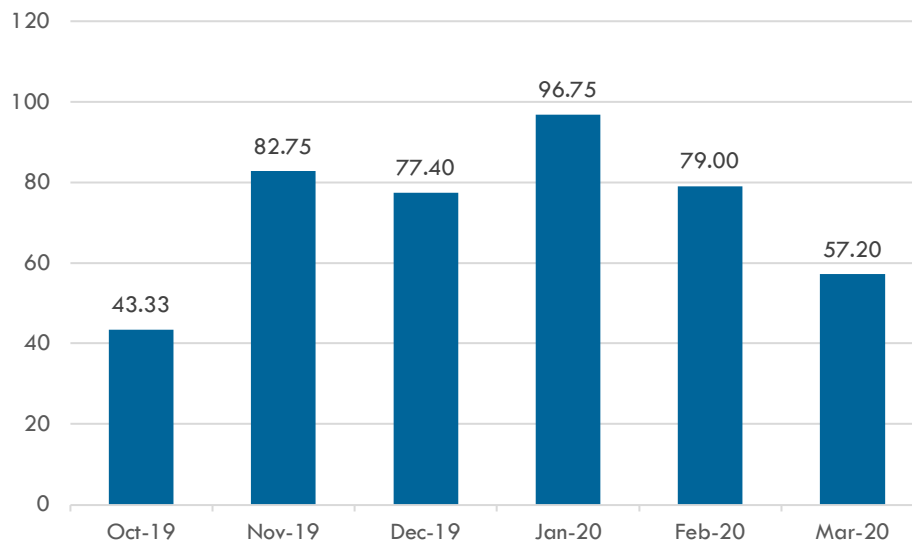
The Salmon Runner would provide an affordable mode of transportation between Northern California communities. Fares are structured so that the highest fare is \$20 and the lowest is \$5, allowing exceptions for current services to continue offering lower fares for short distances.

## SHASTACONNECT ON-DEMAND SERVICE PILOT PROJECT

The ShastaConnect fare free on-demand service pilot project was developed to address an identified unmet transit need. Trips are scheduled through a smartphone application or call in number. A single reservation can accommodate up to six passengers. The initial service for ShastaConnect started in October 2019 was intended to gauge demand for Sunday service, while testing whether on-demand mobility options are a cost-effective way to meet this demand.

The initial pilot for ShastaConnect was in operation for just over five months (October, 2019 – March, 2020) before temporarily suspending service due to the COVID-19 pandemic. Average daily ridership over this period, as shown in Figure 4-3, nearly doubled from October to November and appeared to have stabilized over the next four months before declining in March 2020. This decline is likely due to the statewide stay-at-home order issued in California on March 19, 2020. Additionally, SRTA made a concerted effort to limit marketing for ShastaConnect until dispatching software could effectively scale up to meet existing demand, reducing the potential ridership on the service.

**Figure 4-3 ShastaConnect Average Daily Ridership by Month**



Source: SRTA, 2020



Funding for ShastaConnect is primarily limited to LCTOP funding. These funds support new or expanded projects if they reduce GH emissions. One of the requirements of LCTOP funding is that the service needs to use free fare vouchers, meaning that the service would be free to all users. There is no known free on-demand public transportation service, so the ridership and demand levels were very uncertain during project initiation. ShastaConnect is currently funded through October 2021 and may need to institute fares if grant funding is no longer available.

The Sunday On-Demand Transit Service Demonstration Project Business Plan lays out 11 targets for the following performance measures and targets, as shown in Figure 4-4.

Figure 4-5 shows the cost per passenger trip for ShastaConnect over the roughly five-month operating period. Cost per passenger fluctuated from a high of \$36.90 in February 2020 to a low of \$21.76 in November 2019. While the ridership and financial history are short-lived, it is important to note that the cost per trip was lowest in November 2019 and January 2020, which also coincide with the highest ridership months for the service. This is a positive trend, but because the ShastaConnect pilot was disrupted, it is unclear whether this on-demand service is a cost-effective method for providing Sunday service.

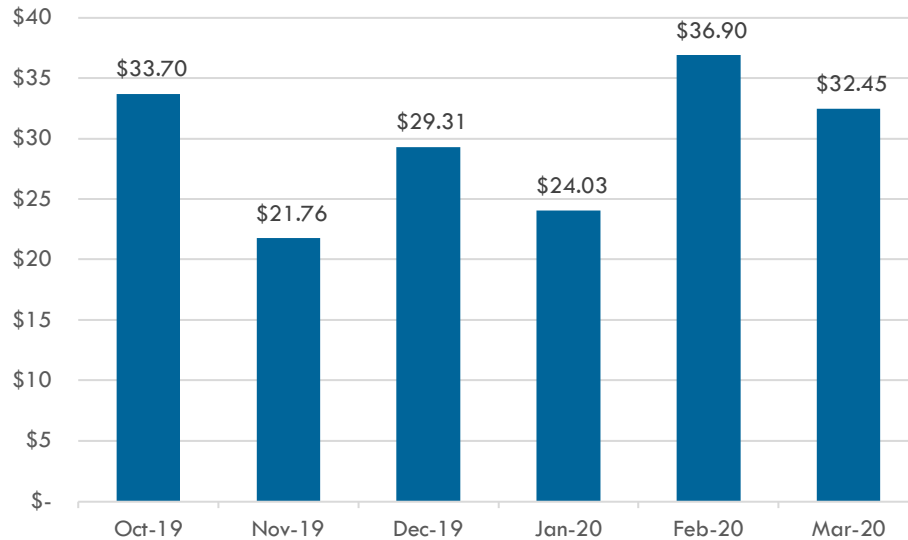
In November 2020, using LCTOP funding, service was reintroduced and expanded from Sunday-only service in parts of Redding to now also include Monday through Friday service across the three-city urbanized area and surrounding rural communities. A map showing the Monday through Friday service area is shown in Figure 4-6. Rider eligibility was also

**Figure 4-4 ShastaConnect Performance Measures**

| Performance Measure               | Target Standard |
|-----------------------------------|-----------------|
| Passengers per Hour               | 4.5             |
| Cost per Vehicle Revenue Hour     | \$42.58         |
| Average Annual Subsidy per Trip   | \$11.43         |
| Passengers per Revenue Mile       | 0.2             |
| Denied Trips                      | 0               |
| Number of Valid Complaints        | 0               |
| Number of Missed Trips            | 0               |
| On-Time Performance               | 90%             |
| Trips Exceeding Maximum Wait Time | Less than 5%    |
| Trips Exceeding Maximum Ride Time | Less than 5%    |
| Seat Utilization                  | 25%             |

expanded and reverse trip, or supply-side, service (e.g. grocery home delivery) was also added. At the writing of this report, limited ridership data and operational data is available for analysis. Ridership and cost per passenger trip should continue to be monitored and this service should be considered for expansion where most appropriate.

**Figure 4-5 ShastaConnect Cost per Passenger Trip by Month**



Source: SRTA, 2020

**Figure 4-6 ShastaConnect Weekday Service Area – November 2020**



The ShastaConnect program builds upon research and analysis performed as a part of the Shasta Lake Microtransit Feasibility Study, which presents several relevant key findings for long-term adoption of an on-demand transit program. These findings include:

- Riders would have to pay higher fares if they are transferring to RABA
- Challenges to achieve minimum farebox recovery ratio required under TDA
- Existing RABA riders would no longer be part of a cohesive transit system

While these challenges were identified as a part of a separate planning process, they are applicable to any microtransit or on-demand service within the RABA service area.

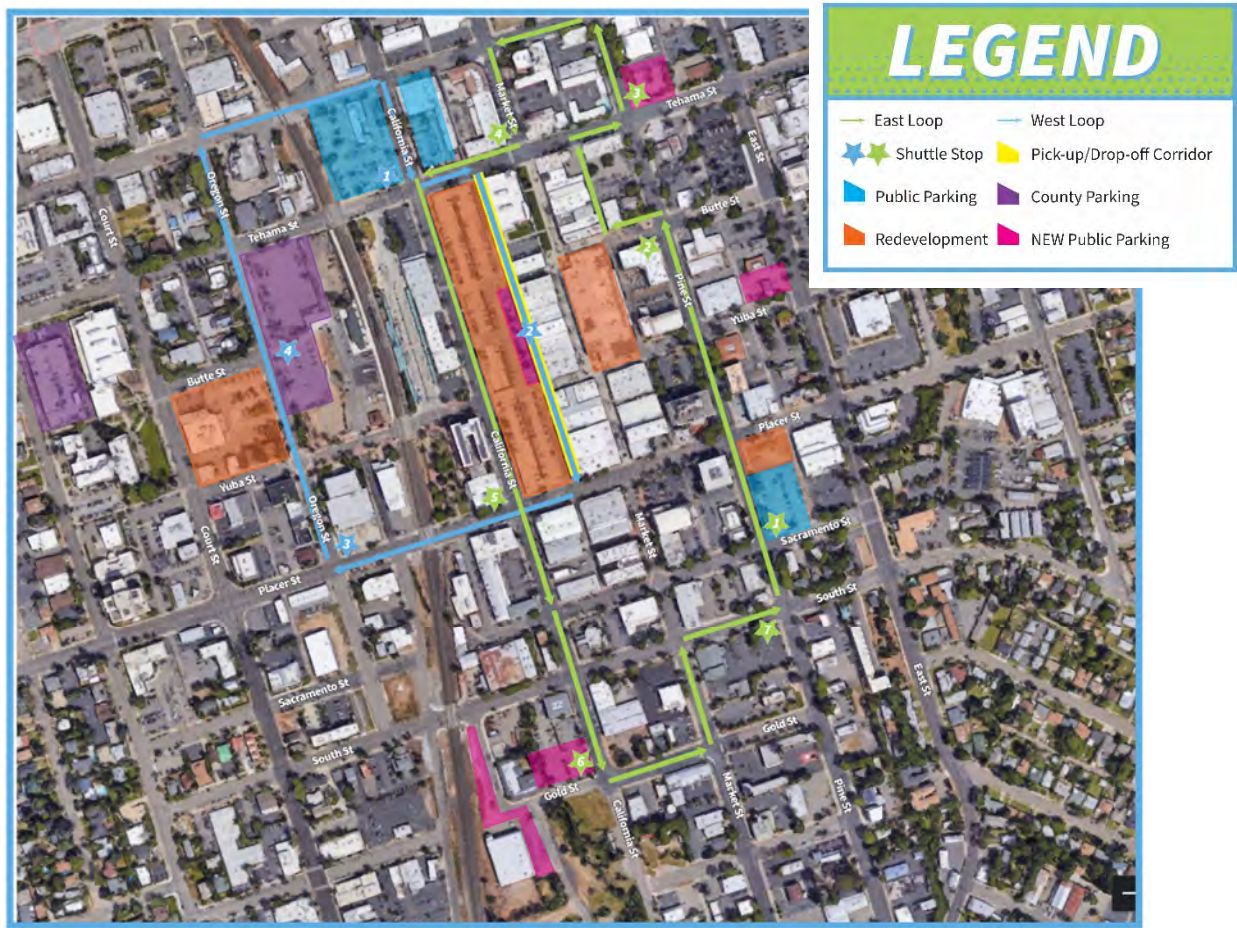
## **DASH DOWNTOWN SHUTTLE**

The Downtown Area Shuttle (DASH) is a fare free service that is planned for downtown Redding. The service was scheduled to launch in mid-March 2020 but was delayed due to COVID-19 impacts. DASH service was developed as a partnership between the McConnell Foundation, City of Redding, Redding Police Department, and Redding Electric Utility with additional support from other downtown organizations.

DASH service was planned in response to removing a central parking structure in downtown Redding to support ease of motion throughout downtown during the ongoing construction. DASH is intended to transport those who live, work, and play in downtown Redding into the city's center from outlying parking lots, connecting them with shops, restaurants, and attractions. The shuttles will run on two distinct loops, shown in Figure 4-7, which will circle every eight to ten minutes at designated shuttle stops. DASH is tentatively scheduled to run Monday through Friday at three peak travel times:

- 6:45 am – 8:45 am
- 10:30 am – 1:30 pm
- 3:30 pm – 5:30 pm

Figure 4-7      Planned DASH Routes



## CHALLENGES AND OPPORTUNITIES

Recent transit initiatives in Shasta County are impacted by matching available funding in the region to opportunities. Recent innovations in public transit have relied primarily relying on grant funding. This approach presents a number of challenges and opportunities for future service improvements in the region:

- The requirement that unmet transit needs be “reasonable to meet” in order to qualify for LTF funding presents a significant challenge to improving existing service and investing in new service types, or even using that funding for pilot services. Additionally, determining which agency or entity will operate integrate pilot projects and integrating new services with existing services further complicates the issue.
- SRTA’s ability to leverage available grant programs into alternative service models and improvements represents an ongoing opportunity to continue implementing pilot projects and developing case studies for new services.
- As SRTA continues implementing pilot projects, a review of lessons learned, best practices, and guiding documentation will ensure ongoing success of recent and future improvements. The situation presents an opportunity to ensure successful pilot projects and a better position for the agency to leverage grant opportunities in the future.
- A challenge for SRTA is to continue to explore new funding mechanisms for programs that are not pilots and that require on-going funding for success and/or sustainability. For example, if the ShastaConnect On-Demand service pilot is determined to be successful, a challenge will be that it is unknown if the service can be partially sustained by fares (as the demonstration service is being operated fare free) and if the potential revenues generated will offset enough of the cost of the service to qualify for TDA funding allocation under the current policy of needing to demonstrate the ability to meet TDA farebox recovery standard (15% fare box recovery ratio). This situation is a significant challenge to establishing funding for innovative services if they make it through a successful pilot.

# **Appendix B 2020 Community Questionnaire Summary Report**



## Introduction

In July 2020, the Shasta Regional Transportation Agency (SRTA) as part of the 2040 Long-Range Transit Plan implemented a three-week community education and awareness campaign which included collaborating with community partners, a social media campaign, an informational video and a media relations effort. Community members were also encouraged to participate in an online questionnaire to provide their thoughts about future transportation options. The community questionnaire was open to the public from Wednesday, July 22, 2020 to Wednesday, August 12, 2020. The project team reached more than **7,200 people** through the Education and Awareness campaign and received more than **250 responses** from community members



*Redding Area Bus Authority (RABA) bus driving in the Shasta region*

## Plan Background

Over the next 20 years, the Shasta's population will grow by 17%, adding more than 32,000 people to the region. To keep people moving and preserve the region's quality of life, a Long-Range Transit Plan is needed to effectively plan for future transportation facilities and services.

The Shasta Regional Transportation Agency's Long-Range Transit Plan will be the 2040 blueprint for a sustainable, safe, innovative, integrated, and efficient transit system. It will also help prioritize future transit projects and create a holistic transit system that meets the needs of current and future residents. Through the 2040 Long-Range Transit Plan, SRTA will explore current and potential public transportation strategies, evaluate these options for local applicability, and develop recommendations for integrating public transportation into the region's overall mobility plan.



*Thumbnail for the informational project video*

## Methodology

When participants visited the project webpage at [www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com), they were able to learn more about how the Shasta region is changing over the next 20 years, why the Long-Range Transit Plan is



important, and potential mobility options to accommodate future growth. Additionally, participants provided their feedback on how they currently use public transportation to get around their community, and how resources and funds should be allocated to best fit their needs.

The project webpage included a series of informational project videos that [provided more information about the project](#) and [future mobility options](#).

The project team received 258 submissions from community members. A full list of the submitted comments is available in the Appendix.

The online community questionnaire consisted of eleven (11) questions asking for feedback on:

- How participants currently get around in their community
- Alternative modes of transportation considered for the Shasta region
- Priorities for use of transit resources and funds over the next 20 years

## Education & Awareness Campaign

During the three-week outreach process, the project team implemented an education and awareness campaign to increase community participation. To help spread the word about the community questionnaire, the project team created a series of informational graphics with unique digital messaging. Community partners which consisted of local jurisdictions, transit agencies, school districts, public health organizations, tribal organizations, chambers of commerce, and community-based organizations serving youth, seniors and disadvantaged communities were identified and contacted to discuss SRTA's planning efforts for the long-range plan and its corresponding public outreach opportunity. Digital communication materials were provided to partner organizations and agencies to share with their constituents through communication channels like email, social media, and newsletters. Full-sized versions of the graphics and flier are available in the Appendix of this document.



*Social media graphic used during education and awareness campaign*

As a result, the campaign garnered 258 responses on the questionnaire, 12,858 impressions on social media, and nearly 200 views on YouTube with more than **7,200 people** who were informed of SRTA's 2040 Long-Range Transit Plan.



## Community Partners

Information about the online community questionnaire was shared with more than sixty (60) organizations or agencies in the Shasta region. The following organizations shared information about the questionnaire through email or e-newsletter:

- Dignity Health Connected Living
- LIFE (Local Indians for Education)
- Redding Chamber of Commerce
- Redding Parks and Trails Foundation
- Shasta Economic Development Corporation
- Turtle Bay Exploration Park

## Media

The project team sent two media releases sharing information about the online community questionnaire to 18 local news outlets. One media release was sent at the launch of the questionnaire, and the second was sent to announce the deadline extension. Additionally, the first media release was shared with the Social Services Transportation Advisory Council (SSTAC) and with several tribal partners in the Shasta region.

- [Shasta County News Source](#)

## Social Media

The project team share information about the online questionnaire through several targeted Facebook and Instagram posts. The project team used messaging targeted towards specific cities in the Shasta region to build public interest in the Long-Range Transit Plan and the online questionnaire. Below is a summary of the results:

- [Post #1](#): Launch of Community Questionnaire - July 23
  - 690 impressions (views)
  - 19 engagements (post clicks)
  - 4 link clicks
- [Post #2](#): Redding targeted messaging - July 30
  - 2,583 impressions (views)
  - 56 engagements (post clicks)
  - 9 link clicks
- [Post #3](#): Anderson targeted messaging - July 31
  - 1,144 impressions (views)
  - 21 engagements (post clicks)
  - 1 link clicks
- [Post #4](#): Shasta Lake targeted messaging - July 31
  - 2,000 impressions (views)



*Social media post for the questionnaire deadline extension*



# Community Questionnaire Summary

2040 Long-Range Transit Plan  
July - August 2020

- o 64 engagements (post clicks)
  - o 18 link clicks
- [Post #5](#): Redding targeted messaging (deadline extension) - August 5
  - o 3,101 impressions (views)
  - o 62 engagements (post clicks)
  - o 16 link clicks
- [Post #6](#): Shasta Lake targeted messaging (deadline extension) - August 5
  - o 1,658 impressions (views)
  - o 9 engagements (post clicks)
  - o 2 link clicks
- [Post #7](#): Anderson targeted messaging (deadline extension) - August 5
  - o 1,682 impressions (views)
  - o 12 engagements (post clicks)
  - o 2 link clicks

Additionally, the Shasta Regional Transportation Planning Agency (SRTA) shared information about the questionnaire on Facebook and Twitter.



*SRTA's social media post about the questionnaire*

Below is a list of community partners that shared a graphic or flier to promote the online community questionnaire through Facebook, Instagram, Twitter or Nextdoor:

- Shasta County
- City of Anderson
- City of Redding
- City of Shasta Lake
- Ride Redding
- Salmon Runner
- Shasta Lake Chamber
- Shasta Lake Community Discussions
- ShastaConnect
- Tri-County Community Network

Additionally, the informational project videos received 195 views on YouTube.

## **Email**

The Shasta Regional Transportation Agency sent an email notification about the online community questionnaire to a public distribution list of more than 250 contacts. Subsequently, email reminders were sent to the public distribution list a week before the close date and a day before the close date.

Additionally, the project team sent a personal email to questionnaire participants asking them to share with their friends, family and colleagues.



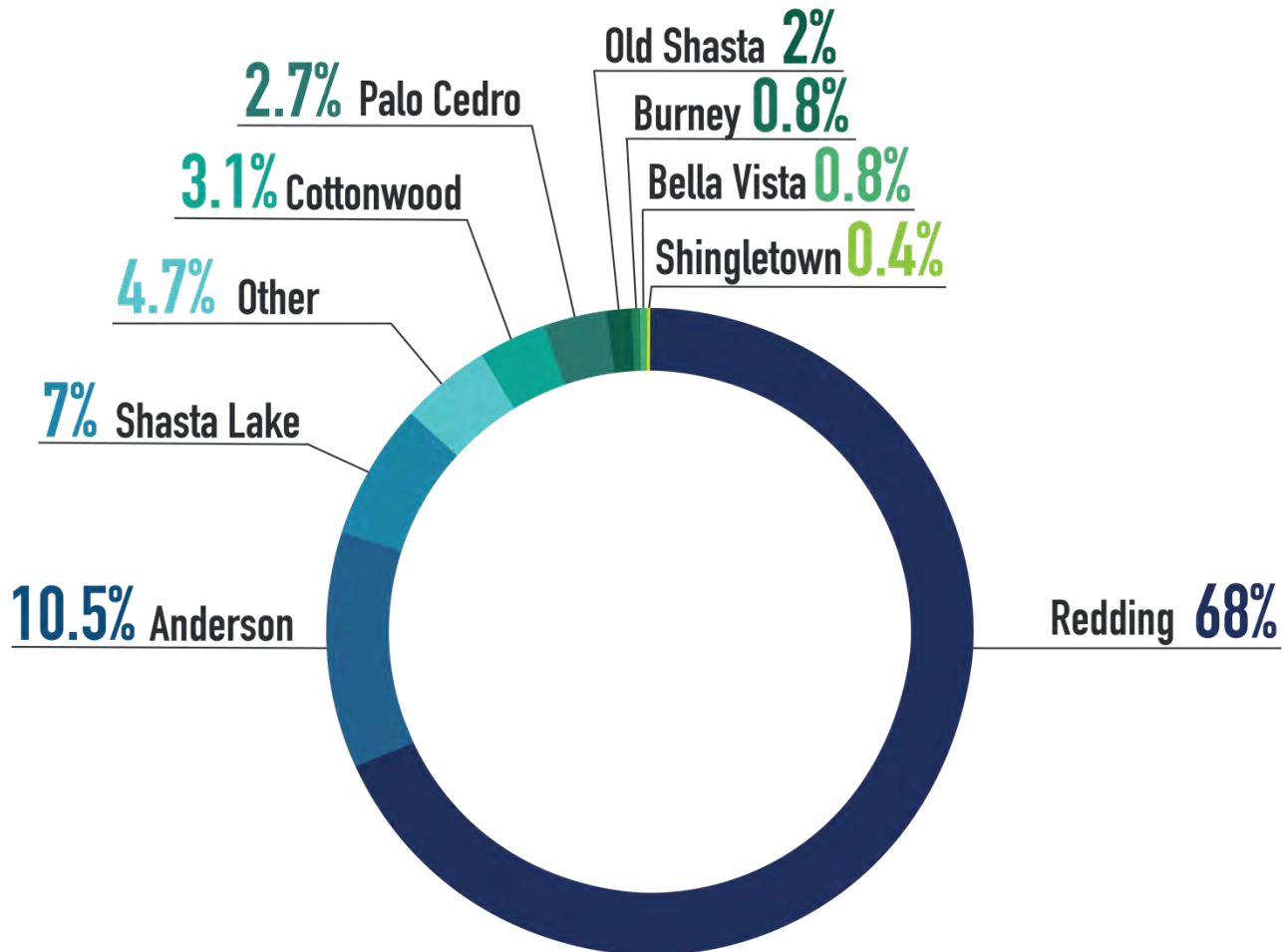
## Key Findings

- The majority of respondents (68%) who took the survey live in Redding followed by those living in Anderson (10.5%). The respondents were also mostly 50+ years old (62.5%) with a significant percent of respondents (21.8%) aged between 35-49 years old.
- When asked about their travel preference, 44.4% respondents in Shasta County reported driving a car, closely followed by those who mostly drive but also walk or bike for recreation purposes (38.5%).
- Respondents had the most experience riding a bicycle (31.8%), public transit (27.3%), and app-based rideshare (15.6%) with the least experience using bikeshare/scootershare, carpool/vanpool and on-demand public transit.
- When asked about the travel options that respondents would consider, 77% of the respondents reported using alternative modes for running short errands followed by those who take infrequent longer distance regional trips at 57.5%. Bikeshare/scootershare and carpool/vanpool were some of the modes which respondents were less likely to try.
- Respondents' experience with a particular mode directly relates to the willingness to try new modes. In Shasta County, bike/scootershare and carpool/vanpool were two modes which the public had little to no experience. Thus, these were the modes that respondents were least likely to try.
- Respondents who have experience with a particular mode are more likely to try it again or try other similar modes. The modes which have the highest experience are also most likely to succeed in the future. Conversely, modes with the least experience are less likely to attract new customers.
- Convenience and flexibility using a personal auto are major concerns preventing residents from using alternative modes of transportation. Thus, driving is the preferred option for respondents in Shasta County especially for running short errands, which paradoxically is also the most likely trip respondents say they would be more willing to try alternatives.
- The majority of questionnaire respondents (55.4%) think that improvements in the future should focus on improving the mobility options for transit-dependent individuals and that the system should add more on-demand service. These respondents also think that transit should aim to serve fewer people with a high-quality transit system as opposed to expanding the service area and serving as many people as possible.



## Online Community Questionnaire Results

Question 1: *Where do you live in the Shasta Region?*

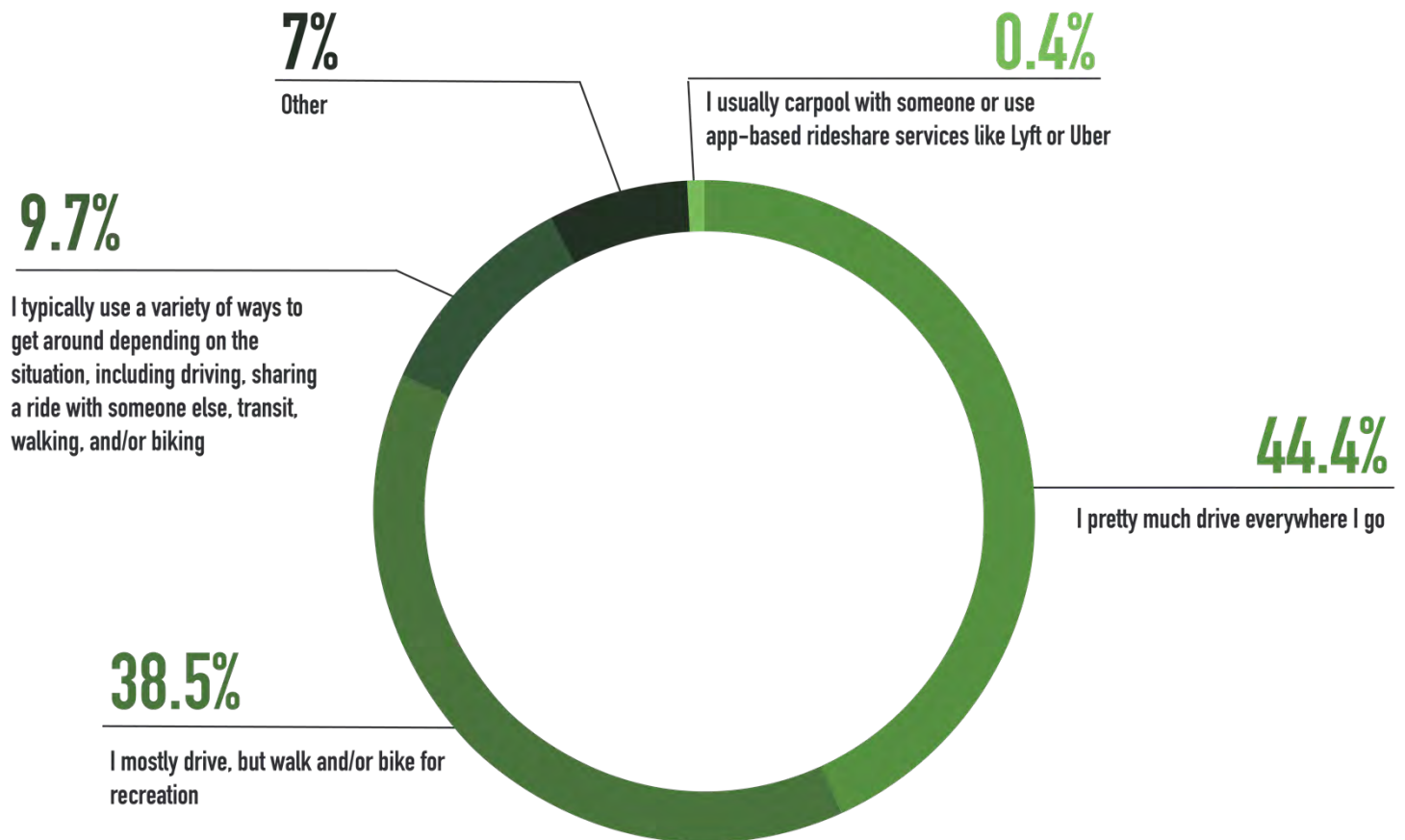


Below is a list of the responses that were left in the “Other” category:

- Centerville (2)
- County near Anderson
- Happy Valley
- Jones Valley
- Montgomery Creek: Burney/Bella Vista adjacent
- Oak Run
- Ono
- Round Mountain
- Shingletown
- Unincorporated area of Shasta County, West Redding



Question 2: What phrase best describes how you get around the Shasta Region?



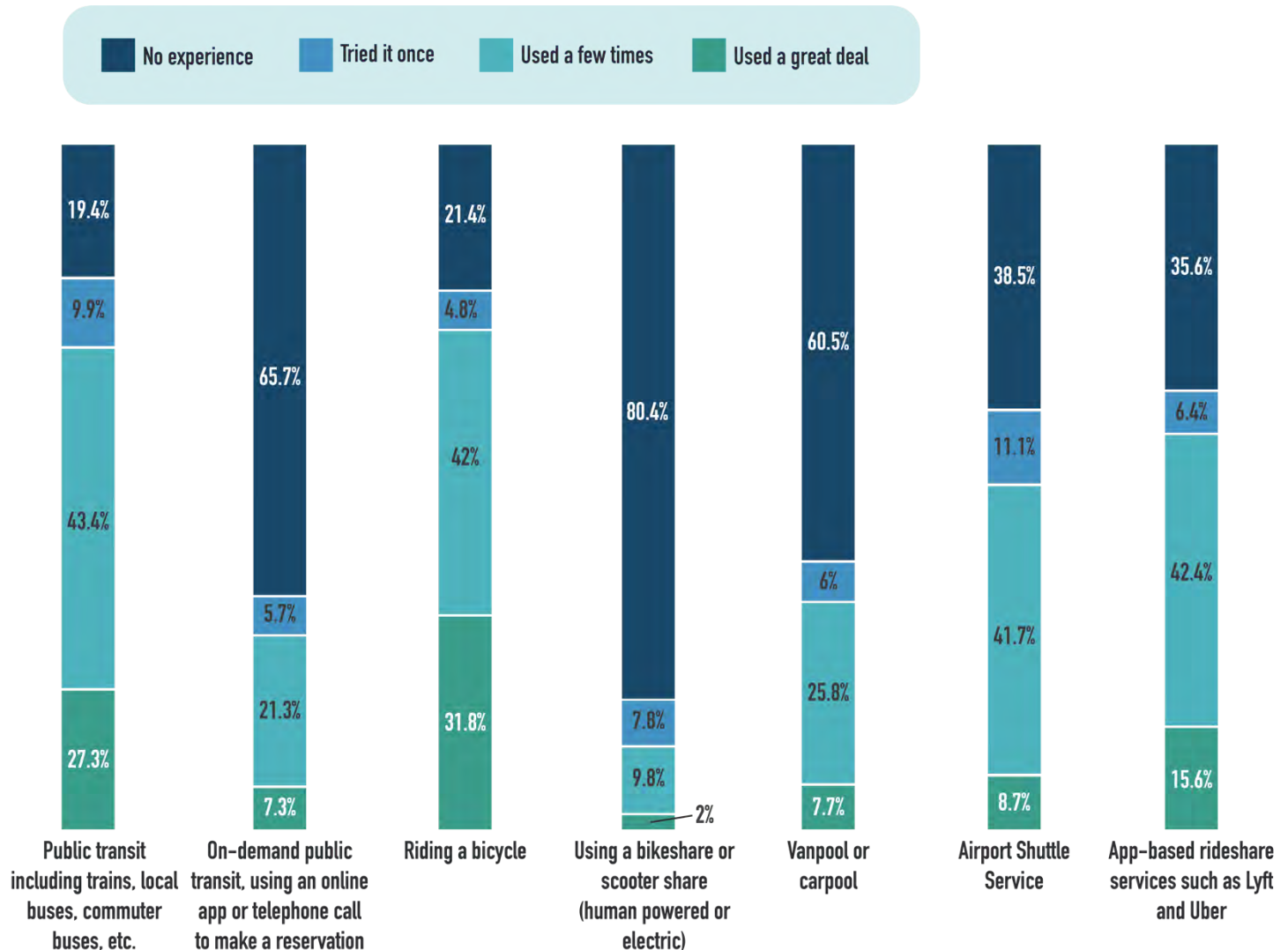
Of the 18 respondents who chose the "Other" category, around 39% wrote that they often depend on public transportation to get around, either by taking the Redding Area Bus Authority (RABA) or paratransit. Besides that, 28% of the people who chose "Other" noted that they depend on other people to drive them to their destination, or they walk to their destination (22%).



# Community Questionnaire Summary

2040 Long-Range Transit Plan  
July - August 2020

Question 3: Please share your experience using other types of travel besides in a single-occupancy vehicle (note: the experience may not have occurred in the Shasta region).



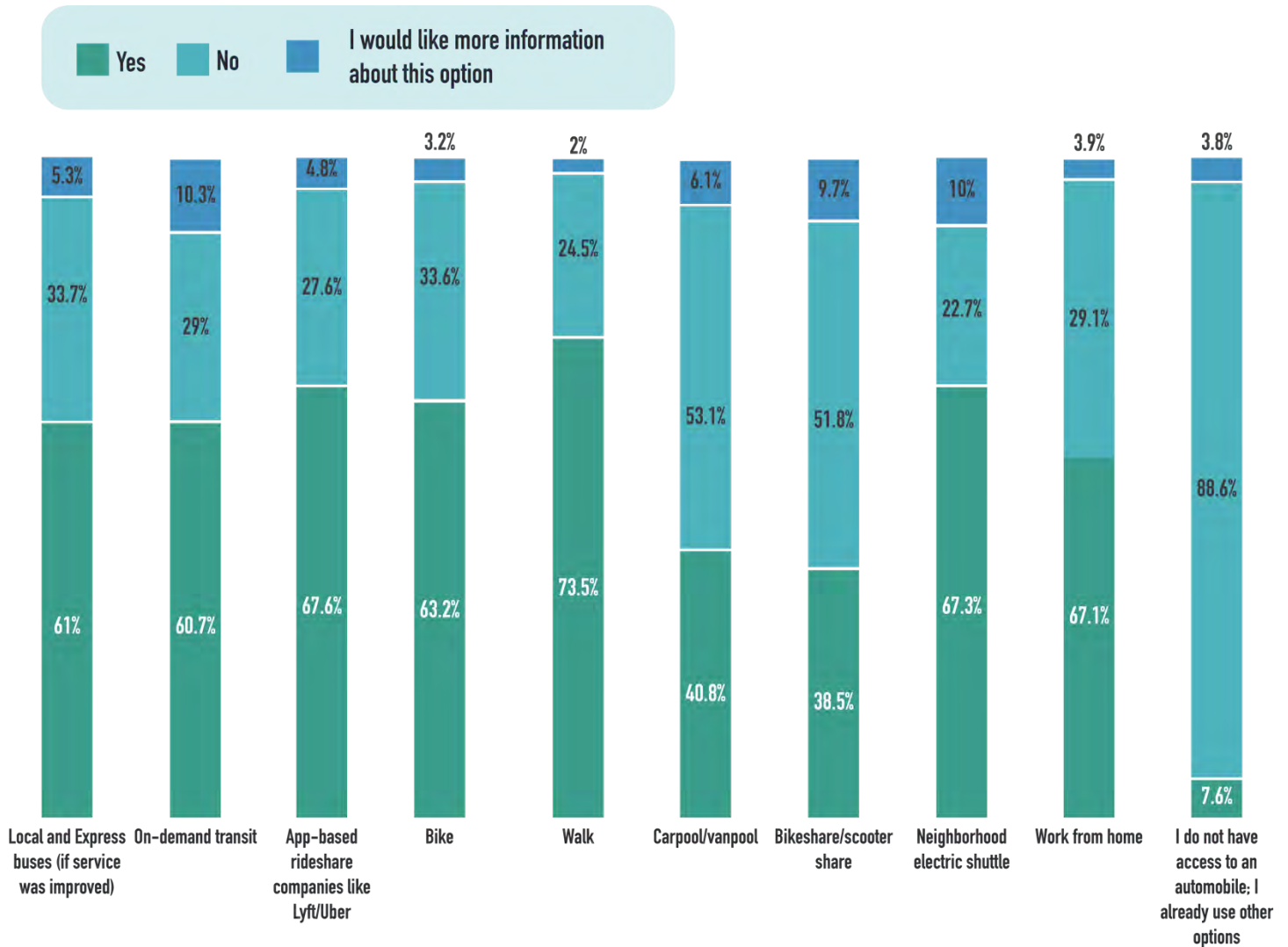
Residents in the Shasta region noted that they have the most experience with riding a bicycle (31.8%), public transit (27.3%), and app-based rideshare (15.6%). Conversely, community members in the Shasta region reported that they have no experience with using bikeshare or scootershare (80.4%), on-demand public transit (65.7%), and vanpool or carpool (60.5%).



# Community Questionnaire Summary

2040 Long-Range Transit Plan  
July - August 2020

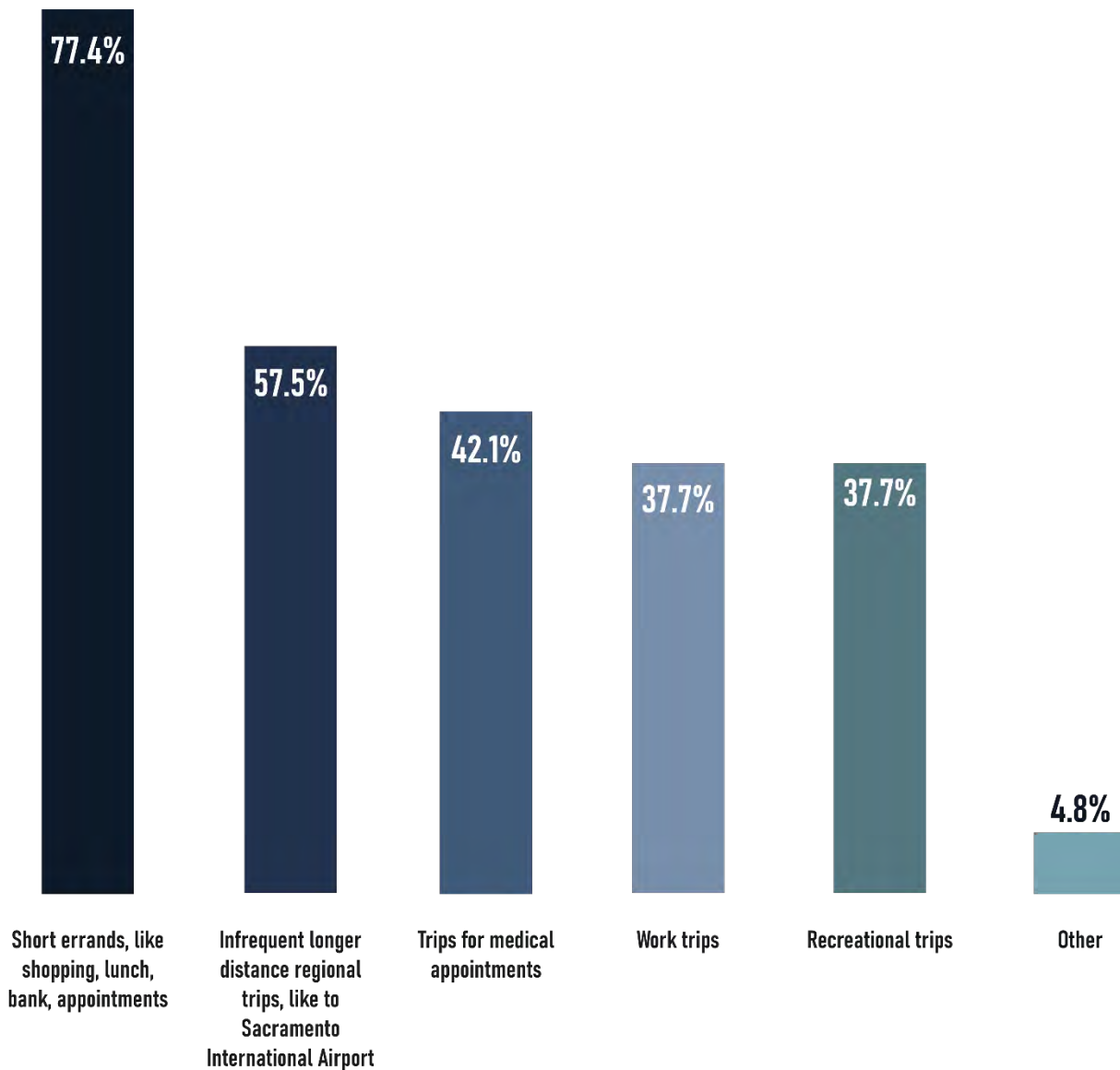
Question 4: *If you were to reduce – not eliminate, just reduce – using your automobile, what might you consider using? For each option, please indicate “yes, I would consider this option”, or “no, I would not consider this option” and “I would like more information about this option.” (note: if you do not use or own an automobile, please select ‘yes’ for the last option).*



Overall, questionnaire respondents expressed interest in trying many of the alternative modes of transportation presented in the online community questionnaire, with only two options (carpool/vanpool and bikeshare/scootershare) receiving more “no” than “yes” responses. A small amount of questionnaire respondents (7.6%) noted that they do not have access to an automobile and already utilize alternative modes of transportation.



Question 5: *For the travel options above that you said you might consider, what types of trips would you be most likely take? (select your top two possibilities).*



Of the 12 respondents who chose the “Other” category, around 33% wrote that they would consider taking alternative modes of transportation for leisure (exploring, entertainment, etc.) or for local hiking trips (17%).

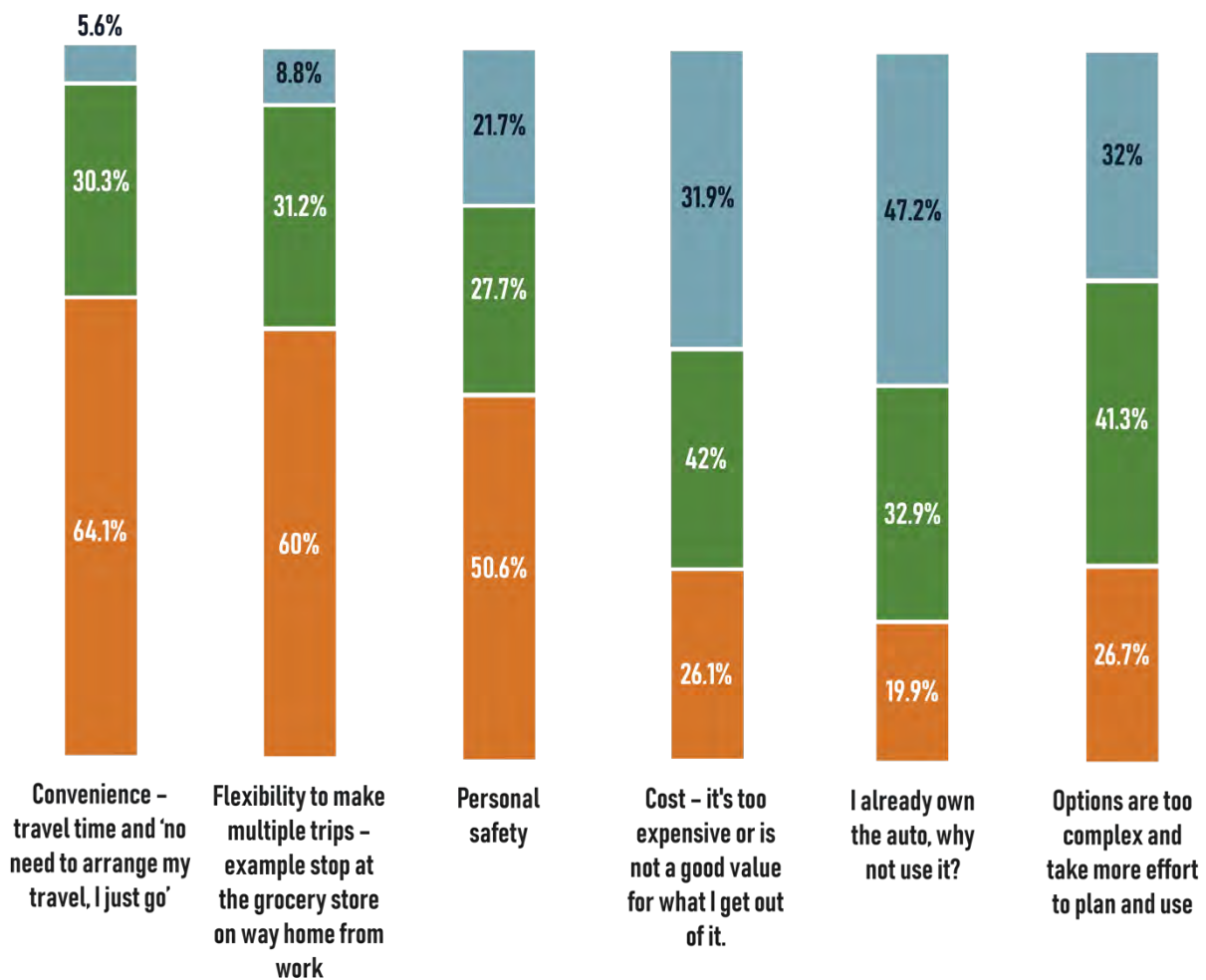


# Community Questionnaire Summary

2040 Long-Range Transit Plan  
July - August 2020

Question 6: As you think about using alternatives to a personal auto, what concerns do you have? Please rate each item.

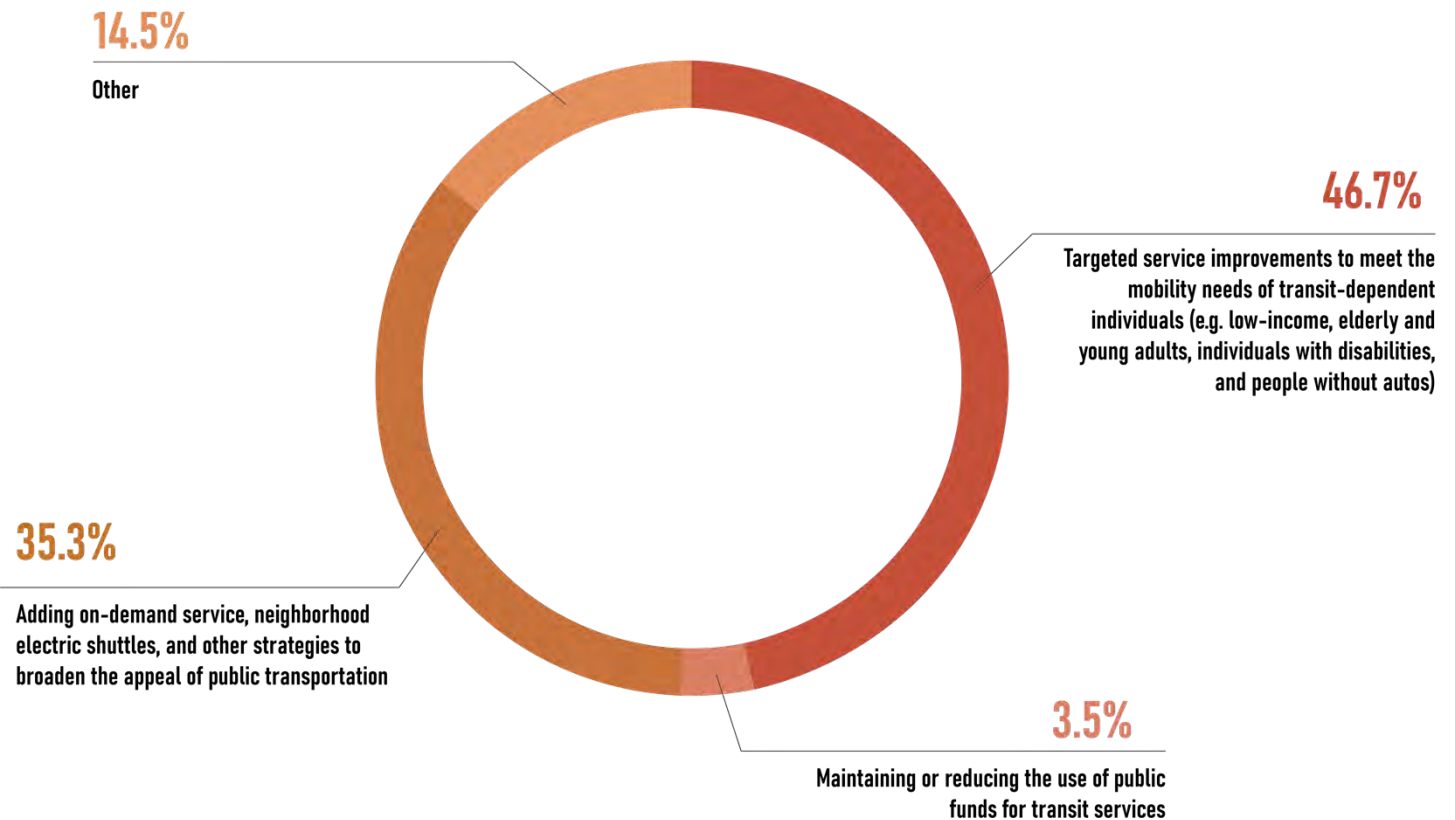
This is a major concern   This is somewhat of a concern   This is not a concern



Of the 21 respondents who chose the “Other” category, around 19% reported that extreme weather (heat and/or rain) was a major concern for them when deciding on forms of transportation to use. Additionally, respondents wrote that personal safety while walking/biking (19%), the time it takes to get to their destinations (14%), sustainability and the environment (10%), and ADA accessibility (10%) were major concerns when considering alternative transportation.



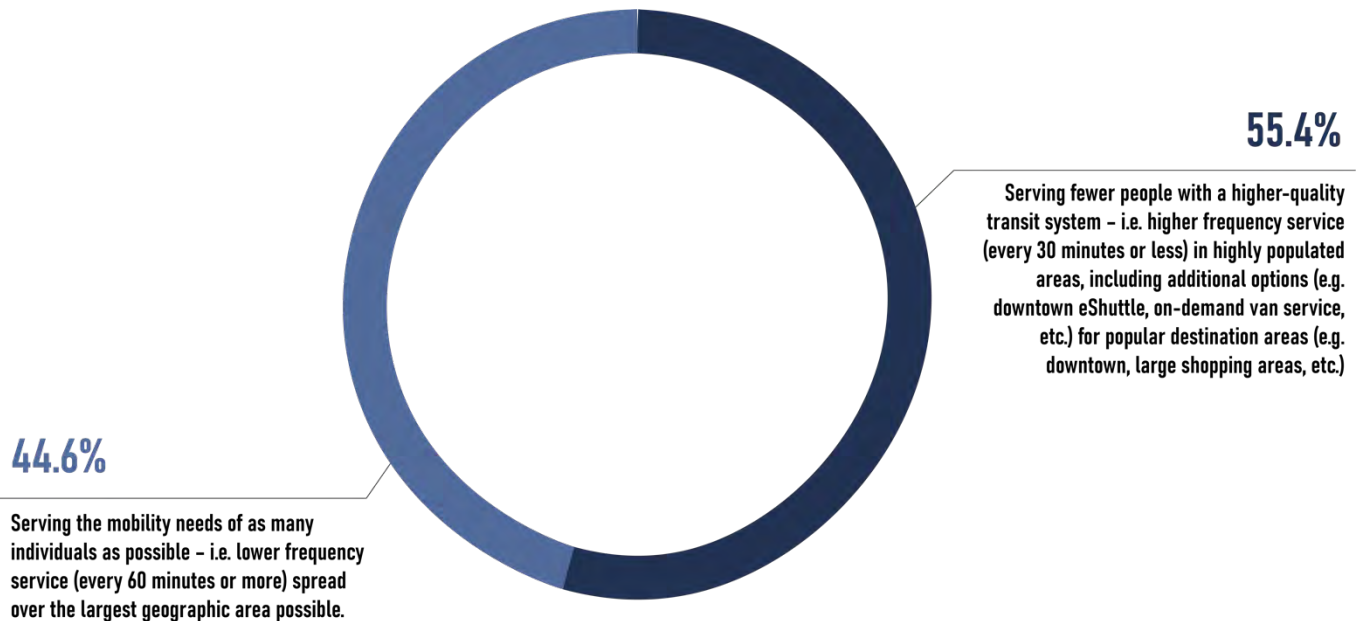
Questions 7: *Thinking 20 years into the future, what do you think the region's public transportation priorities should be?*



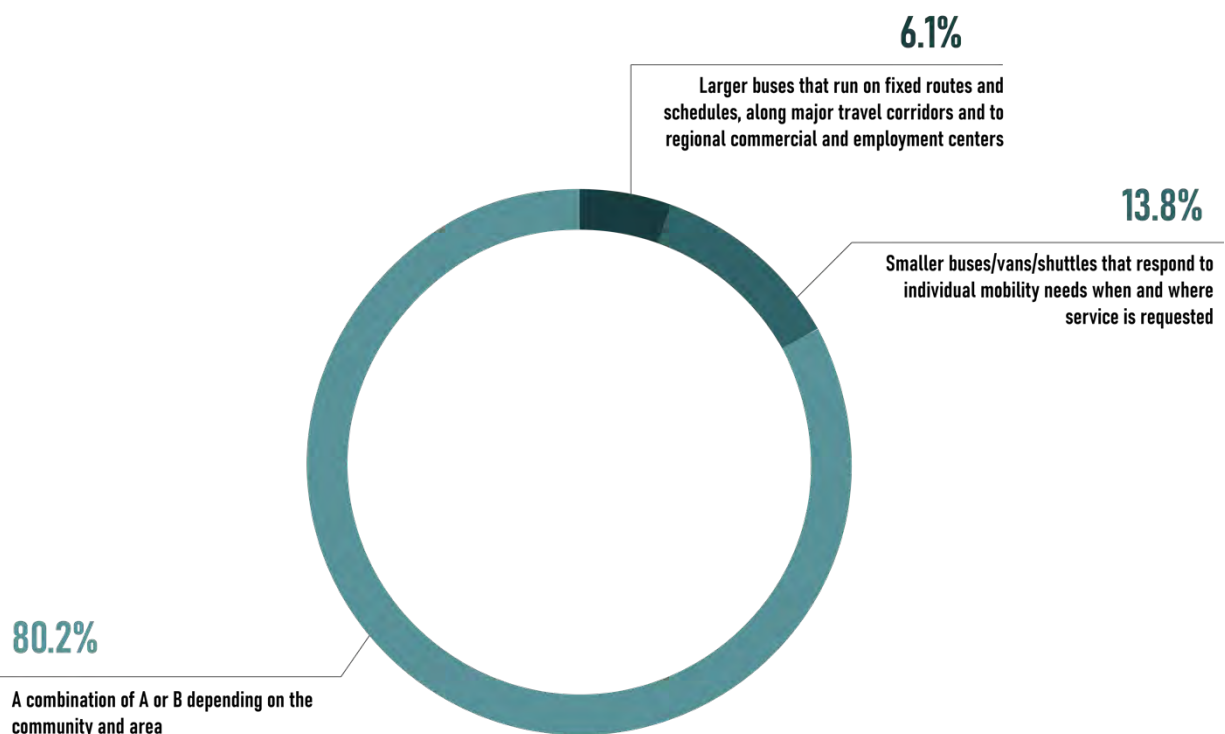
Of the 37 respondents who chose the “Other” category, around 18% wrote that they would like to see more or improved options for bicycle lanes and infrastructure in the Shasta region. Additionally, respondents reported that they would like to see increased safety (8%) and convenience (8%) in the public transportation system that already exists.



Question 8: *Looking toward the next 20 years, what do you think is more important?*

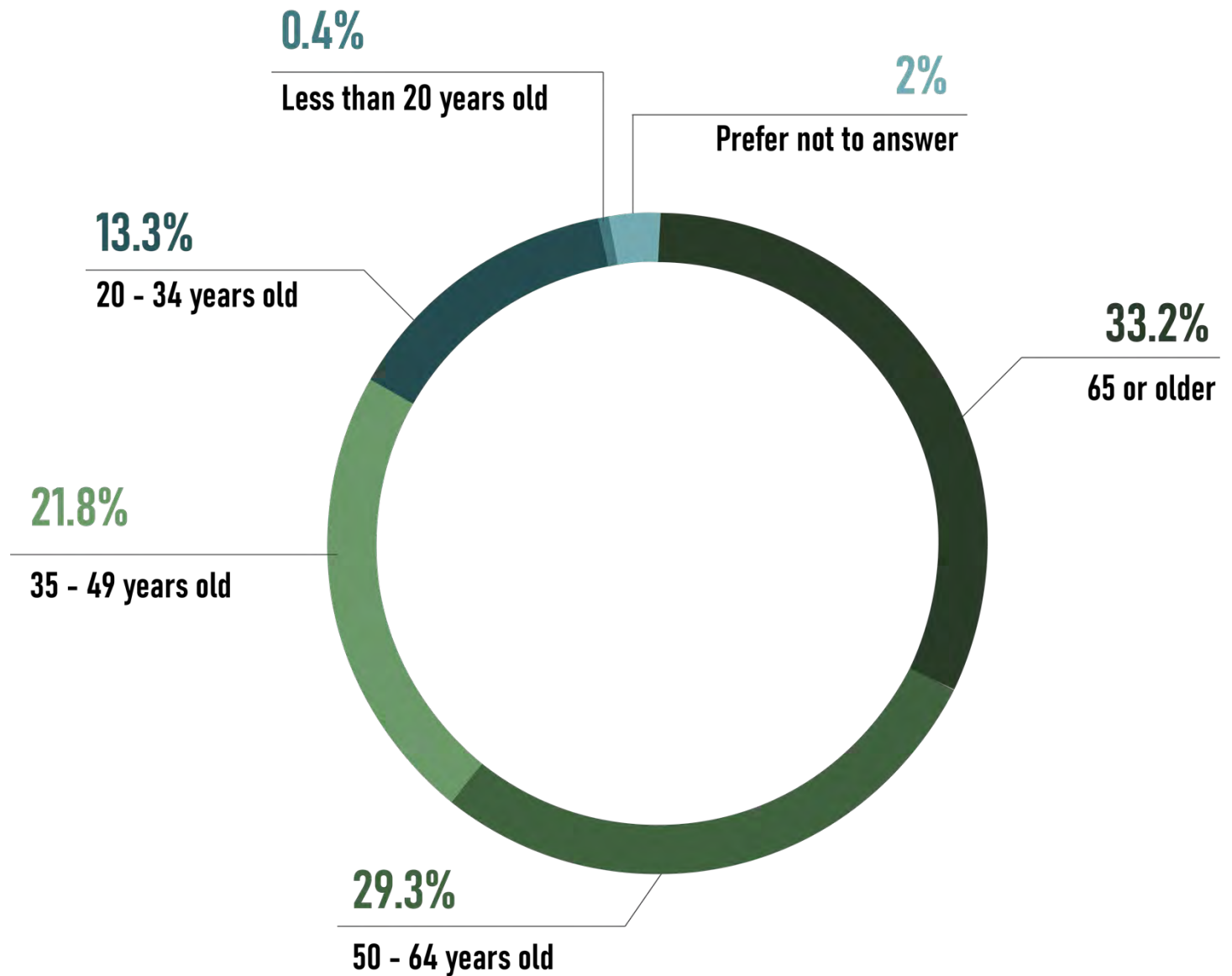


Question 9: *Looking toward the next 20 years, what do you think is a better match for the Shasta region?*





## Age distribution of respondents





## Experience with transportation modes vs willingness to try other modes

Question 2: *What phrase best describes how you get around the Shasta Region?*

Question 4: *If you were to reduce – not eliminate, just reduce – using your automobile, what might you consider using? For each option, please indicate “yes, I would consider this option”, or “no, I would not consider this option” and “I would like more information about this option.” (note: if you do not use or own an automobile, please select 'yes' for the last option).*

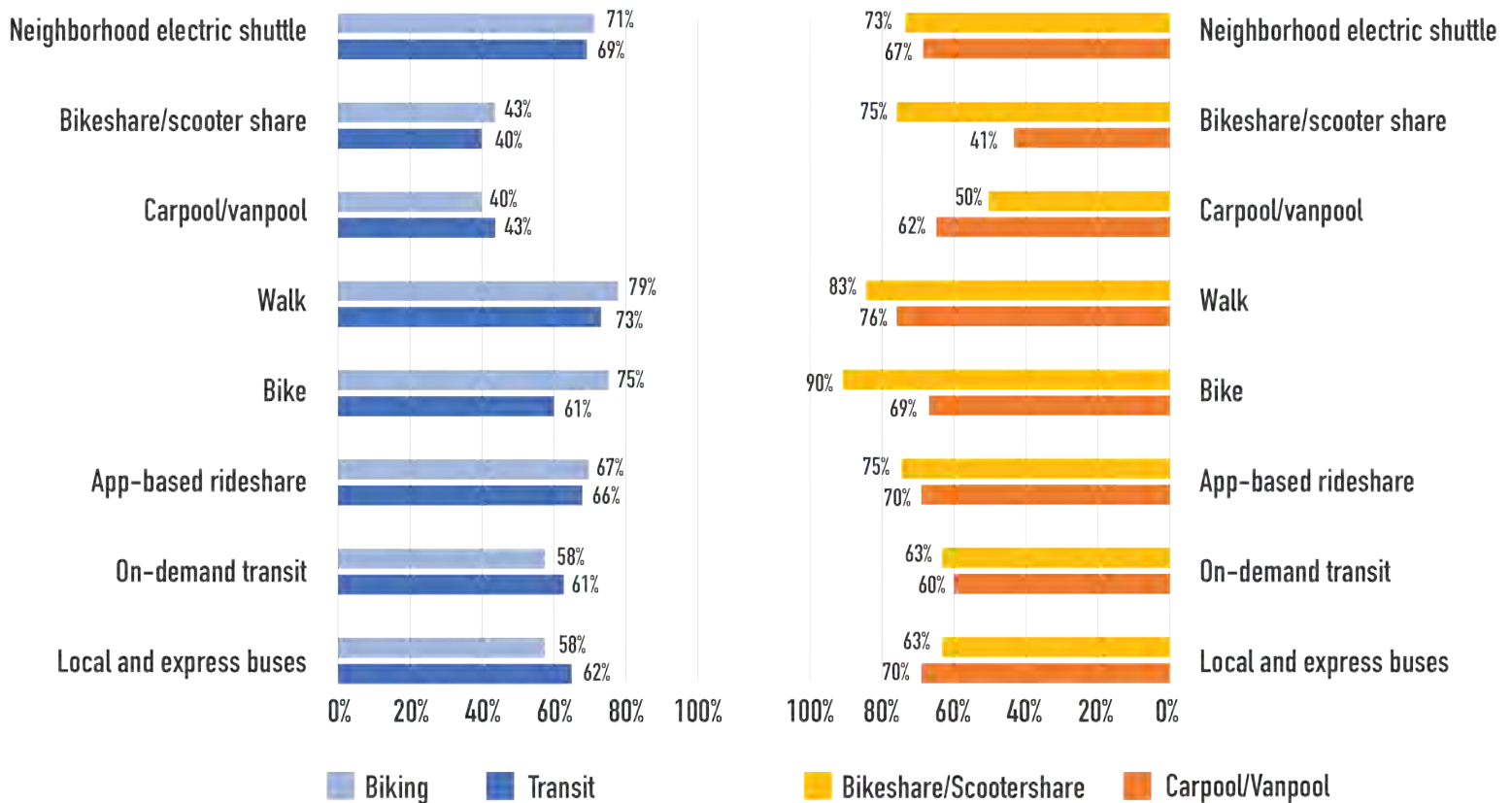
This is a comparison between how experience with a particular transportation mode impacts questionnaire respondents' willingness to use other alternative transportation modes. Generally, those who have experience with a particular mode are more likely to try the same mode again or use other similar modes in the future. The modes which have the highest experience are also most likely to be successful in the future. These characteristics are not always shared in other communities.

Questionnaire respondents appear to be relatively cautious when it comes to trying new modes. As a result, modes with which people have the least experience are the least likely to attract new people. The graphs below show the respondents' willingness to try other modes based on their experience with bikeshare/scootershare, carpool/vanpool, biking, and transit. Residents in Shasta county reported having the highest experience with biking and transit and low experience with bikeshare/scootershare and carpool/vanpool.



# Community Questionnaire Summary

2040 Long-Range Transit Plan  
July - August 2020



Questionnaire respondents who had experience with transit (local and express buses) were most willing to try walking and app-based rideshare services. They were also willing to try transit and other similar modes (like on-demand transit and neighborhood electric shuttles). Questionnaire respondents who had experience with bikes were most likely to try active transportation modes like biking and walking followed by neighborhood electric shuttles and app-based rideshare. Bicycling is considered an active transportation mode and is generally used for shorter trips. Questionnaire respondents who are already familiar with bicycling are thus more likely to replace their automobile trips with other active modes (walking and bicycling) and modes that are well-suited for shorter trips (neighborhood electric shuttles).

Bikeshare/scootershare and carpool/vanpool are some of the modes in which respondents have little to no experience. However, those who do have experience with bikeshare/scootershare show a great willingness to try them in the future but still prefer walking and biking.



## Appendix

- Fliers and graphics used during the awareness campaign
- Media releases
- Raw community member comments



**NOW  
UNTIL  
AUGUST 5**

# HOW SHOULD **we travel in 2040?**

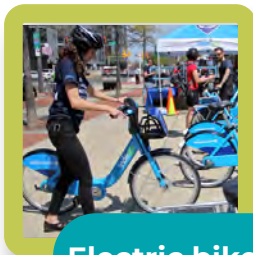
**We want to hear from you!**

To learn more about the 2040 Long-Range Transit Plan  
and take the community questionnaire, go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**



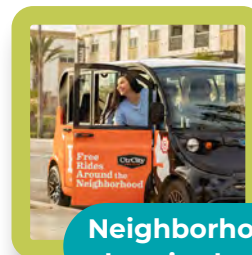
**On-demand  
transit**



**Electric bikes**



**Local and  
express buses**



**Neighborhood  
electric shuttle**

**Which transportation option are you most excited for?**

For more information about the  
Shasta Regional Transportation Agency: [www.srta.ca.gov](http://www.srta.ca.gov)  
Questions? Contact SRTA at **530-262-6190** or [srta@srta.ca.gov](mailto:srta@srta.ca.gov)



# HOW SHOULD we travel in 2040?

We want to hear from you!



**NOW UNTIL AUGUST 5**

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On-demand transit



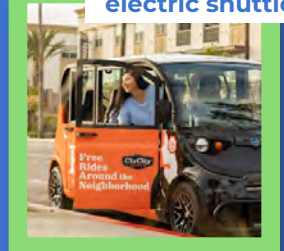
Electric bikes



Local and express buses



Neighborhood  
electric shuttle



**Which transportation option are you most excited for?**



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**NOW  
UNTIL  
AUGUST 5**

**Hey Anderson.** We want to hear from you about how you want to travel in the future.

To take the community questionnaire, go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**



**On-demand  
transit**



**Electric bikes**



**Local and  
express buses**



**Neighborhood  
electric shuttle**

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**NOW  
UNTIL  
AUGUST  
12**

**DEADLINE EXTENDED!**

**Hey Anderson.** More than 65% of respondents are interested in trying electric bikes or scooters in their city. Have we heard from you? Go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**



**On-demand  
transit**



**Electric bikes**



**Local and  
express buses**



**Neighborhood  
electric shuttle**

**Which transportation option are you most excited for?**

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# Hey Redding.

We want to hear from you about how you want to travel in the future.

We want to hear from you!



**NOW UNTIL AUGUST 5**

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**On-demand transit**



**Electric bikes**



**Local and express buses**



**Neighborhood electric shuttle**



**Which transportation option are you most excited for?**



For more information about the Shasta Regional Transportation Agency: **[www.srta.ca.gov](http://www.srta.ca.gov)**

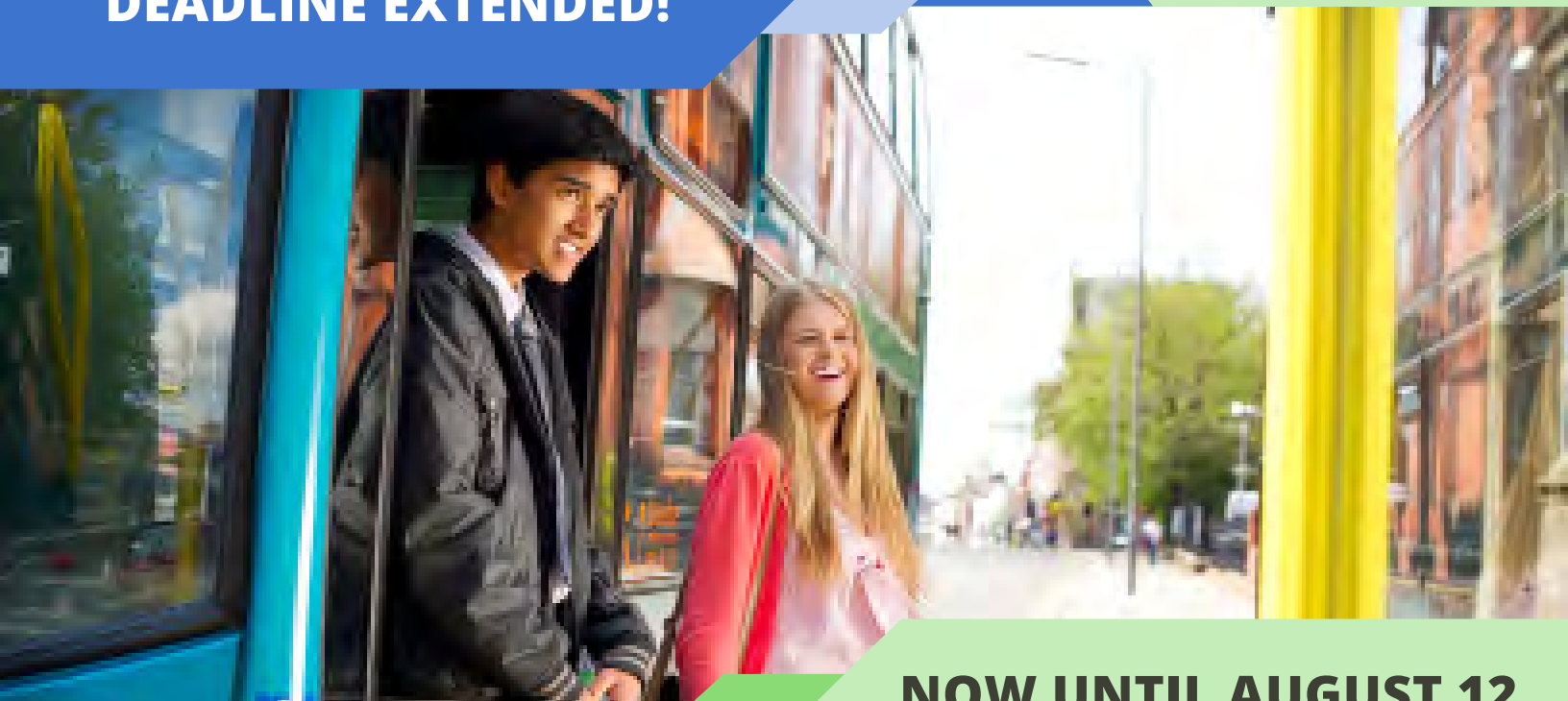


Questions? Contact SRTA at **530-262-6190** or **[srta@srta.ca.gov](mailto:srta@srta.ca.gov)**



**Hey Redding.** We want to hear from you about how you want to travel in the future.

**DEADLINE EXTENDED!**



**NOW UNTIL AUGUST 12**

More than 65% of respondents are interested in trying electric bikes or scooters in their city. Have we heard from you? Go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

**On-demand transit**



**Electric bikes**



**Local and express buses**



**Neighborhood electric shuttle**



**Which transportation option are you most excited for?**



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Questions? Contact SRTA at 530-262-6190 or [srta@srta.ca.gov](mailto:srta@srta.ca.gov)



**Hey Shasta Lake.** We want to hear from you about how you want to travel in the future.

We want to hear from you!



**NOW UNTIL AUGUST 5**

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**On-demand transit**



**Electric bikes**



**Local and express buses**



**Neighborhood electric shuttle**



**Which transportation option are you most excited for?**



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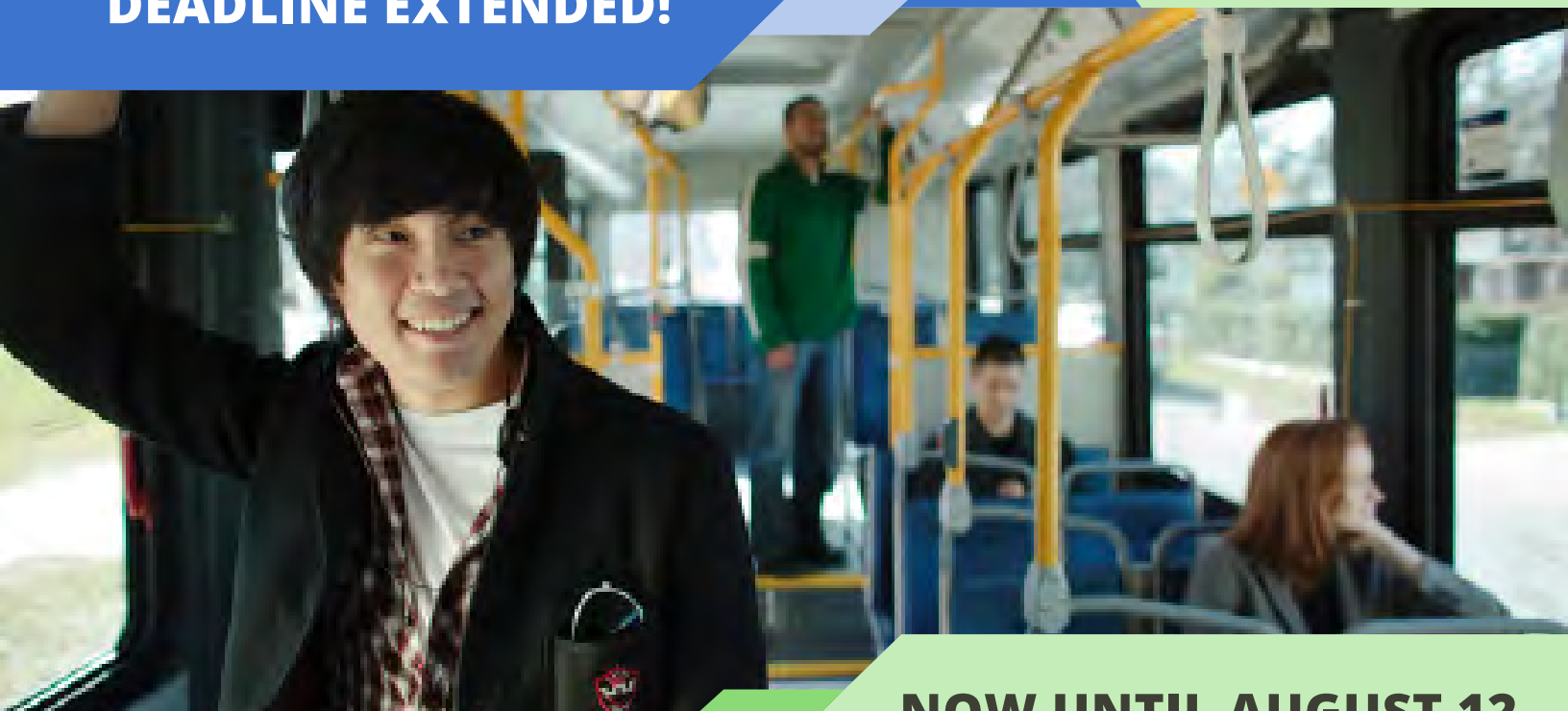


Questions? Contact SRTA at **530-262-6190**  
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**Hey Shasta Lake.** We want to hear from you about how you want to travel in the future.

**DEADLINE EXTENDED!**



**NOW UNTIL AUGUST 12**

More than 65% of respondents are interested in trying electric bikes or scooters in their city. Have we heard from you? Go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

**On-demand transit**



**Electric bikes**



**Local and express buses**



**Neighborhood electric shuttle**



**Which transportation option are you most excited for?**



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or [srta@srta.ca.gov](mailto:srta@srta.ca.gov)



**NOW  
UNTIL  
AUGUST 5**

## A **strong transportation network** gets you from the bus stop to your job

To learn more about the 2040 Long-Range Transit Plan and to take the community questionnaire, go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**



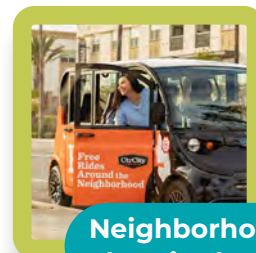
**On-demand transit**



**Electric bikes**



**Local and express buses**



**Neighborhood electric shuttle**

**Which transportation option are you most excited for?**

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# A strong transportation network supports our neighborhoods

We want to hear from you!



**NOW UNTIL AUGUST 5**

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**On-demand transit**



**Electric bikes**



**Local and express buses**



**Neighborhood  
electric shuttle**



**Which transportation option are you most excited for?**



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or [srta@srta.ca.gov](mailto:srta@srta.ca.gov)



You should have a **variety of transportation options** to get to important appointments like your doctor

We want to hear from you!



**NOW UNTIL AUGUST 5**

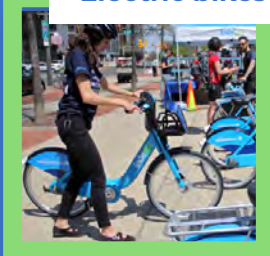
To learn more about the 2040 Long-Range Transit Plan and take the community questionnaire, go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

On-demand transit



Electric bikes



Local and express buses



Neighborhood electric shuttle



**Which transportation option are you most excited for?**



For more information about the Shasta Regional Transportation Agency: [www.srta.ca.gov](http://www.srta.ca.gov)



Questions? Contact SRTA at **530-262-6190**  
or [srta@srta.ca.gov](mailto:srta@srta.ca.gov)



**NOW  
UNTIL  
AUGUST 5**

How will visitors come to enjoy everything that the **Shasta Region** has to offer?

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# A strong transportation network opens opportunities for everyone

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# Hey Redding.

We want to hear from  
you about how you  
want to travel in the  
future.

**NOW UNTIL  
AUGUST 5**

To **take the community  
questionnaire**, go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

**DEADLINE EXTENDED!**

**Hey Shasta Lake.** We want to hear from you about how you want to travel in the future.

**Now until August 12**



To take the community questionnaire, go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**



**DEADLINE EXTENDED!**

**Hey Anderson.** We want to hear from you about how you want to travel in the future.

**Now until August 12**

To **take the community questionnaire**, go to

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**





## MEDIA RELEASE

FOR IMMEDIATE RELEASE

July 22, 2020

Contact:

Daniel Wayne

Shasta Regional Transportation Agency

[dwayne@srtc.ca.gov](mailto:dwayne@srtc.ca.gov)

530-262-6186

### Community is invited to share ideas for future transportation options in the Shasta Region

*The Shasta Regional Transportation Agency seeks input on how community members want to travel in 2040 with a community questionnaire.*

How do you envision the Shasta Region's transportation options evolving over the next 20 years? The Shasta Regional Transportation Agency wants to know in a community questionnaire as part of the 2040 Long-Range Transit Plan. Participants will be able to provide input on how they currently travel, and which travel options should be considered for the Shasta region's transportation network. Community members can participate online at [www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com) from July 22 – August 5.

The 2040 Long-Range Transit Plan will be the blueprint for a sustainable, safe, innovative, integrated and efficient public transportation system. It will identify and help prioritize future transportation projects in order to meet the future needs of residents in the Shasta Region.

"We need to consider all of our options, develop a shared plan, and strategically invest in transportation infrastructure and services over time to meet tomorrow's mobility challenges," says Daniel Wayne, Senior Transportation Planner with the Shasta Regional Transportation Agency. "Having a strong and reliable public transportation network will not only address the diverse needs of residents of all ages and abilities, but it will also strengthen our local economy and keep the Shasta region vibrant and livable as it continues to grow."

The Shasta Regional Transportation Agency invites community members from throughout the Shasta Region to learn about the 2040 Long-Range Transit Plan and provide their feedback at [www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com).

For questions about the community questionnaire, please contact Elise Brockett at [ebrockett@aimconsultingco.com](mailto:ebrockett@aimconsultingco.com).

###

The Shasta Regional Transportation Agency (SRTA) is a legally separate public agency with its own governing board of directors. SRTA studies the region's transportation needs, pursues all potential funding sources, and determines what improvements will be made. SRTA represents Shasta County and the cities of Anderson, Redding, and Shasta Lake.



## MEDIA RELEASE

FOR IMMEDIATE RELEASE

August 6, 2020

Contact:

Daniel Wayne

Shasta Regional Transportation Agency

[dwayne@srtc.ca.gov](mailto:dwayne@srtc.ca.gov)

530-262-6186

### Deadline extended for community questionnaire on transportation options

*The Shasta Regional Transportation Agency is extending the close date for an online community questionnaire seeking input on how the community want to travel in 20 years.*

The Shasta Regional Transportation Agency is extending the deadline for the online community questionnaire as part of the 2040 Long-Range Transit Plan.

Participants will be able to provide input on how they currently travel, and which travel options should be considered for the Shasta region's transportation network. Community members can participate online at [www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com) now until August 12.

So far, more than 140 community members have participated, and with fascinating results. Around 40% of respondents are interested in implementing electric bikes and scooters in their city. More than 60% expressed excitement about trying on-demand transit, and around 67% percent of respondents would try taking a neighborhood electric shuttle if it was available.

The 2040 Long-Range Transit Plan will be the blueprint for a sustainable, safe, innovative, integrated and efficient public transportation system. It will identify and help prioritize future transportation projects in order meet the future needs of residents in the Shasta Region.

"So far we have seen some great results from this online outreach effort and we want to keep it going so that everyone has the opportunity to participate," says Daniel Wayne, Senior Transportation Planner with the Shasta Regional Transportation Agency. "Knowing that we are

creating a Long-Range Transit Plan that addresses the community's needs will support the Shasta region's growing transportation networks and uphold our quality of life."

The Shasta Regional Transportation Agency invites community members from throughout the Shasta Region to learn about the 2040 Long-Range Transit Plan and provide their feedback at [www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com).

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### Raw Community Member Comments

- I want to go into more detail on rail. It would solve several shortcomings in Shasta County.
- It would ease the problem of no four-year state university. Redding students could continue to live with their parents or friends and safely commute to Chico. Currently the only way to do that is to drive a dangerous, high-traffic two-lane highway, even worse in winter months with short days and rain. Students would be able to do homework, relax or even sleep on their commutes.
- It would ease the difficulty of flying out of Redding. Face it, we'll always be held hostage by arrangements like the current one with United, which charges outrageous prices, ignores the obvious Sacramento hub and demands profit guarantees. It's like they're somehow doing us a favor. But most ordinary Redding households can't afford the prices, and the schedule is inconvenient. It really only serves business and Bethel fliers. A two- to six-car train could make access to Sacramento and Southwest's many convenient flights much more pleasant. It could stop at a short access road serviced by an airport shuttle.
- It would open up downtown Sacramento to those with limited mobility or those who might want to use a bike to get around. Daytime excursions to Sacramento or from Sacramento to Chico and Redding would become attractive adventures, increasing our tourism.
- It provides an alternative mode of transportation when flooding or other obstacles close I-5.
- By 2040 it could be some form of electrified rail. Hybrid battery/overhead electric trains are already beginning to see use in China and Europe. The trains could recharge overnight in Sacramento and Redding, as well as pick up an overhead boost at stations along the way. Our trains could be an all-California model for others, with batteries provided by Tesla and the rail cars built or refitted at the rail factory in Sacramento.
- Additional tourist diesel-electric rail should be considered to Mt. Shasta and on to Ashland (that rail route is still open and being used, just not by Union Pacific and Amtrak.) The Mt. Shasta train could provide a huge boost to Shasta skiing in the winter. In the other seasons it could continue on to Ashland for its Shakespeare Festival. The route would draw many riders for the scenery alone, and also would draw bikers, hikers and beer-drinking adventurers who wouldn't have to worry about a DUI.
- The biggest obstacle I see to this would be UP not wanting to lease the right-of-way. Yet these track-sharing deals are happening all over California, in San Diego County, Orange County and L.A. County, and also in the Bay Area.

- There would be tremendous public and private buy-in possibilities, including the state of California (a good way to alleviate the bullet-train black eye), Sacramento, Sacramento airport, Yuba City, Chico, Chico State, Red Bluff, Redding and the McConnell Foundation. Many advertisers would want space for the destinations. Same for a tourist train to Mt. Shasta and Ashland. Add Siskiyou County, the Shasta ski area, and Dunsmuir and McCloud to the list. Ditto for Ashland businesses.
- Regarding question 8, the populations most in need may not live in densely populated areas, but if the schedule doesn't allow for people to do what they need (having a more frequent schedule) it won't be used.
- The region needs better infrastructure for walking and cycling. If it's there people will use it. It is not uncommon to see folks using mobility devices on the river trail, but these folks are challenged when attempting to use infrastructure such as sidewalks. It's not uncommon to be on a sidewalk that disappears because a "developer" hasn't improved that lot. This is very inconvenient and is often not safe. Another critical need is education about alternative travel options and education drivers about interacting with cyclists, walkers, etc.
- I would like to see bus routes from the suburbs into shopping areas as an option.
- What airport shuttle are you talking about in #3?
- Don't rely solely on technology like apps to check routes and arrival times - not everybody has access to cell phones and service coverage is poor. Posted route maps and timetables at bus stops would be greatly appreciated.
- More frequent run schedule and more direct routes
- I'm a proponent of public transportation use, and always use it personally when visiting urban areas. The culture in Shasta County does not embrace it as a viable option. It's unfortunate that high schools have continually added parking areas for student drivers. There are a large percentage of families that consider an auto a necessity when their children become licensed drivers.
- Generally, I think it takes a culture shift to get people out of their cars. Get the young ones used to it and change happens over the generations. Given that, I voted for on-demand service. I'd like to add that the on-demand service has to serve special needs populations (e.g., elderly, handicapped). Thank you for this important work!
- Include people on your planning board from various ages, ethnicity, sex and planning abilities.
- I was unaware of this survey until seeing it in the Sunday Record Searchlight - needs to be more "community outreach" to groups on such matters - League of Women Voters, Rotaries, publicize through COR, Facebook, etc.
- I grew up in the suburbs of D.C. I have seen the impact that urban sprawl has on quality of life. I am very worried that Redding might follow that path, as it seems to be the

American way. I think that SRTA and the City should do more to improve bus and bike/scooter options and launch a sizable campaign to educate people on its importance. I ride my bicycle as much as possible, but sadly my routes are not very safe. I would love to take the bus, but unfortunately it would add too much time to my commute, making it unfeasible. I'm encouraged by the high-density development downtown. I hope that that continues along with useful public transportation.

- Frustrating to see big empty buses driving around, why not use smaller ones if not full? Focus also on less sprawl.
- Would it be possible to work with large employers encouraging them to focus on carpooling possibly even limiting number of days employees could drive alone to work? I am remembering the gas shortage forcing people to buy on only certain days using license plate numbers.
- I have lived a decade in China, the country with the world's largest electric train system. Highspeed train is the best transportation system on earth. Demand HSR from the state and feds. Design the other systems around HSR.
- Redding's Airport is large enough to handle enormous traffic. If, the community had the desire to live and thrive, it would encourage and engage sustainable BUSINESS development. Make Redding a place people want to come to, rather than a place that exists. The places people will pay to fly TO are places people WANT to go to.
- Design an electric train/subway system into the plan. ALL regional transportation systems include high-speed rail systems with some subway. Then, ENCOURAGE businesses to move to Redding!
- Relocate Redding Memorial Cemetery/McDonald's Chapel to another area. YES, Relocate the cemetery out of the area behind the Redding Civic Auditorium. The cemetery is in the way of transportation and for a much bigger reason!
- The city should develop a Sacramento water transportation system that is part of a transportation HUB at the civic auditorium.
- Purchase the land along the Sacramento River from the Civic Auditorium to Lake Redding on that side of the river.
- Create a SUSTAINABLE river jet boat facility at Kutras pond. Have other tour/transportation/ police facilities there as well.
- ALLOW river use!!! Allow rafting, canoeing, boating, in the Sacramento River.
- Encourage ECO-friendly tours in the Sacramento River. A transportation system would incorporate water transportation to Anderson, at least.
- Create a zipline from various areas around the Bluffs that transverse down that side and across the Sacramento River to Turtle Bay and the golf driving range.

- Unlock the traffic nightmare at the Mnt. Shasta Mall. Put in an on-ramp/off-ramp at the Hilltop/I-5 overpass. Take out Chuck-e Cheese if you must.
- Put in another over-pass at the Hwy 44 /Dana Drive offramp where In/Out and Red Lobster are now. PEOPLE MUST have access to the highway for a mall to actually thrive!!!
- Keep adding to the Redding/Shasta County Trail systems. But make these systems accessible to people using other water transportation systems.
- At the Turtle Bay Transportation Hub, put in a multiple-transportation system that allows tour busses, taxis, Uber/Lyft, water, scooter, bike-sharing, HORSES...
- Develop the Civic transportation hub for eco-friendly upper-scale dining with over-river patios, cafes, stylish stores, and a board-walk ECO-friendly lifestyle.
- AGAIN, people must want to come to Redding!!!!
- Shasta, Butte and Tehama counties need to coordinate some form of regional transit. We blew it by not being involved in the high-speed train planning. It should have had its terminus in Redding. We need a regional approach. Maybe light rail between Redding and Chico going through Anderson and Red Bluff. Move the Redding Airport to Red Bluff so that Chico people will use a regional airport.
- Redding will continue to grow; we must take the initiative to create more bike friendly options in shopping districts, as well as increase the frequency of bus service to lower dependency on cars that pollute.
- Focusing on environmentally sensitive issues and designing transportation in that arena is a must for the future of our beautiful area.
- Put a transit center into each community--like at 44 and Deschutes in Palo Cedro--and develop a bike/walk network that can use the transit center as a focus point. That would allow, for example, someone in the community to bike to the transit center and then take a bus into Redding.
- Airport shuttle service to SF
- There needs to be mass transit (electric rail, frequent bus lines) between the major business areas (e.g. Hilltop, Downtown Redding/Sundial bridge) and cities (Redding to Anderson to Red Bluff). Bus lines/carpool/on demand services are likely the best solution for high frequency, low volume transportation from residential areas (NIMBYs will ALWAYS obstruct transit projects). In combination, these two improvements will keep the freeways and major transit routes from being overwhelmed with traffic in the future. Moreover, mobility of the youth and elderly should also be prioritized as the economy would benefit the most from their ability to get from place to place. Elderly have the money to spend but not the means to get to where they want to spend it while the youth need lower cost alternatives to get to their workplaces/save money on car expenses. Both populations would benefit from longer-time but lower cost

transportation options. Lastly, please consider the use of solar panels/battery storage to provide the energy needed to fuel initiatives such as rail projects, EV scooters/bikes, and EV buses (Proterra provides very reasonable funding initiatives). The North state has the phenomenal privilege of year-round sunshine and this should be leveraged to create further jobs in the transit and energy sectors (in addition to the benefit of decreasing reliance on fossil fuels).

- This survey has a strong bias towards people with cars. It ignores the needs of transportation for people that simply want to go carefree for a multitude of reasons that aren't why it is described as "transit dependent". I strongly suggest consulting a car free advocacy group like cul-de-sac, bike league, and other sustainable development companies. Hopefully the team on this project are such advocates for car free Redding that they are already living mostly car free so they can see both statistical data and first-hand experience to make insightful decisions.
- At this time, I am not in favor of autonomous vehicles due to safety reasons
- My husband and I live in the Country Heights vicinity. Because of the topography leading into the subdivisions, we can't bike to downtown and then return via the extreme hills.
- Were there a shuttle van or other smallish scheduled conveyance to Redding's core downtown we would gladly use it once or twice per week, if the hours were appropriate for senior service. There are many seniors living in these two subdivisions who might very much value having a scheduled shuttle-van service to key downtown areas for shopping, lunch, bank, etc. Additionally, a Redding airport shuttle to Sacramento International Airport would be supportive to many.
- Biking could be a great option...but most roads do not include safe bike lanes. Bike lane development and/or bike paths/trails should be a priority.
- We need more biking infrastructure, so people feel reasonably safe out on their bikes to get to work, shopping, dining etc. Happy to see some projects in the works.
- 20 yrs is too long we need it now, we also need to use BART as a statewide solution making it easier and safer and faster to get to destinations like Sacramento and the Bay Area.
- Stop eliminating car lanes for bike lanes. We need more lanes for cars.
- It would be great to incorporate something unique to the area as far as transportation is concerned as a special landmark or as a special reason for visitors to visit the city or the Shasta area. Redding has the iconic Sundial bridge. Why not add like an aerial tramway that transports people back and forth from the Dana and Churn creek road area business to the downtown area?

- While I think the use of bikes, electric or otherwise for those who are physically capable of riding are an important alternative to the usage of gas-powered automobiles in terms of both pollution reduction and space-using reduction on our public streets the reality of Redding is that so far, we are not a university town populated with young people and our summers are hot. Wishful thinking won't change the climate; neither will it change the fact of "not a university town" (although concerted action might change the latter and I don't mean a Bethel Church University). I believe a mix of balanced transportation needs is important which would include bikes, electric private and public vehicles, rides-share apps such as Uber/Lyft and on-demand services for the elderly. Balance and a move toward electric are both key. My "dream" as a 63-year-old born and raised Redding native? Fast rail to Sac and beyond; electric shuttles and working towards a verdant (in all ways) "walking city". That said, it's still Redding and it's still blusteringly hot in the summers. I'm guessing that due to my age and the length of time being proposed for this project that I'm not the demographic you're interested in hearing from. Makes sense. Good luck in your endeavors of improving our city and county!
- Opposed to bike/scooter rides by app. Have experienced these and they are not efficient, highly vandalized, underutilized, and an eyesore which block sidewalks.
- Add additional bike separated bike lanes. E bikes will become common in the near future and people will use them for short trips around town.
- I don't always feel safe waiting at a bus stop alone. If there was some kind of security, I would consider traveling on public transportation more often.
- On demand service that doesn't require filling a van or a taxi to capacity before transporting passengers to their destinations would be preferable. Sometimes you spend MORE time in the transport than you do at your location, and then you have to repeat the process on the return trip! Perhaps issuing or selling some sort of a subsidized payment card to qualified individuals that can be easily used and readily accepted by Uber and Lyft drivers?
- We need to include more power charging stations for powered wheelchairs on routes and for EV's as well.
- I am an aging individual with chronic arthritis and chronic lung issues, on top of being blind. My nearest bus stop is a half mile away, too far for my aging system to walk in extreme weather. I would like to go certain areas, but buses don't go there. I have a ten-minute errand; I now have to wait at the stop for 50 minutes in the blazing sun and no bench or shelter to be had. Make more routes or systems and have more than one bus servicing that area. Put out more benches and shelters. More stops in some areas. Train drivers to call stops. As a blind person, this is very important.

- Safety for all, including pedestrians and bicyclists is a top concern of mine when considering what the best options are for the future of public transportation in our region. Thanks for reaching out to the public with this survey and the opportunity to be included in the vision.
- It's a mile to the nearest bus stop, so that's my current obstacle to using the bus. I would like to have a neighborhood shuttle (Lake Redding Estates).
- Shasta County has a lot of rural areas. Small towns should have their own systems, with trips between towns taking place a couple times a day. Unlike the Philippines, where I lived a couple years, people here are hooked on cars so it's difficult to emulate other countries.
- In addition to shuttles & busses, Redding needs to be pedestrian and bicycle friendly. This means better enforcement of speed limits, more stop signs & safe crossings, and restrictions on "coal-rolling" and lifted diesel trucks which greatly endanger the safety of everyone on the road, especially pedestrians & bicyclists.
- I have two answers for Q7: "Targeted service..." AND "Adding on-demand..."
- safer bike and walking paths/routes
- Keep Redding "Redding". Keep nature all throughout whatever transit is added. This helps people stay calm and meditative rather than us becoming a "city". Let's not become a "city" but as we make these transit improvements let's keep the quality of life we have in Redding where people are not rushed, actually talk to one another and enjoy nature and health.
- Regular train service connecting Shasta county to Chico, Davis and Sacramento. That way students can get a good education and continue to live in the Shasta region.
- Regarding the above question, smaller buses/vans/shuttles is important, but I also see larger buses to get people further, like to the Sac airport as important too. However, maybe those buses don't need to be that large. Maybe they can be larger vans, like the Shuttle Service that existed prior.
- I would love to ride a bus to work but I live in Redding and work at a school in Anderson and west valley so need my transportation. I also coach.
- I'd like to see more bike-friendly routes, similar to what Sacramento offers.
- How about street cars! they are electric and environmentally friendly
- Consolidate transit providers to the fullest extent. For example, it is inappropriate for SRTA to run bus services as well as RABA running bus services. This is government waste.
- We need safer and better bike lanes in Anderson. Connect our parks to the city better.
- This area needs to plan for a growing population as well as an aging community. A mag-lev train running above 273 from Anderson Walmart area to downtown Redding

would help future traffic in the area immensely. Smaller shuttle busses to serve more of the outlying areas. Families are less likely to take alternative transportation if it is difficult getting on/off, not practicable for running errands where they need to pick up things.

- I would love a reliable bus from Redding to Anderson and back that ran frequently all day long, to various parts of Redding. I would take it to watch something at the Cascade rather than parking, or running errands around/within walking distance of the mall, etc.
- In the video it talked of downtown, but there are no stops within the core business area, only outlying areas. I'd like to see intersecting rather than overlapping routes to terminals downtown and other business areas such as the mall area (or north-south, east-west paths with stops. Work on the anti-bus attitude that businesses and government agencies have and has existed for nearly 30 years.
- Hours of service. If you want people to use the service realize most people who would use it are not 9-5 workers. Also, many work Sundays that No Service is offered.
- The heat/cold will not foster a robust bike/scooter share program consistently. On demand-partnership with Lyft/Uber type transit options are probably the most feasible in this area.
- High speed rail
- The aging of the region
- Educating and motivating people away from the privately owned & operates automobile
- Income variability
- Bad timing- mass transit, shared rides, etc. during this pandemic is risky.
- Support intensification of residential zoning near and around downtowns; create handicapped accessible zones with super smooth sidewalks and transitions, encourage NEV (neighborhood electric vehicles- hot golf carts, basically); plan for massive charging stations for EV trucking (like Dunsmuir of the past and railroads); encourage low head hydro production to boost eclectic production from multiple sources along the I-5 corridor to power electric trucks; continue and expand many worthy and notable bike friendly events and competitions; fund start-up electric bike/scooter/conversion companies or their supply chain.
- Would like to see Redding especially become more bike and pedestrian-friendly connecting commercial and residential areas.
- As a powered wheelchair user, I appreciate the bike paths as well!

# **Appendix C Big Data Analysis – LRTP Origin-Destination Report**

# **Shasta Long-Range Transit Plan Origin-Destination Report**

**Prepared for:**



September 20, 2020

RS20-3890

**FEHR**  **PEERS**

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## Appendix A – Mobile Device Data Limitations and Potential Biases

## Appendix B – Origin and Destination Data

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# 1. Study Purpose

The Shasta Regional Transportation Agency (SRTA) is currently preparing a Long-Range Transit Plan (LRTP) for the Shasta Region. The plan will combine existing transit-related information with origin and destination data from location-enabled mobile devices to help understand the demand and propensity to use transit within Shasta County. This report describes the methodologies used to present a summary of the travel patterns and trip characteristics identified, including trips associated with residents, employees, and visitors, where those trips start and end, the purpose and length of those trips, and the demographics of the travelers.

The mobile device data analysis utilized a combination of data sources to obtain a comprehensive dataset of vehicular person travel within Shasta County. Travel surveys are the traditional approach for gathering travel behavior data since the information is more robust than a typical traffic count process. These traditional survey methods are costly and usually result in very small sample sizes. They are also prone to human error during the data collection process as well as from the survey responders who may misinterpret the questions. In order to minimize the shortcomings of traditional approaches, Fehr & Peers evaluated various innovative data collection techniques as well as enhancements to traditional methods for use in this study.

For the Shasta LRTP, Fehr & Peers obtained Cuebiq-based origin-destination mobile device data from StreetLight<sup>1</sup> given their demonstrated experience and success supporting similar travel behavior studies across California. StreetLight was also selected because of their InSight Portal which offers a quick, convenient, and flexible method for obtaining data, as well as their ability to provide advanced metrics such as trip lengths, trip purposes, and demographic information based on observed home locations. Limitations of mobile device data are largely due to federal regulations over privacy concerns, sampling rates, and the reliance on computer algorithms, which lead to potential biases in the data. A detailed discussion of mobile device data limitations and potential biases is provided in **Appendix A**. After obtaining this data, it was checked for reasonableness and scaled using data from the 2020 Shasta County Model, and the results were combined to provide a robust, comprehensive dataset of travel patterns and trip characteristics specific to Shasta County.

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<sup>1</sup> <https://www.streetlightdata.com/>

## 2. Key Findings

This chapter provides a bulleted summary of key findings from the Shasta County origin-destination mobile device data analysis conducted for the Shasta LRTP.

- Findings based on over 1.8 million data samples and 71,000 mobile devices.
- The top ten trip generators in the AM peak period (6 AM to 9 AM) are generally located within the City of Redding, while the bottom ten trip generators are generally located in unincorporated areas.
- The zones with the highest intrazonal trip percentages are predominantly located in unincorporated areas as opposed to more urban incorporated areas.
- In the AM peak period, 64% of trips travelled to another quadrant, suggesting that freeways and highways may not present a significant barrier to travel.
- Roughly 154,000 trips occur in the AM peak period, with roughly 103,000 or 67% travelling between cities and communities. The largest observed origin-destination pattern was trips that start and end within the City of Redding.
- Comparisons of StreetLight data to Shasta County Model data suggest that although StreetLight may be underestimating countywide travel, travel pattern sampling rates likely vary by geography and scaling factors that vary by origin and destination are needed as opposed to a single countywide scaling factor.
- The weekday AM peak period (6 AM to 9 AM) top 20 travel markets range from 124 to 511 trips, representing a wide range in magnitude of travel demand, which indicates a somewhat dispersed AM peak period travel pattern with few large travel markets. Furthermore, the top 20 origin-destination pairs appear to travel in the east-west directions and are relatively short distance trips. This is in contrast to the existing Shasta County transit system that primarily serves longer distance north-south trips.
- The weekday mid-day period (9 AM to 3 PM) top 20 travel markets range from 702 to 1,986 trips, representing a wide range in magnitude of travel. Furthermore, the top 20 origin-destination pairs appear to travel predominantly to and from a common zone, Zone 423 which contains the Mt Shasta Mall, indicating a concentrated mid-day period travel pattern with a single short-distance travel destination.
- The weekday AM peak period top 20 travel markets are comprised of predominantly work trips by households without kids that have a household income greater than \$35,000 per year.
- The weekday mid-day period top 20 travel markets are comprised of predominantly non-work trips by households without kids that have a household income greater than \$35,000 per year. Compared to the AM peak period, the travel markets are comprised of trips that are much shorter, non-work-related, that mostly travel to and from Zone 223 which contains the Mt. Shasta Mall.



## 3. Study Methodology

Fehr & Peers collected Shasta County-specific travel data from a variety of sources to gain a robust understanding of travel behavior within Shasta County. Data from the various sources were combined and analyzed to identify and quantify travel demands and the origin-destination and demographic characteristics of travelers within the county. The analysis was intended to provide SRTA, local staff, and the public with an updated and more robust understanding of travel behavior within Shasta County, and to be used in the LRTP to identify existing transit serve able travel markets and their travel characteristics for the evaluation of potential transit solutions.

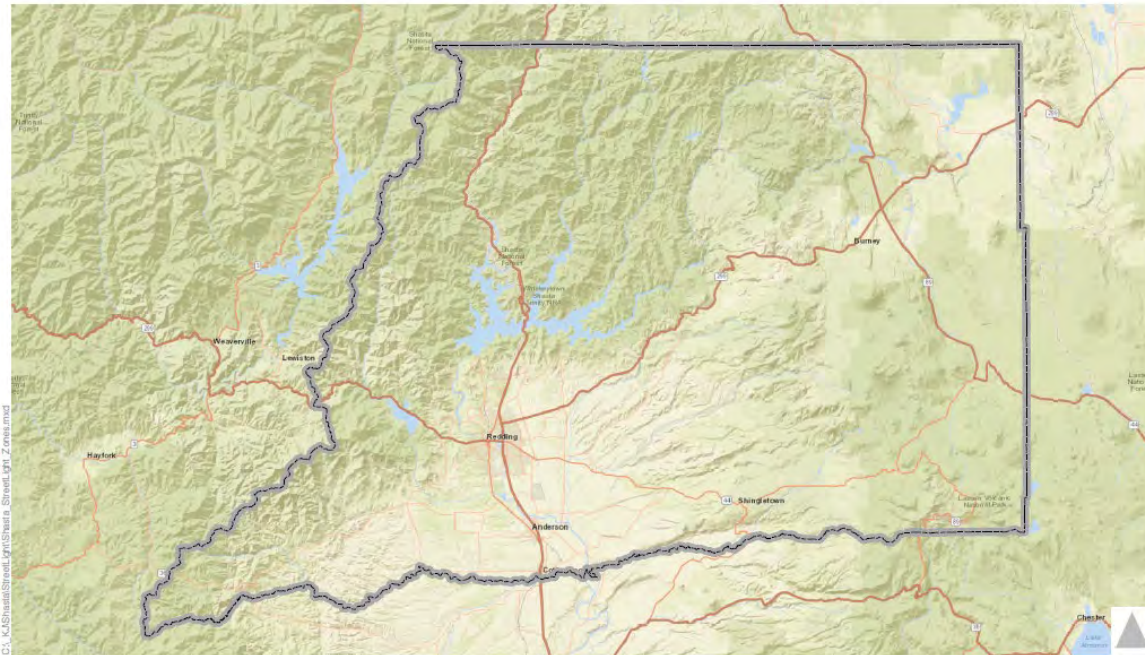
### 3.1 Study Area

The origin-destination data collection effort for the Shasta LRTP focused on collecting data for person vehicular trips that travelled within, to, from, and through Shasta County. The Shasta LRTP study area is show on **Figure 1**.

### 3.2 Focus Areas

While the goal of the origin-destination data collection was on obtaining travel pattern data for the entire county, the analysis was focused on Strategic Growth Areas (SGAs) and development corridors where future development and infrastructure improvements are planned. The Shasta LRTP SGAs and focus corridors are shown on **Figure 2**.

Figure 1: Shasta LRTP Study Area



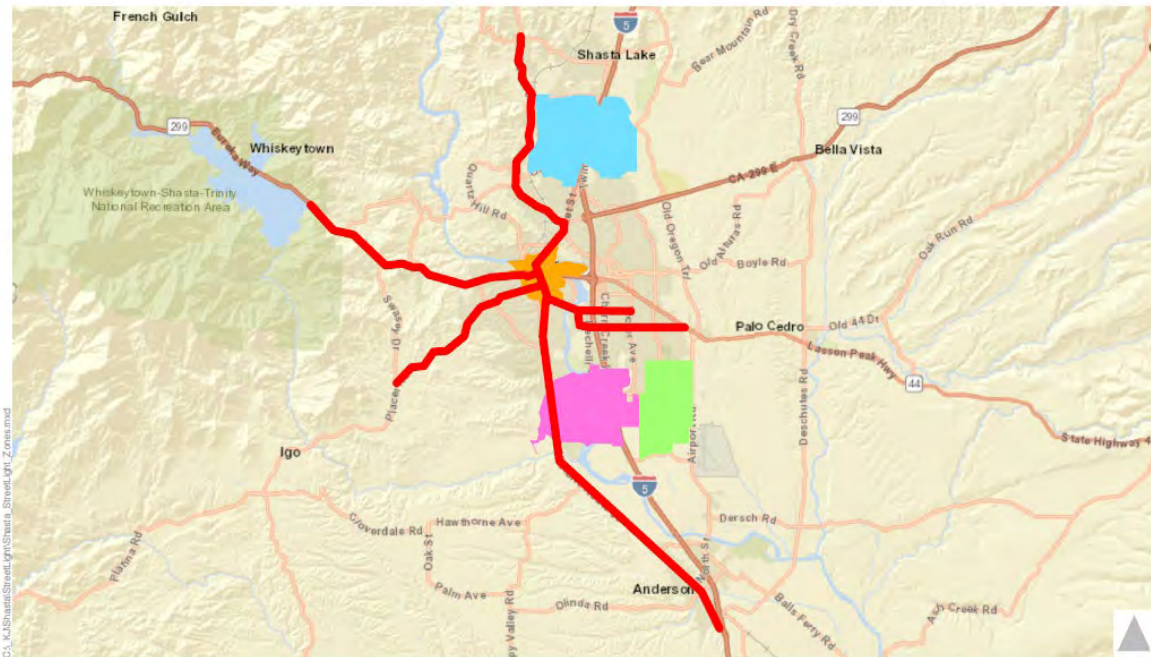
**Legend**

 Shasta County Boundary



Figure 1  
Shasta LRTP Study Area

Figure 2: Shasta LRTP Strategic Growth Areas and Focus Corridors



**Legend**

Focus Corridor South Bonneyview Rancho Shasta View Downtown Oasis Road



Figure 2

Shasta LRTP Strategic Growth Areas and Focus Corridors

### 3.3 Origin and Destination Data

Fehr & Peers collected and analyzed data from two primary data sources. Mobile device data was collected and analyzed to determine the origins and destinations of trips interacting with Shasta County, while data from the 2020 Shasta County Model was used to check the reasonableness of and scale the mobile device data.

For the Shasta LRTP, Fehr & Peers evaluated two mobile device origin-destination data products offered by StreetLight:



The first data product evaluated was GPS-based data which had a spatial resolution of around ten meters but provided data for a smaller sample of the population (one to two percent of vehicle trips), was generally limited to vehicular sources of travel, and had inherent biases towards higher income persons.



The second data product evaluated was Cuebiq-based data, provided by a next generation location intelligence company, which offered a device sample size increase to more than 60 million devices, representing roughly 15 to 20 percent of the adult US population. Cuebiq's data is generated by mobile applications that use Location-Based Services (LBS)

and is best suited for measuring people's activities over a given period of time, including times when their device is at rest, while GPS-based data only measures when a device is in motion.

LBS data also allows StreetLight to ascertain complex activity-based metrics such as classifying devices into residents, workers, and visitors to a geographic area and the determination of each device's home and work location as well as the purpose of their trips. This is made possible by the ability to geographically tag the devices to land use or places in addition to roadway segments. The spatial resolution and geographic tagging makes the data not only suitable for understanding users of a specific roadway segments but for capturing zone to zone travel patterns, trip purposes, home and work locations, and census information associated with the device's home location.

For the Shasta LRTP, **Fehr & Peers obtained StreetLight's Cuebiq-based mobile device data** to quantify Shasta County travel as it afforded a large sample size and high spatial resolution with greatly reduced biases towards vehicle trips and higher income persons.

### 3.3.1 Zone System

Cuebiq-based mobile device origin-destination data provided by StreetLight is tagged to a geographic layer of user-specified zones uploaded to their InSight Portal which offers a quick, convenient, and flexible method for obtaining the data. The zone system was developed by aggregating the TAZ system from the Shasta County Model, which has 900 zones within Shasta County. A preliminary zone system was developed and provided to SRTA staff for review in the form of an ArcGIS Enterprise Web Map<sup>2</sup>. A screenshot of the web map provided to SRTA for the zone system review is provided on **Figure 3**. The final Shasta LRTP zone system is shown on **Figure 4**.

The final zone system included 100 zones within Shasta County. The number of zones included for specific areas of Shasta County are listed below.

- Redding – 58 zones
- Redding Sphere – 5 zones
- Anderson – 5 zones
- Anderson Sphere – 3 zones
- Shasta Lake – 5 zones
- Cottonwood – 1 zone
- Other Communities (e.g. Shingletown, Burney) – 13 zones
- Other Unincorporated Areas (not including other communities) – 7 zones
- County Gateways – 3 zones
  - I-5 at the Tehama County Line
  - I-5 at the Siskiyou County Line
  - SR 299 at the Trinity County Line

The final 100-zone system was provided to StreetLight. StreetLight tagged the Cuebiq-based origin-destination data to the zone system and provided origin-destination trip tables based on mobile devices that travelled to and from zones. The tables provided the number of device trips for each zone to zone origin-destination pair for all trip purposes that occur within the study area, including visitor and pass-through trips. The data was provided in a format nearly identical to that produced by a travel demand model that allowed for comparison to the Shasta County Model.

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<sup>2</sup> <https://enterprise.arcgis.com/en/portal/latest/use/what-is-web-map.htm>

Figure 3: Shasta LRTP Zone System Review

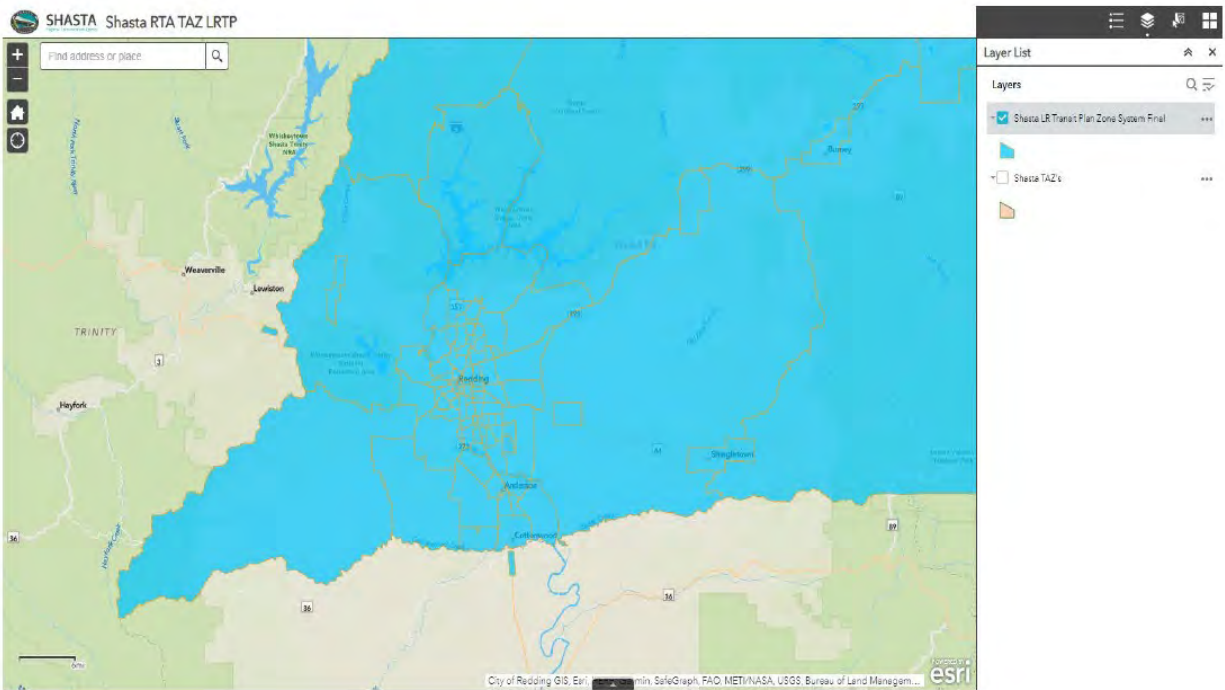
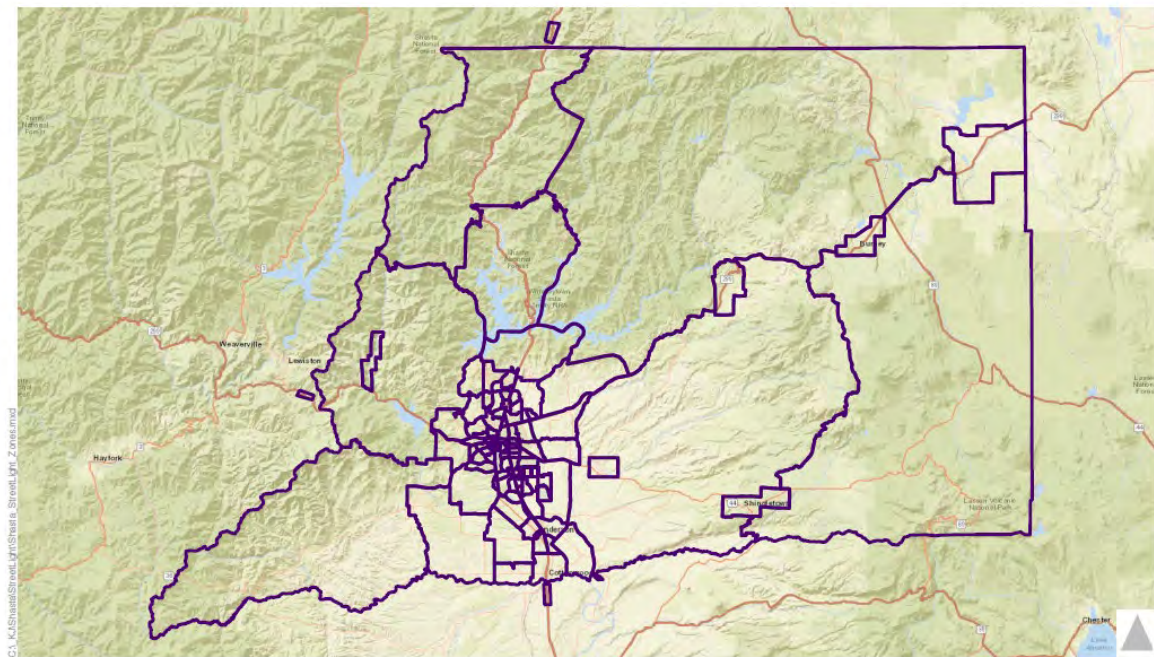


Figure 3  
Shasta LRTP Zone System Review

Figure 4: Shasta LRTP Zone System



**Legend**

 Shasta LRTP Zone System



Figure 4  
Shasta LRTP Zone System

### 3.3.2 Data Periods

Data was purchased for a single data period (March to May 2019) when school was in session. This ensured the data was consistent with the Shasta County Model outputs as travel demand models are typically developed to forecast an average day when school is in session from a specified year.

### 3.3.3 Data Products

Fehr & Peers obtained from StreetLight Cuebiq-based origin and destination data for each of the 100 zones, which provided a very large sample of true origin-destination data passively and anonymously.

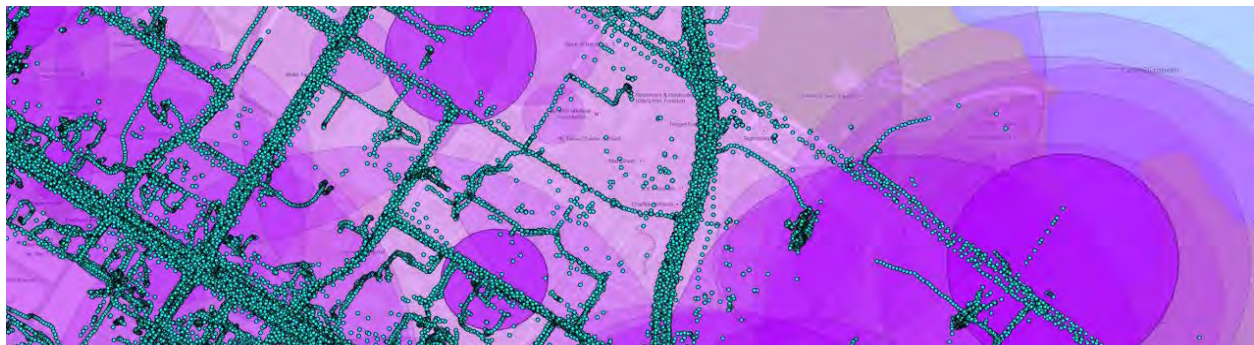
The data was analyzed for the following day parts and time periods, consistent with the Shasta County Model.

- Day Type – average weekday (Tuesday to Thursday)
- Day Part - AM Peak Period (6 AM to 9 AM), Mid-Day Period (9 AM to 3 PM)

Premium trip and traveler metrics were also obtained for the Cuebiq-based data, providing trip length, trip purpose, and demographic data based on 2010 American Community Survey (ACS) data.

### 3.3.4 Data Sample Size

The data obtained from StreetLight, which was analyzed to determine the travel patterns and travel characteristics discussed in Chapter 4, included over 1.8 million data samples from 71,000 mobile devices.



### 3.3.5 Data Scaling

Due to privacy concerns and sample rates, the indexed trip values in the origin-destination trip tables provided by StreetLight represent “relative” rather than “absolute” trips. In other words, the tables do not provide the total number of trips that occur on a daily basis but provide the relative relationship of trips from each zone to every other zone in the geographic layer. Therefore, the mobile device origin-destination data trip tables are used as a starting point due to their large sample size and high level of confidence in the origin-destination data and refined using the Shasta County Model to factor the relative trip data to represent a single period of absolute data.

### 3.3.6 Data Limitations

Limitations of mobile device data are largely due to federal regulations over privacy concerns, sampling rates, and the reliance on computer algorithms, which lead to potential biases in the data. A detailed discussion of mobile device data limitations and potential biases is provided in **Appendix A**.

## 3.4 Travel Markets

The focus of the Shasta LRTP mobile device origin-destination data analysis was on establishing the size of travel markets within Shasta County. Key existing travel markets were identified to help determine if there are markets that can feasibly and cost-effectively be served by transit. This travel market analysis will help communicate to SRTA, local agencies, and the public the size of the potential transit markets, and help determine the relative benefits and the cost-effectiveness of providing transit investments to serve these travel markets.



## 4. Travel Markets Assessment

As discussed in the previous chapter, mobile device data was obtained from StreetLight and analyzed for all 100 zones to determine the travel markets within Shasta County. The focus of the travel markets assessment was on the AM Peak Period as this is typically when the modal decision is made (at least for the daily work tour which is most likely to be served by transit due to its non-discretionary nature). Data was also analyzed for the mid-day period to ensure all potential travel markets were captured and understood prior to the evaluation of potential transit options.

Detailed data for all 100 zones is provided in **Appendix B**.

### 4.1 Where is travel occurring?

The first step in the travel markets assessment process was to determine where travel is occurring within Shasta County. Cuebiq-based origin and destination data was analyzed to determine the total trip origins and total trip destinations for each of the 100 study zones. The following tables and figures provide a summary of the data to help identify where travel is starting and ending within Shasta County in the AM peak period and mid-day period.

#### 4.1.1 Total Trip Origins and Destinations

**Table 4-1** provides the raw StreetLight estimate of total trip origins and total trip destinations generated by the top ten trip generators and bottom ten trip generators in the AM peak period (6 AM to 9 AM) within Shasta County. Data is also provided for the three county gateways included in the Shasta LRTP zone system. The AM peak period total trip origins for zones within and around the focus areas are illustrated using a heat map on **Figure 5**, while the total trip destinations are illustrated on **Figure 6**. The gradient shading indicates the magnitude of trips generated by the zone in relation to other study zones.



**Table 4-1: StreetLight Weekday AM Peak Period Trip Origins and Destinations**

| Zone                      | Area                 | Trip Origins   | Trip Destinations |
|---------------------------|----------------------|----------------|-------------------|
| Top 10 Trip Generators    |                      |                |                   |
| 211                       | Redding              | 2,652          | 4,456             |
| 218                       | Redding              | 4,185          | 2,730             |
| 223                       | Redding              | 3,175          | 3,627             |
| 206                       | Redding              | 2,830          | 3,256             |
| 204                       | Redding              | 4,224          | 1,747             |
| 232                       | Redding              | 3,326          | 2,466             |
| 220                       | Redding              | 1,720          | 4,056             |
| 212                       | Redding              | 2,355          | 3,399             |
| 412                       | Redding Sphere       | 2,085          | 3,330             |
| 214                       | Redding              | 1,410          | 3,725             |
| Bottom 10 Trip Generators |                      |                |                   |
| 434                       | Other Community      | 307            | 145               |
| 432                       | Redding Sphere       | 317            | 89                |
| 238                       | Redding              | 239            | 133               |
| 235                       | Redding              | 154            | 170               |
| 435                       | Other Community      | 69             | 235               |
| 237                       | Redding              | 135            | 71                |
| 420                       | Other Community      | 153            | 34                |
| 426                       | Other Unincorporated | 28             | 39                |
| 240                       | Redding              | 29             | 27                |
| 429                       | Other Unincorporated | 25             | 17                |
| County Gateways           |                      |                |                   |
| 101                       | I5South              | 8,339          | 8,339             |
| 102                       | I5North              | 1,756          | 1,756             |
| 103                       | SR299West            | 263            | 263               |
| <b>Total Countywide</b>   |                      | <b>119,969</b> | <b>109,877</b>    |

Source: Fehr & Peers.

As shown in **Table 4-1**, the top ten trip generators in the AM peak period are generally located within the City of Redding, while the bottom ten trip generators are generally located in unincorporated areas. Additionally, the 100 study zones generate roughly 120,000 trip origins and 110,000 trip destinations.



Figure 5: Shasta LRTP StreetLight AM Trip Origins

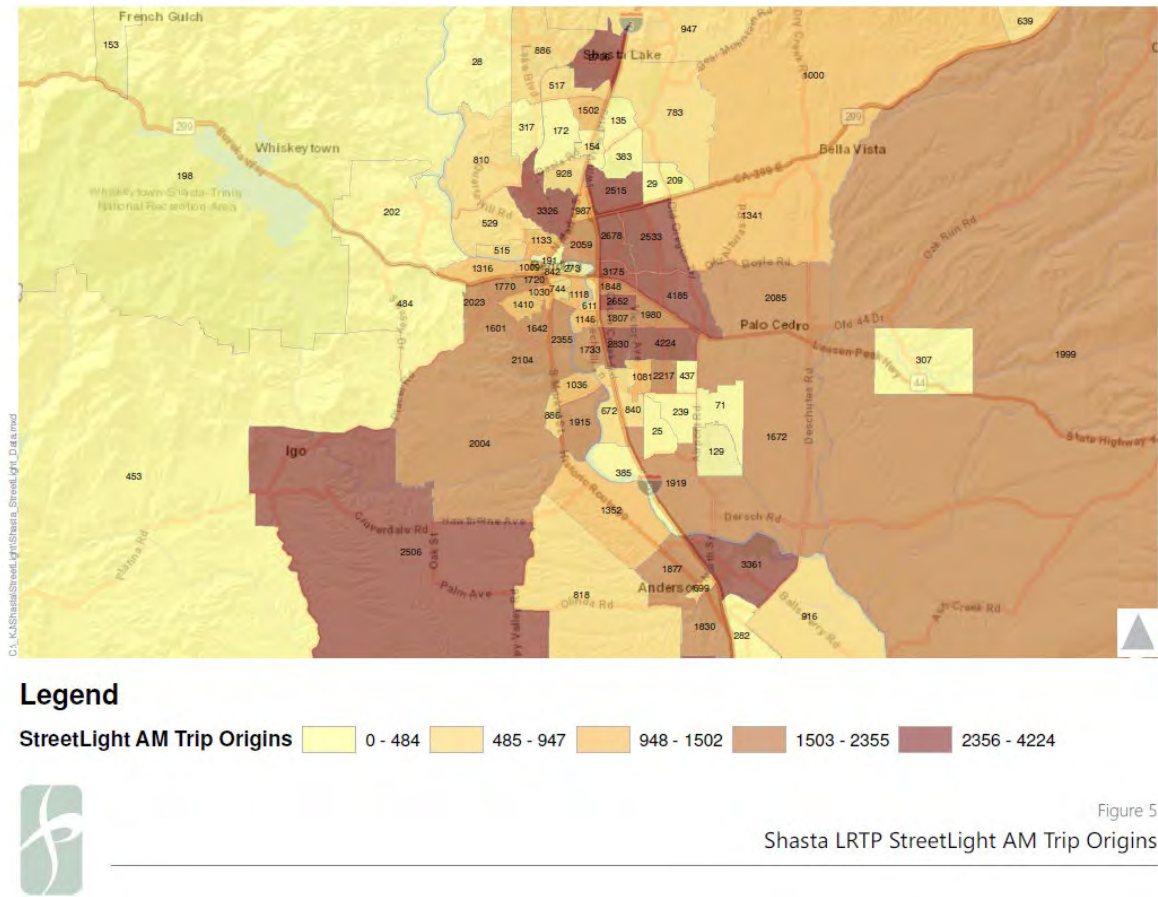
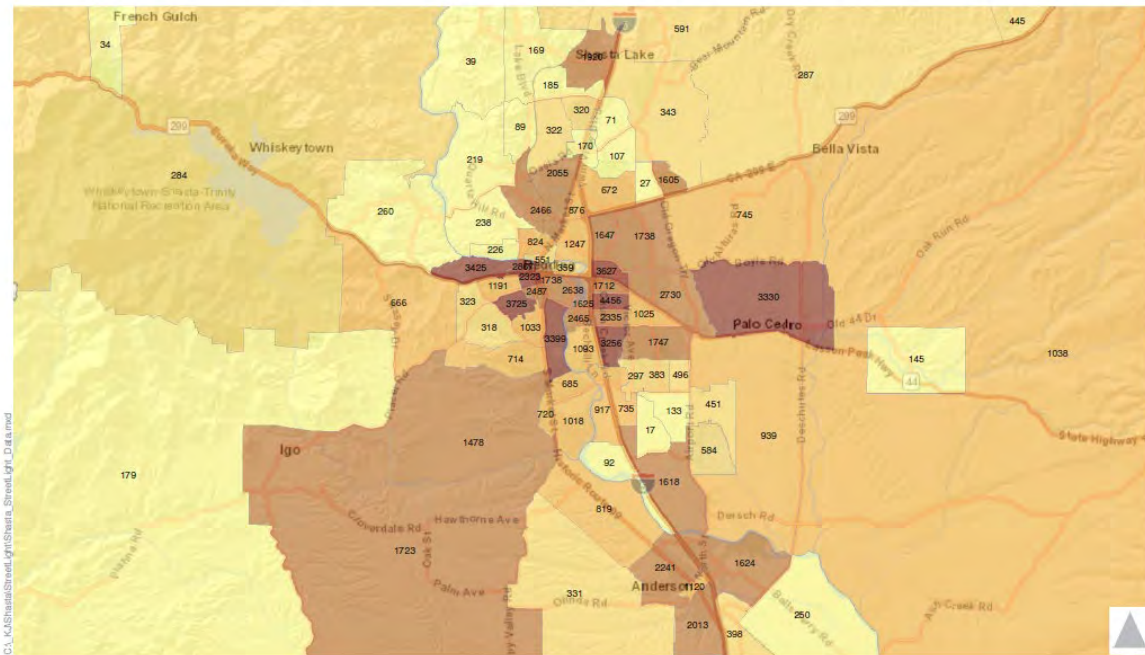




Figure 6: Shasta LRTP StreetLight AM Trip Destinations



**Legend**

**StreetLight AM Trip Destinations**

|         |           |            |             |             |
|---------|-----------|------------|-------------|-------------|
| 2 - 260 | 261 - 591 | 592 - 1273 | 1274 - 2730 | 2731 - 4456 |
|---------|-----------|------------|-------------|-------------|



Figure 6  
Shasta LRTP StreetLight AM Trip Destinations

## 4.1.2 Travel Model Comparison

As discussed previously, the indexed trip values in the origin-destination trip tables provided by StreetLight do not provide the total number of trips that occur on a daily basis but provide the relative relationship of trips from each zone to every other zone in the geographic layer based on a sample of devices moving around the network. However, StreetLight does apply adjustment factors at the census block group level based on an analysis of the number of observed mobile devices that reside within the zone to census population estimates. The resulting values are an attempt at representing an absolute trip count but are still based on a sample of observed trips greatly influenced by sampling rates that vary by geography and demographics. Based on this, it was expected that the StreetLight “sample trip counts” provided would at the highest level (in this case countywide) be a close approximation of absolute travel, but that deviations would greatly increase as the analysis geography got smaller (in this case the 100 zones).

In order to check the reasonableness of the overall magnitude of the AM peak period data provided by StreetLight, vehicular person travel patterns from the 2020 Shasta County Model were compared to the StreetLight “sample trip counts” for each of the 100 zones. Travel models typically do a very good job at estimating trip generation, as these values are typically derived from long standing empirical sources, but provide less certainty with their forecasts of trip distribution and mode split.

**Table 4-2** provides a comparison of the raw StreetLight estimate of total trip origins and total trip destinations generated by the top ten trip generators and bottom ten trip generators in the AM peak period within Shasta County to households, jobs, total trip origins, and total trip destinations from the 2020 Shasta County Model. The travel model trip data represents persons in vehicles, similar to what is provided by StreetLight as they filter out presumed walk and bike trips for their active mode product as well as any other trips that look odd to their algorithm which in many cases are transit trips due to their complex nature.

The AM peak period total trip origins for zones within and around the focus areas from the 2020 Shasta County Model are illustrated using a heat map on **Figure 7**, while the total trip destinations are illustrated on **Figure 8**. The gradient shading indicates the magnitude of trips generated by the zone in relation to other study zones. A comparison to similar heat maps developed from the raw StreetLight data shown in **Figure 5** and **Figure 6** indicate the data match fairly well at the total origins and total destinations by zone level.

Similar heat maps illustrating households and jobs for zones within and around the focus areas from the 2020 Shasta County Model are provided on **Figure 9** and **Figure 10**, respectively.



Figure 7: Shasta LRTP Shasta Model AM Trip Origins

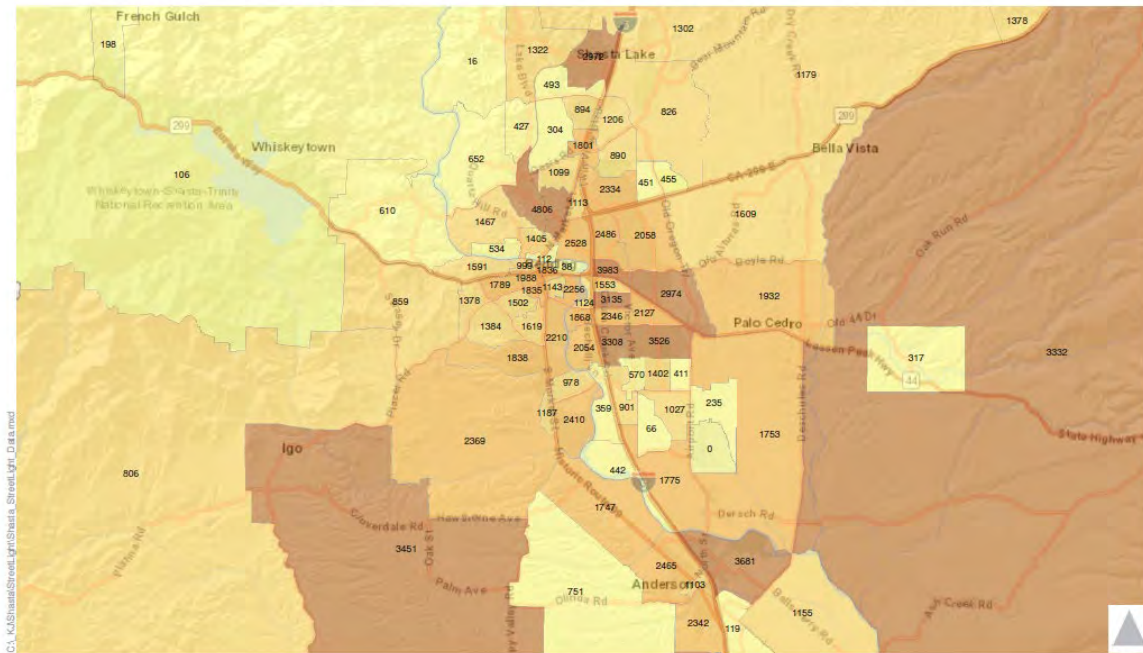
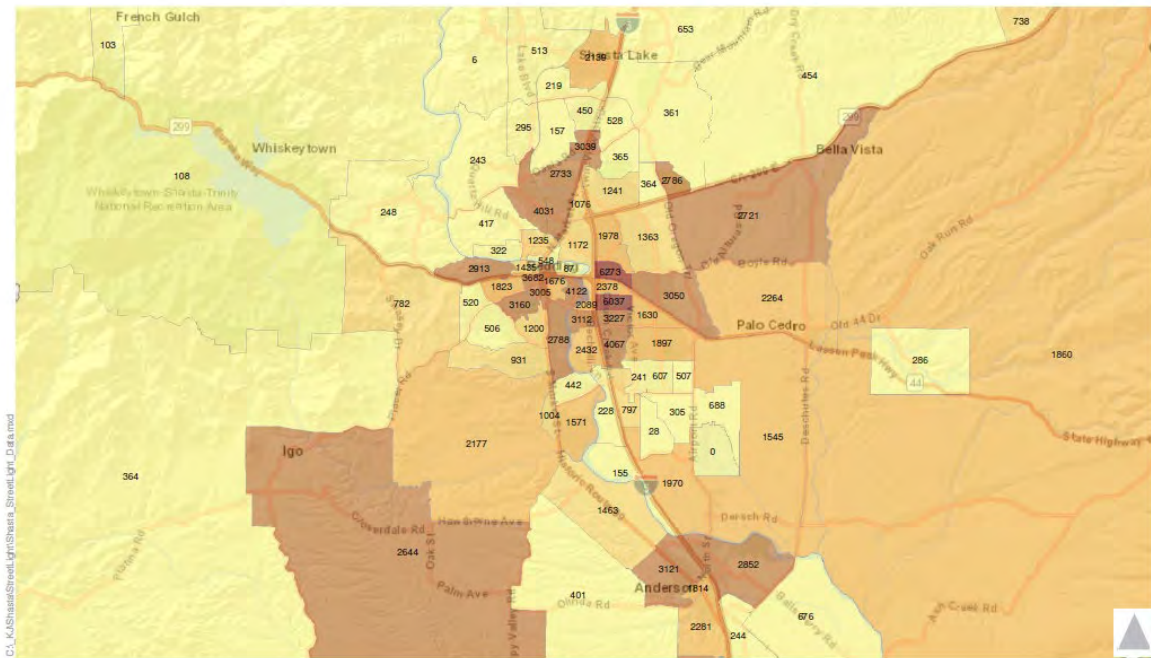


Figure 7  
Shasta LRTP Shasta Model AM Trip Origins



Figure 8: Shasta LRTP Shasta Model AM Trip Destinations



### Legend

Shasta Model AM Trip Destinations

| Color        | Range       |
|--------------|-------------|
| Light Yellow | 0 - 688     |
| Yellow       | 689 - 1494  |
| Orange       | 1495 - 2432 |
| Brown        | 2433 - 4122 |
| Dark Brown   | 4123 - 6273 |



Figure 8

Shasta LRTP Shasta Model AM Trip Destinations



Figure 9: Shasta LRTP Shasta Model 2020 Households

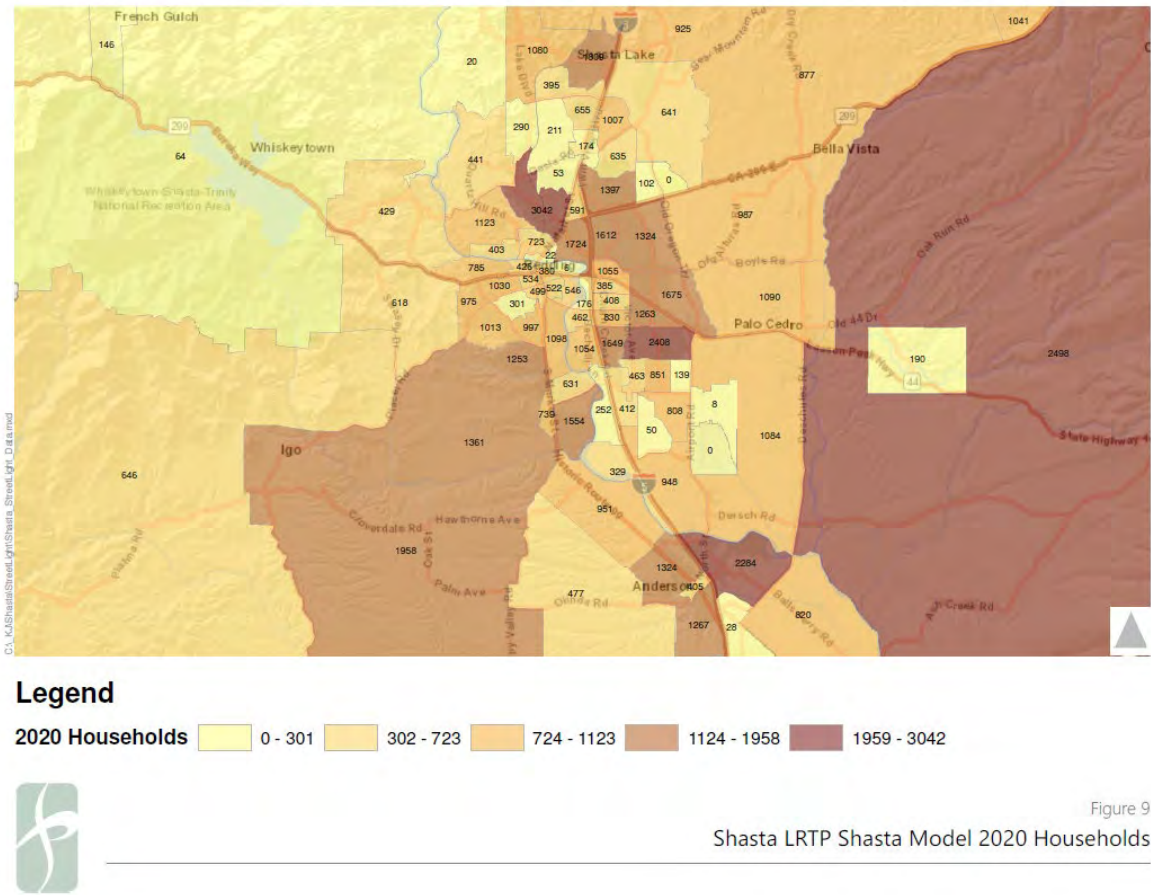
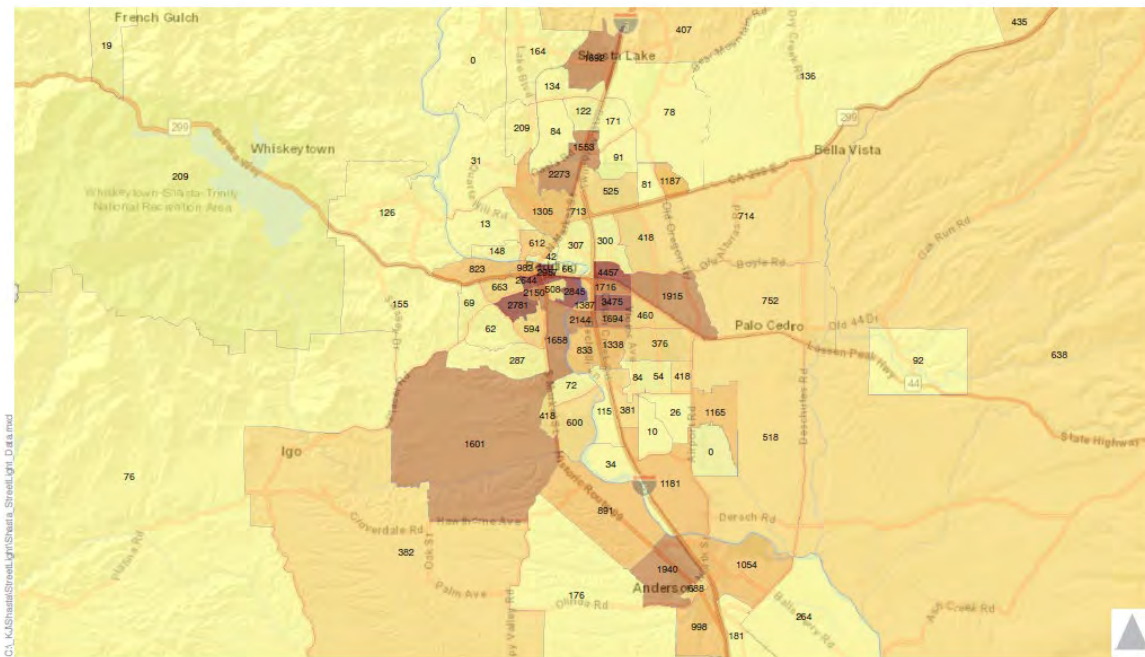




Figure 10: Shasta L RTP Shasta Model 2020 Jobs



### Legend

2020 Jobs 0 - 307 308 - 752 753 - 1387 1388 - 2273 2274 - 4457



Figure 10  
Shasta L RTP Shasta Model 2020 Jobs



**Table 4-2: Shasta Model Weekday AM Peak Period Trip Origins and Destinations**

| Zone                      | Area                 | StreetLight<br>(6 AM to 9 AM) |                      | 2020 Shasta County Model<br>(6 AM to 9 AM) |                      |            |        |
|---------------------------|----------------------|-------------------------------|----------------------|--------------------------------------------|----------------------|------------|--------|
|                           |                      | Trip<br>Origins               | Trip<br>Destinations | Trip<br>Origins                            | Trip<br>Destinations | Households | Jobs   |
| Top 10 Trip Generators    |                      |                               |                      |                                            |                      |            |        |
| 211                       | Redding              | 2,652                         | 4,456                | 3,135                                      | 6,037                | 408        | 3,475  |
| 218                       | Redding              | 4,185                         | 2,730                | 2,974                                      | 3,050                | 1,675      | 1,915  |
| 223                       | Redding              | 3,175                         | 3,627                | 3,983                                      | 6,273                | 1,055      | 4,457  |
| 206                       | Redding              | 2,830                         | 3,256                | 3,308                                      | 4,067                | 1,649      | 1,338  |
| 204                       | Redding              | 4,224                         | 1,747                | 3,526                                      | 1,897                | 2,408      | 376    |
| 232                       | Redding              | 3,326                         | 2,466                | 4,806                                      | 4,031                | 3,042      | 1,305  |
| 220                       | Redding              | 1,720                         | 4,056                | 1,988                                      | 3,743                | 534        | 2,644  |
| 212                       | Redding              | 2,355                         | 3,399                | 2,210                                      | 2,788                | 1,098      | 1,658  |
| 412                       | Redding Sphere       | 2,085                         | 3,330                | 1,932                                      | 2,264                | 1,090      | 752    |
| 214                       | Redding              | 1,410                         | 3,725                | 1,502                                      | 3,160                | 301        | 2,781  |
| Bottom 10 Trip Generators |                      |                               |                      |                                            |                      |            |        |
| 434                       | Other Community      | 307                           | 145                  | 317                                        | 286                  | 190        | 92     |
| 432                       | Redding Sphere       | 317                           | 89                   | 427                                        | 295                  | 290        | 209    |
| 238                       | Redding              | 239                           | 133                  | 1,027                                      | 305                  | 808        | 26     |
| 235                       | Redding              | 154                           | 170                  | 1,801                                      | 3,039                | 174        | 1,553  |
| 435                       | Other Community      | 69                            | 235                  | 372                                        | 247                  | 220        | 49     |
| 237                       | Redding              | 135                           | 71                   | 1,206                                      | 528                  | 1,007      | 171    |
| 420                       | Other Community      | 153                           | 34                   | 198                                        | 103                  | 146        | 19     |
| 426                       | Other Unincorporated | 28                            | 39                   | 16                                         | 6                    | 20         | 0      |
| 240                       | Redding              | 29                            | 27                   | 451                                        | 364                  | 102        | 81     |
| 429                       | Other Unincorporated | 25                            | 17                   | 66                                         | 28                   | 50         | 10     |
| County Gateways           |                      |                               |                      |                                            |                      |            |        |
| 101                       | I5South              | 8,339                         | 8,339                | 7,509                                      | 5,024                | --         | --     |
| 102                       | I5North              | 1,756                         | 1,756                | 1,972                                      | 2,217                | --         | --     |
| 103                       | SR299West            | 263                           | 263                  | 507                                        | 368                  | --         | --     |
| Total Countywide          |                      | 119,969                       | 109,877              | 142,115                                    | 145,181              | 77,277     | 73,480 |

Source: Fehr & Peers.

As shown in **Table 4-2**, the StreetLight zonal trip estimate magnitudes generally align with the 2020 Shasta County Model forecasts, with some large deviations as expected. At the countywide level, where the data



was expected to match more closely, the 2020 Shasta County Model total trip origins are roughly 22,000 trips or 18% higher, while trip destinations are roughly 35,000 trips or 32% higher. This comparison suggests StreetLight is underestimating absolute travel within Shasta County and adjustments need to be applied in order to accurately capture the size of existing travel markets.

## 4.1.3 Mid-Day Travel Comparison

**Table 4-3** provides a comparison of the raw StreetLight estimate of total trip origins and total trip destinations generated by the top ten trip generators and bottom ten trip generators in the AM peak period within Shasta County to StreetLight mid-day period estimates. This comparison was conducted in order to identify zones that generate significantly more traffic in the mid-day period than the AM peak period, which are indicated with yellow shading.

**Table 4-3: StreetLight Weekday Mid-Day Period Trip Origins and Destinations**

| Zone                      | Area            | StreetLight<br>AM Peak Period<br>(6 AM to 9 AM) |                      | StreetLight<br>Mid-Day Period<br>(9 AM to 3 PM) |                      |                  |                       |
|---------------------------|-----------------|-------------------------------------------------|----------------------|-------------------------------------------------|----------------------|------------------|-----------------------|
|                           |                 | Trip<br>Origins                                 | Trip<br>Destinations | Trip<br>Origins                                 | Trip<br>Destinations | Delta<br>Origins | Delta<br>Destinations |
| Top 10 Trip Generators    |                 |                                                 |                      |                                                 |                      |                  |                       |
| 211                       | Redding         | 2,652                                           | 4,456                | 13,874                                          | 13,504               | 11,222           | 9,048                 |
| 218                       | Redding         | 4,185                                           | 2,730                | 6,658                                           | 6,576                | 2,473            | 3,846                 |
| 223                       | Redding         | 3,175                                           | 3,627                | 26,422                                          | 28,634               | 23,247           | 25,007                |
| 206                       | Redding         | 2,830                                           | 3,256                | 7,644                                           | 6,762                | 4,814            | 3,506                 |
| 204                       | Redding         | 4,224                                           | 1,747                | 6,753                                           | 6,397                | 2,529            | 4,650                 |
| 232                       | Redding         | 3,326                                           | 2,466                | 8,684                                           | 8,452                | 5,358            | 5,986                 |
| 220                       | Redding         | 1,720                                           | 4,056                | 9,197                                           | 8,536                | 7,477            | 4,480                 |
| 212                       | Redding         | 2,355                                           | 3,399                | 7,026                                           | 6,773                | 4,671            | 3,374                 |
| 412                       | Redding Sphere  | 2,085                                           | 3,330                | 5,289                                           | 4,481                | 3,204            | 1,151                 |
| 214                       | Redding         | 1,410                                           | 3,725                | 5,859                                           | 6,262                | 4,449            | 2,537                 |
| Bottom 10 Trip Generators |                 |                                                 |                      |                                                 |                      |                  |                       |
| 434                       | Other Community | 307                                             | 145                  | 401                                             | 355                  | 94               | 210                   |
| 432                       | Redding Sphere  | 317                                             | 89                   | 476                                             | 516                  | 159              | 427                   |
| 238                       | Redding         | 239                                             | 133                  | 453                                             | 443                  | 214              | 310                   |
| 235                       | Redding         | 154                                             | 170                  | 465                                             | 425                  | 311              | 255                   |
| 435                       | Other Community | 69                                              | 235                  | 369                                             | 339                  | 300              | 104                   |

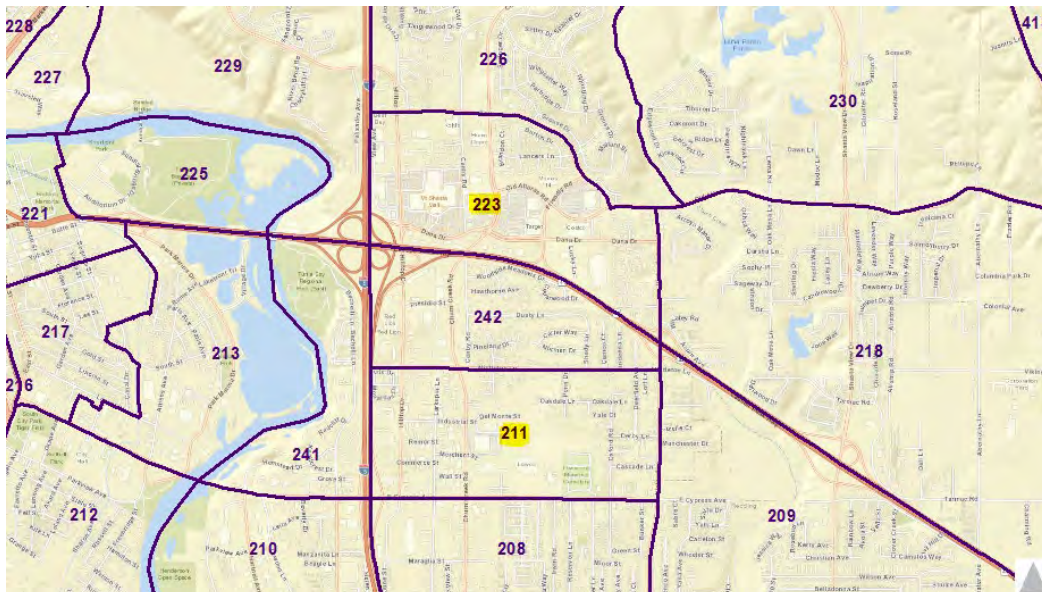


**Table 4-3: StreetLight Weekday Mid-Day Period Trip Origins and Destinations**

| Zone            | Area                 | StreetLight<br>AM Peak Period<br>(6 AM to 9 AM) |                      | StreetLight<br>Mid-Day Period<br>(9 AM to 3 PM) |                      |                  |                       |
|-----------------|----------------------|-------------------------------------------------|----------------------|-------------------------------------------------|----------------------|------------------|-----------------------|
|                 |                      | Trip<br>Origins                                 | Trip<br>Destinations | Trip<br>Origins                                 | Trip<br>Destinations | Delta<br>Origins | Delta<br>Destinations |
| 237             | Redding              | 135                                             | 71                   | 363                                             | 407                  | 228              | 336                   |
| 420             | Other Community      | 153                                             | 34                   | 224                                             | 201                  | 71               | 167                   |
| 426             | Other Unincorporated | 28                                              | 39                   | 168                                             | 150                  | 140              | 111                   |
| 240             | Redding              | 29                                              | 27                   | 224                                             | 83                   | 195              | 56                    |
| 429             | Other Unincorporated | 25                                              | 17                   | 117                                             | 98                   | 92               | 81                    |
| County Gateways |                      |                                                 |                      |                                                 |                      |                  |                       |
| 101             | I5South              | 8,339                                           | 8,339                | 18,535                                          | 18,535               | 10,196           | 10,196                |
| 102             | I5North              | 1,756                                           | 1,756                | 6,485                                           | 6,485                | 4,729            | 4,729                 |
| 103             | SR299West            | 263                                             | 263                  | 644                                             | 644                  | 381              | 381                   |
| <b>Total</b>    |                      | <b>119,969</b>                                  | <b>109,877</b>       | <b>310,856</b>                                  | <b>299,485</b>       | <b>190,887</b>   | <b>189,608</b>        |

Source: Fehr & Peers.

As shown in **Table 4-3**, the StreetLight AM peak period zonal trip estimate magnitudes generally align with the StreetLight mid-day period zonal trip estimate magnitudes. The two notable exceptions are Zone 211, which contains the Cypress Pointe Shopping Mall, and Zone 223, which contains the Mt. Shasta Mall, both of which contain large amounts of retail services which typically generate more trips in the mid-day period. The zonal boundaries for both zones are illustrated below.





## 4.2 Where are trips going?

The second step in the travel markets assessment process is to determine where trips are travelling from and to. This analysis focuses on determining the magnitude of linked origin-destination pairs as opposed to locations where trips start and where trips end. This is an important distinction for transit evaluation as traditional transit typically works best when serving large groups traveling from a common origin to a common destination. The objective of this analysis is to determine concentrations of trips with common origins and destinations.

Cuebiq-based origin and destination data was once again analyzed but this time to determine the largest countywide origin-destination pairs for the 10,000 possible patterns (100 zones to each of the other 100 zones). The following tables and figures provide a summary of the data to help identify where trips are going within Shasta County in the AM peak period and mid-day period.

### 4.2.1 What percentage are leaving their zone?

**Table 4-4** and **Table 4-5** provide the raw StreetLight estimate of the 20 largest origin-destination patterns within Shasta County for the AM peak period and mid-day period, respectively. This analysis was conducted to determine if trips generally leave their zone when going somewhere or if people's needs are generally met by services provided within their own zone.

The top 20 origin-destination pairs were classified into the following three trip types based on the origin and destination zone locations.

- Intrazonal trip – trip that starts and ends in the same zone
- County Pass-Through trip– trip that travels through the county without stopping
- Intra-County trip – trips that starts and ends within the county but travels to a different zone



**Table 4-4: StreetLight Weekday AM Peak Period Top 20 Origin-Destination Pairs**

| Origin Zone | Destination Zone | StreetLight Trip Count | Trip Type           |
|-------------|------------------|------------------------|---------------------|
| 437         | 437              | 1,135                  | Intrazonal          |
| 412         | 412              | 572                    | Intrazonal          |
| 101         | 102              | 528                    | County Pass-Through |
| 504         | 504              | 508                    | Intrazonal          |
| 401         | 401              | 506                    | Intrazonal          |
| 416         | 416              | 495                    | Intrazonal          |
| 422         | 422              | 472                    | Intrazonal          |
| 102         | 101              | 455                    | County Pass-Through |
| 232         | 232              | 355                    | Intrazonal          |
| 402         | 412              | 333                    | Intra-County        |
| 423         | 422              | 333                    | Intra-County        |
| 402         | 402              | 328                    | Intrazonal          |
| 223         | 223              | 307                    | Intrazonal          |
| 218         | 412              | 303                    | Intra-County        |
| 302         | 302              | 301                    | Intrazonal          |
| 302         | 304              | 300                    | Intra-County        |
| 204         | 211              | 294                    | Intra-County        |
| 304         | 304              | 282                    | Intrazonal          |
| 302         | 301              | 265                    | Intra-County        |
| 103         | 103              | 263                    | Intrazonal          |

Source: Fehr & Peers.

As shown in **Table 4-4**, 12 of the 20 largest AM peak period origin-destination pairs are trips that start and end in the same zone, suggesting large portions of the population can meet their AM peak period needs with services provided in their own zone.



**Table 4-5: StreetLight Weekday Mid-Day Period Top 20 Origin-Destination Pairs**

| Origin Zone | Destination Zone | StreetLight Trip Count | Trip Type           |
|-------------|------------------|------------------------|---------------------|
| 223         | 223              | 4,043                  | Intrazonal          |
| 437         | 437              | 3,342                  | Intrazonal          |
| 211         | 223              | 2,124                  | Intra-County        |
| 101         | 102              | 1,886                  | County Pass-Through |
| 102         | 101              | 1,689                  | County Pass-Through |
| 223         | 211              | 1,633                  | Intra-County        |
| 504         | 504              | 1,459                  | Intrazonal          |
| 416         | 416              | 1,296                  | Intrazonal          |
| 232         | 232              | 1,277                  | Intrazonal          |
| 242         | 223              | 1,271                  | Intra-County        |
| 208         | 223              | 1,254                  | Intra-County        |
| 422         | 422              | 1,212                  | Intrazonal          |
| 304         | 304              | 1,101                  | Intrazonal          |
| 412         | 412              | 1,089                  | Intrazonal          |
| 226         | 223              | 1,030                  | Intra-County        |
| 302         | 302              | 1,026                  | Intrazonal          |
| 401         | 401              | 1,013                  | Intrazonal          |
| 402         | 402              | 952                    | Intrazonal          |
| 223         | 208              | 926                    | Intra-County        |
| 223         | 226              | 912                    | Intra-County        |

Source: Fehr & Peers.

As shown in **Table 4-5**, 11 of the 20 largest mid-day period origin-destination pairs are trips that start and end in the same zone, suggesting large portions of the population can meet their mid-day period needs with services provided in their own zone.

Given the high percentage of intrazonal trips comprising the top 20 origin-destination pairs, further analysis was conducted to determine the location of zones with the higher Intrazonal percentages. **Table 4-6** and **Table 4-7** provide the raw StreetLight estimate of the ten zones with the highest intrazonal trip percentages within Shasta County for the AM peak period and mid-day period, respectively

**Table 4-6: StreetLight Weekday AM Peak Period Top 10 Intrazonal Trip Percentages**

| Zone | Area                 | Total Trip Origins | Intrazonal Trips | % Intrazonal |
|------|----------------------|--------------------|------------------|--------------|
| 437  | Other Community      | 1,426              | 1,135            | 80%          |
| 416  | Other Community      | 651                | 495              | 76%          |
| 421  | Other Unincorporated | 196                | 107              | 55%          |
| 418  | Other Community      | 208                | 96               | 46%          |
| 435  | Other Community      | 68                 | 25               | 37%          |
| 417  | Other Community      | 620                | 219              | 35%          |
| 415  | Other Community      | 436                | 139              | 32%          |
| 412  | Redding Sphere       | 2,081              | 572              | 27%          |
| 438  | Other Community      | 312                | 80               | 26%          |
| 433  | Other Community      | 322                | 73               | 23%          |

Source: Fehr & Peers.

**Table 4-7: StreetLight Weekday Mid-Day Peak Period Top 10 Intrazonal Trip Percentages**

| Zone | Area                 | Total Trip Origins | Intrazonal Trips | % Intrazonal |
|------|----------------------|--------------------|------------------|--------------|
| 437  | Other Community      | 3,918              | 3,342            | 85%          |
| 416  | Other Community      | 1,622              | 1,296            | 80%          |
| 417  | Other Community      | 1,427              | 752              | 53%          |
| 438  | Other Community      | 796                | 376              | 47%          |
| 433  | Other Community      | 768                | 357              | 46%          |
| 421  | Other Unincorporated | 831                | 362              | 44%          |
| 415  | Other Community      | 1,328              | 561              | 42%          |
| 418  | Other Community      | 599                | 235              | 39%          |
| 422  | Cottonwood           | 4,255              | 1,212            | 28%          |
| 401  | Other Community      | 3,626              | 1,013            | 28%          |

Source: Fehr & Peers.



As shown in **Table 4-6** and **Table 4-7**, the zones with the highest intrazonal trip percentages are predominantly located in unincorporated areas as opposed to more urban incorporated areas. This is likely due to the generally larger size of zones in the unincorporated areas as well as the more rural nature of these areas making it more time consuming and difficult to meet needs outside the zone. The lack of zones in more urbanized areas of Shasta County suggests that residents in urban areas more often leave their zone for services than residents in more rural unincorporated areas.

**Table 4-8** provides a comparison of countywide intrazonal trip percentages, which further suggests that residents generally leave their zone for services, as roughly 16% and 17% of total trips are intrazonal in the AM peak period and mid-day period, respectively.

**Table 4-8: StreetLight Weekday Countywide Intrazonal Trip Percentages**

| Trip Type        | AM Peak Period | Mid-Day Period |
|------------------|----------------|----------------|
| Total Trips      | 134,645        | 346,190        |
| Intrazonal Trips | 21,062         | 59,439         |
| % Intrazonal     | 16%            | 17%            |

Source: Fehr & Peers.

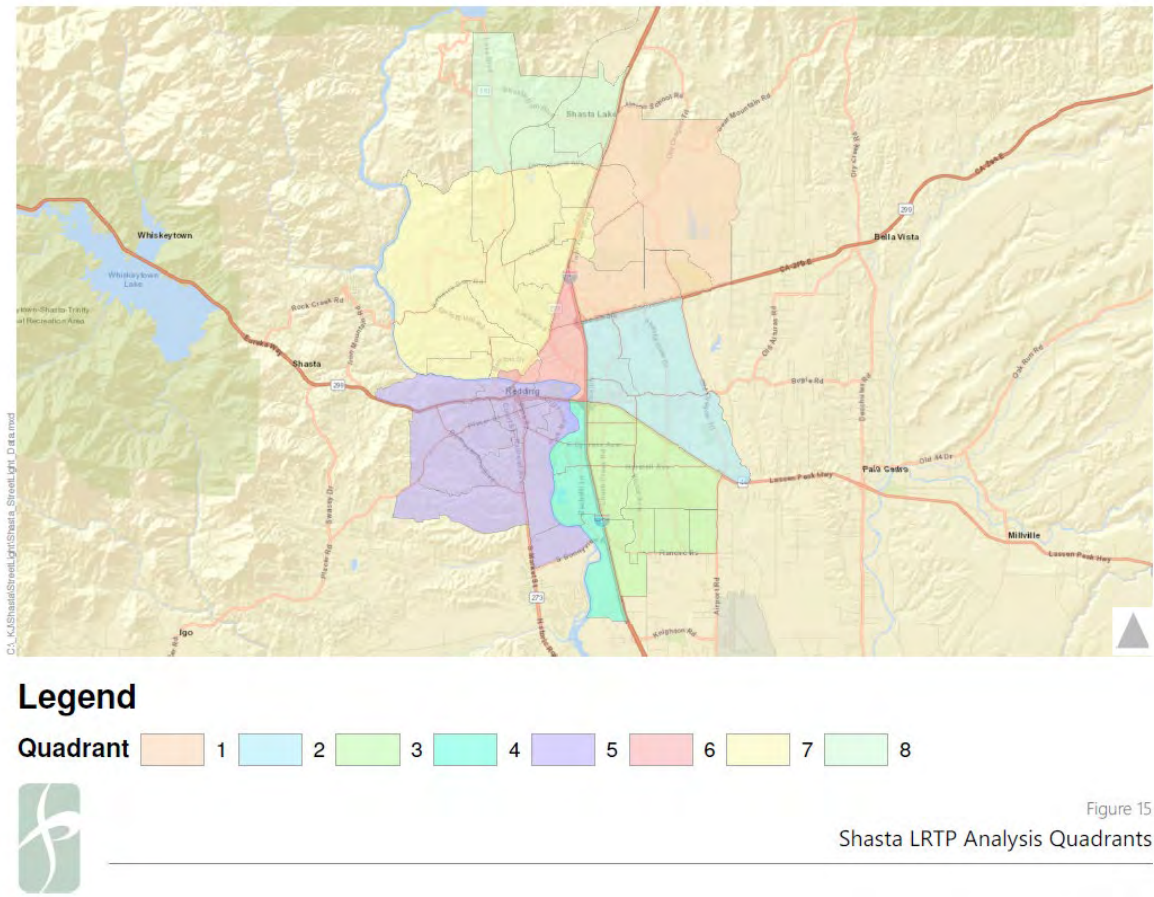
## 4.2.2 What percentage leave their quadrant?

Shasta County is largely divided by four main freeways and highways (I-5, SR 299, SR 273, and SR 44) with relatively few crossing points provided, which were believed to present impediments and reduce the likelihood of travel between different quadrants created by intersection of freeways and highways. An analysis similar to the intrazonal analysis was conducted to determine if trips generally leave their quadrant or if the freeways do in fact present a barrier to travel. To conduct this analysis zones within similar areas created by the intersection of freeways and highways were grouped into quadrants as shown on **Figure 11**. Trip patterns were then aggregated to determine the amount of intra- and inter-quadrant travel, as well as the top quadrants travelled to by other quadrants.

**Table 4-9** and **Table 4-10** provide an analysis of quadrant-to-quadrant trip patterns for the AM peak period and mid-day period, respectively. Yellow shading indicates quadrant-to-quadrant travel pairs while orange shading indicates the top three inter-quadrant travel pairs.



Figure 11: Shasta LRTP Analysis Quadrants



**Table 4-9: Weekday AM Peak Period Quadrant to Quadrant Trips**

| Quadrant              | 1            | 2            | 3             | 4            | 5             | 6            | 7            | 8            | Total         | Inter-Quadrant      |
|-----------------------|--------------|--------------|---------------|--------------|---------------|--------------|--------------|--------------|---------------|---------------------|
| 1                     | 373          | 408          | 508           | 187          | 1,119         | 153          | 356          | 164          | <b>3,267</b>  | 2,894               |
| 2                     | 363          | 2,306        | 2,356         | 785          | 2,734         | 379          | 574          | 92           | <b>9,590</b>  | 7,283               |
| 3                     | 416          | 2,214        | 5,297         | 1,436        | 4,292         | 378          | 862          | 89           | <b>14,985</b> | 9,688               |
| 4                     | 98           | 360          | 880           | 497          | 1,055         | 111          | 236          | 16           | <b>3,254</b>  | 2,757               |
| 5                     | 582          | 1,372        | 2,334         | 947          | 9,922         | 443          | 1,056        | 162          | <b>16,818</b> | 6,896               |
| 6                     | 160          | 334          | 357           | 156          | 901           | 269          | 389          | 28           | <b>2,594</b>  | 2,325               |
| 7                     | 385          | 808          | 933           | 255          | 2,599         | 392          | 1,684        | 455          | <b>7,512</b>  | 5,828               |
| 8                     | 177          | 221          | 366           | 133          | 647           | 111          | 368          | 919          | <b>2,941</b>  | 2,023               |
| <b>Total</b>          | <b>2,555</b> | <b>8,022</b> | <b>13,030</b> | <b>4,397</b> | <b>23,269</b> | <b>2,236</b> | <b>5,525</b> | <b>1,926</b> | <b>60,961</b> |                     |
| <b>Inter-Quadrant</b> | 2,182        | 5,716        | 7,733         | 3,899        | 13,347        | 1,967        | 3,841        | 1,008        |               | <b>39,692 (65%)</b> |

Source: Fehr & Peers.

As shown in **Table 4-9**, of the roughly 61,000 AM peak period trips that occurred within the quadrants, roughly 40,000 or 65% travelled to another quadrant, suggesting that freeways and highways may not present a significant barrier to travel. Furthermore, the highest magnitude of quadrant-to-quadrant travel was to quadrant 5, which is separated from the other quadrants by the Sacramento River in addition to I-5, SR 299, and SR 44.

**Table 4-10: Weekday AM Peak Period Quadrant to Quadrant Trips**

| Quadrant              | 1            | 2             | 3             | 4             | 5             | 6            | 7             | 8            | Total          | Inter-Quadrant       |
|-----------------------|--------------|---------------|---------------|---------------|---------------|--------------|---------------|--------------|----------------|----------------------|
| 1                     | 1,405        | 2,096         | 1,674         | 362           | 1,840         | 673          | 1,179         | 368          | <b>9,598</b>   | 8,193                |
| 2                     | 1,731        | 11,084        | 8,963         | 1,713         | 6,521         | 1,471        | 2,573         | 463          | <b>34,519</b>  | 23,434               |
| 3                     | 1,322        | 10,187        | 16,948        | 3,522         | 7,980         | 952          | 1,973         | 430          | <b>43,314</b>  | 26,366               |
| 4                     | 291          | 1,995         | 3,834         | 1,651         | 3,168         | 294          | 588           | 118          | <b>11,939</b>  | 10,287               |
| 5                     | 1,660        | 8,065         | 8,622         | 3,348         | 26,453        | 1,616        | 3,974         | 544          | <b>54,281</b>  | 27,828               |
| 6                     | 517          | 1,620         | 1,000         | 346           | 1,536         | 661          | 1,240         | 117          | <b>7,038</b>   | 6,377                |
| 7                     | 1,009        | 2,575         | 1,967         | 546           | 3,953         | 1,171        | 4,177         | 811          | <b>16,209</b>  | 12,032               |
| 8                     | 293          | 484           | 392           | 130           | 541           | 118          | 902           | 2,633        | <b>5,493</b>   | 2,860                |
| <b>Total</b>          | <b>8,228</b> | <b>38,107</b> | <b>43,400</b> | <b>11,617</b> | <b>51,993</b> | <b>6,955</b> | <b>16,606</b> | <b>5,484</b> | <b>182,390</b> |                      |
| <b>Inter-Quadrant</b> | 6,823        | 27,023        | 26,452        | 9,966         | 25,540        | 6,294        | 12,428        | 2,852        |                | <b>117,377 (64%)</b> |

Source: Fehr & Peers.

As shown in **Table 4-10**, of the roughly 182,000 mid-day period trips that occurred within the quadrants, roughly 117,000 or 64% travelled to another quadrant, suggesting that freeways and highways may not present a significant barrier to travel. Furthermore, the highest magnitude of quadrant-to-quadrant travel was to quadrant 3, which is separated from the other quadrants by I-5 and SR 44.

## 4.2.3 What areas are they travelling between?

The two previous analyses were conducted to determine the percentage of trips that leave either their zone or quadrant, as they represent longer distance trips that may be suitable for transit service. The analysis presented below was conducted to determine city- and community-level origin-destination patterns to start to understand the general flows of travel within Shasta County.

**Table 4-11** presents StreetLight city- and community-level origin-destination patterns within Shasta County for the AM peak period. Yellow shading indicates origin-destination patterns between incorporated and community areas, which tend to be more urban than unincorporated areas.

**Table 4-11: StreetLight Weekday AM Peak Period Aggregated Area to Area Trips**

| Aggregated Area      | Shasta Lake  | Redding       | Redding Sphere | Anderson     | Anderson Sphere | Cottonwood   | Other Community | Other Unincorporated | I-5 South    | I-5 North    | SR 229 West | Other Gateway | Total          |
|----------------------|--------------|---------------|----------------|--------------|-----------------|--------------|-----------------|----------------------|--------------|--------------|-------------|---------------|----------------|
| Shasta Lake          | 1,386        | 4,340         | 279            | 125          | 37              | 12           | 142             | 93                   | 120          | 21           | 2           | 0             | 6,557          |
| Redding              | 1,696        | 67,872        | 3,999          | 2,507        | 592             | 355          | 1,627           | 671                  | 1,975        | 443          | 102         | 0             | 81,839         |
| Redding Sphere       | 97           | 2,576         | 1,265          | 70           | 20              | 25           | 210             | 66                   | 83           | 16           | 3           | 0             | 4,431          |
| Anderson             | 58           | 3,476         | 196            | 2,885        | 305             | 179          | 203             | 120                  | 440          | 25           | 2           | 0             | 7,889          |
| Anderson Sphere      | 20           | 1,557         | 114            | 613          | 239             | 101          | 205             | 57                   | 139          | 18           | 2           | 0             | 3,065          |
| Cottonwood           | 54           | 1,027         | 63             | 344          | 72              | 472          | 236             | 205                  | 222          | 8            | 5           | 0             | 2,708          |
| Other Community      | 71           | 3,290         | 696            | 444          | 133             | 91           | 4,254           | 96                   | 246          | 104          | 4           | 0             | 9,429          |
| Other Unincorporated | 53           | 1,511         | 151            | 338          | 64              | 339          | 169             | 357                  | 198          | 15           | 10          | 0             | 3,205          |
| I-5 South            | 46           | 2,249         | 310            | 441          | 76              | 160          | 268             | 53                   | --           | 528          | 16          | 0             | 4,147          |
| I-5 North            | 46           | 243           | 5              | 22           | 6               | 1            | 82              | 8                    | 455          | --           | 3           | 0             | 871            |
| SR 229 West          | 2            | 99            | 15             | 4            | 1               |              | 3               | 11                   | 9            | 2            | --          | 0             | 146            |
| Other Gateway        | 0            | 0             | 0              | 0            | 0               | 0            | 0               | 0                    | 0            | 0            | 0           | 0             | 0              |
| <b>Total</b>         | <b>3,529</b> | <b>88,240</b> | <b>7,093</b>   | <b>7,793</b> | <b>1,545</b>    | <b>1,735</b> | <b>7,399</b>    | <b>1,737</b>         | <b>3,887</b> | <b>1,180</b> | <b>149</b>  | <b>0</b>      | <b>124,287</b> |

Source: Fehr & Peers.



As shown in **Table 4-11**, roughly 125,000 trips occur in the AM peak period, with roughly 110,000 or 88% travelling between cities and communities (yellow shaded cells). Not surprisingly, the largest observed origin-destination pattern was trips that start and end within the City of Redding.

#### 4.2.3.1 Travel Model Comparison

In addition to providing an understanding of general flows of travel within Shasta County, this analysis also presented an opportunity to further check the reasonableness of the StreetLight data against the 2020 Shasta County Model. The analysis in Section 4.1 suggested StreetLight is underestimating absolute travel within Shasta County and that adjustments were needed in order to accurately capture the size of existing travel markets. However, the analysis did not indicate which travel flows needed adjusting. In order to determine this, a comparison of city- and community-level origin-destination patterns between the StreetLight and 2020 Shasta County Model data was conducted and used to develop scaling factors to refine the StreetLight origin-destination data to account for the sampling biases inherent in the StreetLight data.

As discussed previously, travel models generally do a good job estimating trip generation and regional travel patterns (e.g. city to city), but have limitations when forecasting travel between smaller geographies (e.g. between our 100 zones). Previously it was expected that the StreetLight “sample trip counts” would at the highest level (in this case countywide) be a close approximation of absolute travel, but that deviations would greatly increase as the analysis geography got smaller (in this case the 100 zones). The same expectations would also be applied to this analysis but for origin-destination flows as opposed to total trip origins and destinations.

**Table 4-12** presents 2020 Shasta County Model city- and community-level origin-destination patterns within Shasta County for the AM peak period. Yellow shading indicates origin-destination patterns between incorporated and community areas, which tend to be more urban than unincorporated areas.

**Table 4-12: Shasta Model Weekday AM Peak Period Aggregated Area to Area Trips**

| Aggregated Area      | Shasta Lake  | Redding       | Redding Sphere | Anderson     | Anderson Sphere | Cottonwood   | Other Community | Other Unincorporated | I-5 South    | I-5 North    | SR 229 West | Other Gateway | Total          |
|----------------------|--------------|---------------|----------------|--------------|-----------------|--------------|-----------------|----------------------|--------------|--------------|-------------|---------------|----------------|
| Shasta Lake          | 1,516        | 3,042         | 392            | 163          | 49              | 54           | 70              | 375                  | 116          | 114          | 10          | 17            | 5,917          |
| Redding              | 1,213        | 63,454        | 4,678          | 2,607        | 670             | 838          | 1,204           | 6,226                | 2,604        | 1,012        | 202         | 508           | 85,215         |
| Redding Sphere       | 175          | 4,642         | 699            | 436          | 104             | 102          | 105             | 919                  | 326          | 110          | 21          | 45            | 7,683          |
| Anderson             | 34           | 2,880         | 369            | 3,005        | 297             | 444          | 64              | 697                  | 517          | 58           | 10          | 31            | 8,406          |
| Anderson Sphere      | 11           | 651           | 90             | 509          | 133             | 80           | 21              | 129                  | 95           | 17           | 2           | 9             | 1,746          |
| Cottonwood           | 14           | 914           | 94             | 247          | 38              | 859          | 66              | 286                  | 234          | 41           | 6           | 60            | 2,860          |
| Other Community      | 33           | 2,025         | 140            | 87           | 22              | 62           | 3,767           | 735                  | 46           | 121          | 4           | 321           | 7,362          |
| Other Unincorporated | 284          | 11,045        | 1,061          | 1,209        | 239             | 691          | 1,221           | 6,202                | 487          | 221          | 34          | 232           | 22,926         |
| I-5 South            | 155          | 3,980         | 717            | 755          | 135             | 371          | 55              | 632                  | --           | 526          | 79          | 104           | 7,509          |
| I-5 North            | 93           | 896           | 153            | 48           | 14              | 26           | 123             | 177                  | 444          | --           | 0           | 0             | 1,972          |
| SR 229 West          | 12           | 300           | 55             | 12           | 3               | 4            | 5               | 49                   | 66           | 0            | --          | 0             | 507            |
| Other Gateway        | 23           | 759           | 132            | 43           | 11              | 44           | 641             | 273                  | 88           | 0            | 0           | 36            | 2,050          |
| <b>Total</b>         | <b>3,565</b> | <b>94,588</b> | <b>8,579</b>   | <b>9,120</b> | <b>1,714</b>    | <b>3,574</b> | <b>7,342</b>    | <b>16,699</b>        | <b>5,024</b> | <b>2,217</b> | <b>368</b>  | <b>1,363</b>  | <b>154,154</b> |

Source: Fehr & Peers.

As shown in **Table 4-12**, roughly 154,000 trips occur in the AM peak period, with roughly 103,000 or 67% travelling between cities and communities (yellow shaded cells). As with the StreetLight data, the largest observed origin-destination pattern was trips that start and end within the City of Redding, with roughly 68,000 trips estimates by StreetLight and 63,000 trips forecasted by the 2020 Shasta County Model.

Further comparison of the StreetLight and 2020 Shasta County Model origin-destination patterns indicates that StreetLight countywide trip estimates are roughly 30,000 trips or 19% lower than the model, generally in-line with the findings from Section 4.1. However, a comparison of travel between cities and communities (yellow shaded cells) indicates that StreetLight trip estimates are roughly 7,000 trips or 7% higher than the model. Furthermore, a comparison of individual area to area travel pairs indicate the data points match fairly well in terms of relative magnitudes.

These comparisons suggest that although StreetLight may be underestimating countywide travel, travel pattern sampling rates likely vary by geography and scaling factors that vary by origin and destination are needed as opposed to a single countywide scaling factor.

**Table 4-13** presents the ratio of city- and community-level origin-destination patterns between the 2020 Shasta County Model and StreetLight data. Orange shading indicates a model-to-StreetLight ratio over two, indicating areas where StreetLight is under sampling trips likely due to poor cellular coverage or rugged geography.

**Table 4-13: Weekday AM Peak Period Aggregated Area to Area Trip Scaling Factors**

| Aggregated Area      | Shasta Lake | Redding     | Redding Sphere | Anderson    | Anderson Sphere | Cottonwood  | Other Community | Other Unincorporated | I-5 South   | I-5 North   | SR 229 West | Other Gateway | Total       |
|----------------------|-------------|-------------|----------------|-------------|-----------------|-------------|-----------------|----------------------|-------------|-------------|-------------|---------------|-------------|
| Shasta Lake          | 1.09        | 0.70        | 1.40           | 1.30        | 1.33            | 4.51        | 0.49            | 4.03                 | 0.97        | 5.41        | 5.16        | 1.00          | <b>0.90</b> |
| Redding              | 0.72        | 0.93        | 1.17           | 1.04        | 1.13            | 2.36        | 0.74            | 9.28                 | 1.32        | 2.28        | 1.98        | 1.00          | <b>1.04</b> |
| Redding Sphere       | 1.81        | 1.80        | 0.55           | 6.22        | 5.18            | 4.08        | 0.50            | 13.92                | 3.93        | 6.85        | 6.87        | 1.00          | <b>1.73</b> |
| Anderson             | 0.59        | 0.83        | 1.88           | 1.04        | 0.97            | 2.48        | 0.31            | 5.81                 | 1.18        | 2.32        | 4.98        | 1.00          | <b>1.07</b> |
| Anderson Sphere      | 0.54        | 0.42        | 0.79           | 0.83        | 0.56            | 0.79        | 0.10            | 2.26                 | 0.68        | 0.92        | 1.24        | 1.00          | <b>0.57</b> |
| Cottonwood           | 0.26        | 0.89        | 1.50           | 0.72        | 0.53            | 1.82        | 0.28            | 1.40                 | 1.06        | 5.12        | 1.11        | 1.00          | <b>1.06</b> |
| Other Community      | 0.47        | 0.62        | 0.20           | 0.20        | 0.17            | 0.68        | 0.89            | 7.65                 | 0.19        | 1.16        | 0.97        | 1.00          | <b>0.78</b> |
| Other Unincorporated | 5.36        | 7.31        | 7.03           | 3.58        | 3.73            | 2.04        | 7.23            | 17.37                | 2.46        | 14.71       | 3.42        | 1.00          | <b>7.15</b> |
| I-5 South            | 3.38        | 1.77        | 2.31           | 1.71        | 1.78            | 2.32        | 0.21            | 11.92                | --          | 1.00        | 4.91        | 1.00          | <b>1.81</b> |
| I-5 North            | 2.02        | 3.69        | 30.53          | 2.17        | 2.27            | 25.55       | 1.51            | 22.12                | 0.97        | --          | 1.00        | 1.00          | <b>2.26</b> |
| SR 229 West          | 6.17        | 3.03        | 3.67           | 3.00        | 2.65            | 1.00        | 1.60            | 4.49                 | 7.37        | 1.00        | --          | 1.00          | <b>3.47</b> |
| Other Gateway        | 1.00        | 1.00        | 1.00           | 1.00        | 1.00            | 1.00        | 1.00            | 1.00                 | 1.00        | 1.00        | 1.00        | 1.00          | <b>1.00</b> |
| <b>Total</b>         | <b>1.01</b> | <b>1.07</b> | <b>1.21</b>    | <b>1.17</b> | <b>1.11</b>     | <b>2.06</b> | <b>0.99</b>     | <b>9.61</b>          | <b>1.29</b> | <b>1.88</b> | <b>2.47</b> | <b>1.00</b>   | <b>1.24</b> |

Source: Fehr & Peers.

As shown in **Table 4-13**, the majority of model-to-StreetLight ratios over two (orange shading) are in unincorporated areas or at Shasta County gateways, in-line with the assumption that poor cellular coverage and rugged geography would affect sampling rates. In comparison, ratios for trips between cities and communities are generally closer to one, suggesting better sampling rates in urban areas where the strategic growth areas and focus corridors are located.

### 4.2.3.2 Data Scaling

The ratios in **Table 4-13** were disaggregated back to the 100 zone by 100 zone trip table level and used as scaling factors to refine the StreetLight origin-destination data to account for the sampling biases inherent in the StreetLight data. The scaled origin-destination pairs were then used to determine the largest travel markets that would be used to help understand the demand and propensity to use transits within Shasta County.

## 4.3 What are the 20 largest travel markets?

**Table 4-14** presents the 20 largest origin-destination travel markets identified in the analysis of the AM peak period StreetLight data. The table includes raw StreetLight trips, the scaled StreetLight trips, and the 2020 Shasta Model trips for comparison and alternative purposes. Yellow shading indicates origin-destination pairs that have a large discrepancy between the raw and factored StreetLight trip value, which are discussed in detail below. The discussion includes an analysis of land use data which was used to determine which alternative value was more reasonable and representative of actual travel. The final StreetLight trips to be used for transit planning are provided in bold in the "Final StreetLight Trips" column. A visualization of the top 20 AM peak period origin-destination pairs is provided on **Figure 12**.

**Table 4-14: Weekday AM Peak Period Top 20 Origin-Destination Pairs**

| Rank | Origin Zone | Destination Zone | Raw StreetLight Trips | Scaled StreetLight Trips | 2020 Shasta Model Trips | Final StreetLight Trips |
|------|-------------|------------------|-----------------------|--------------------------|-------------------------|-------------------------|
| 1    | 402         | 412              | 333                   | 67                       | 274                     | <b>333</b>              |
| 2    | 423         | 422              | 333                   | 678                      | 213                     | <b>213</b>              |
| 3    | 218         | 412              | 303                   | 354                      | 128                     | <b>354</b>              |
| 4    | 302         | 304              | 300                   | 312                      | 221                     | <b>312</b>              |
| 5    | 204         | 211              | 294                   | 275                      | 262                     | <b>275</b>              |
| 6    | 302         | 301              | 265                   | 276                      | 328                     | <b>276</b>              |
| 7    | 204         | 206              | 257                   | 240                      | 262                     | <b>240</b>              |
| 8    | 207         | 214              | 257                   | 240                      | 52                      | <b>240</b>              |
| 9    | 215         | 222              | 254                   | 237                      | 139                     | <b>237</b>              |
| 10   | 302         | 305              | 240                   | 250                      | 234                     | <b>250</b>              |
| 11   | 201         | 412              | 233                   | 273                      | 20                      | <b>273</b>              |
| 12   | 215         | 224              | 225                   | 210                      | 33                      | <b>210</b>              |
| 13   | 413         | 412              | 225                   | 124                      | 45                      | <b>124</b>              |
| 14   | 218         | 206              | 223                   | 208                      | 91                      | <b>208</b>              |
| 15   | 218         | 230              | 222                   | 208                      | 79                      | <b>208</b>              |
| 16   | 422         | 101              | 222                   | 234                      | 234                     | <b>234</b>              |
| 17   | 101         | 428              | 221                   | 511                      | 395                     | <b>511</b>              |
| 18   | 304         | 302              | 217                   | 226                      | 166                     | <b>226</b>              |
| 19   | 206         | 208              | 214                   | 200                      | 183                     | <b>200</b>              |
| 20   | 204         | 412              | 212                   | 248                      | 71                      | <b>248</b>              |

Source: Fehr & Peers.

Figure 12: Shasta LRTP Top 20 AM Origin-Destination Pairs

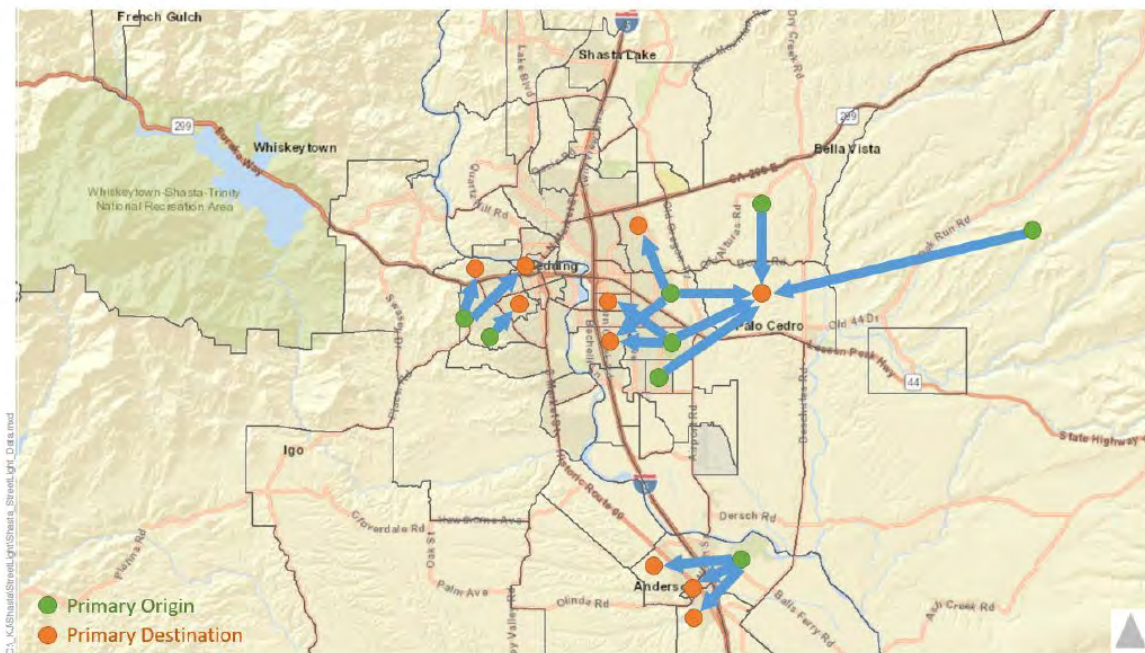


Figure 11  
Shasta LRTP Top 20 AM Origin-Destination Pairs



As shown in **Table 4-14**, the raw and scaled AM peak period StreetLight trips are generally consistent with the exception of two origin-destination pairs: 402 to 412 and 423 to 422. In order to determine which value was more representative of actual travel, the land use comparison below was conducted.

- Zone 402 – 2,498 households and 638 jobs
- Zone 412 – 1,090 households and 752 jobs
- Zone 423 – 791 households and 142 jobs
- Zone 422 – 1,506 households and 1,149 jobs

Given the large number of households in Zone 402 and jobs in Zone 412, it was determined that the raw value of 333 was most reasonable. Using similar logic, given the relatively low number of households in Zone 423, it was determined that the 2020 Shasta Model value of 213 was most reasonable.

The weekday AM peak period “Final StreetLight Trips” range from 124 to 511 trips, representing a wide range in magnitude of travel demand between the 20 largest travel markets, which **indicates a somewhat dispersed AM peak period travel pattern with few large travel markets**. Furthermore, as shown on **Figure 12**, the top 20 origin-destination pairs appear to travel in the east-west directions and are relatively short distance trips. This is in contrast to the existing Shasta County transit system that primarily serves longer distance north-south trips.

**Table 4-15** presents the 20 largest origin-destination travel markets identified in the analysis of the mid-day period StreetLight data. The table includes raw StreetLight trips and the scaled StreetLight trips for comparison and alternative purposes. In the absence of a mid-day Shasta County Model, AM peak period factors were applied to the mid-day period data. Yellow shading would indicate origin-destination pairs that have a large discrepancy between the raw and factored StreetLight trip value, but none were observed in the mid-day data. The final StreetLight trips to be used for transit planning are provided in bold in the "Scaled StreetLight Trips" column. A visualization of the top 20 mid-day period origin-destination pairs is provided on **Figure 13**.

**Table 4-15: Weekday Mid-Day Period Top 20 Origin-Destination Pairs**

| Rank | Origin Zone | Destination Zone | Raw StreetLight Trips | Scaled StreetLight Trips |
|------|-------------|------------------|-----------------------|--------------------------|
| 1    | 211         | 223              | 2,124                 | <b>1,986</b>             |
| 2    | 223         | 211              | 1,633                 | <b>1,527</b>             |
| 3    | 242         | 223              | 1,271                 | <b>1,188</b>             |
| 4    | 208         | 223              | 1,254                 | <b>1,172</b>             |
| 5    | 226         | 223              | 1,030                 | <b>963</b>               |
| 6    | 223         | 208              | 926                   | <b>866</b>               |
| 7    | 223         | 226              | 912                   | <b>853</b>               |
| 8    | 218         | 223              | 902                   | <b>843</b>               |
| 9    | 223         | 242              | 900                   | <b>841</b>               |
| 10   | 232         | 223              | 900                   | <b>841</b>               |
| 11   | 304         | 302              | 896                   | <b>933</b>               |
| 12   | 302         | 304              | 878                   | <b>915</b>               |
| 13   | 223         | 232              | 870                   | <b>813</b>               |
| 14   | 220         | 223              | 811                   | <b>758</b>               |
| 15   | 206         | 223              | 787                   | <b>736</b>               |
| 16   | 223         | 218              | 782                   | <b>731</b>               |
| 17   | 211         | 208              | 777                   | <b>726</b>               |
| 18   | 208         | 211              | 771                   | <b>721</b>               |
| 19   | 223         | 230              | 757                   | <b>708</b>               |
| 20   | 204         | 223              | 751                   | <b>702</b>               |

Source: Fehr & Peers.

Figure 13: Shasta LRTP Top 20 Mid-Day Origin-Destination Pairs

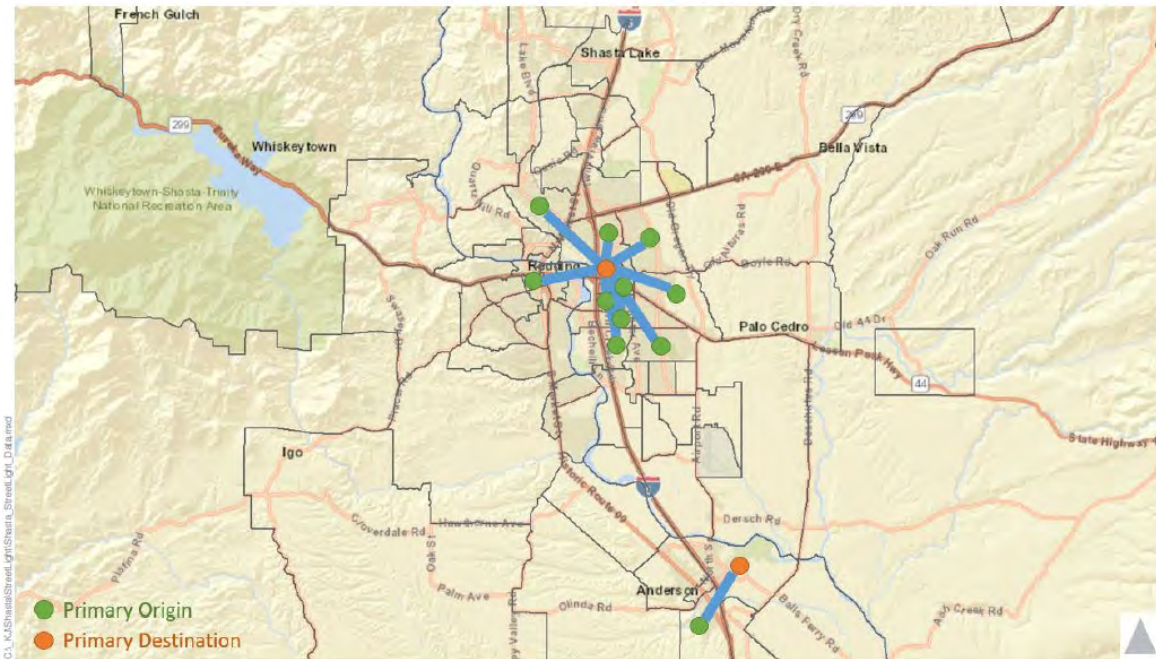


Figure 12  
Shasta LRTP Top 20 Mid-Day Origin-Destination Pairs

As shown in **Table 4-15**, the raw and scaled mid-day period StreetLight trips are generally consistent. The weekday mid-day period “Scaled StreetLight Trips” range from 702 to 1,986 trips, representing a wide range in magnitude of travel demand between the 20 largest travel markets. Furthermore, as shown on **Figure 13**, the top 20 origin-destination pairs appear to travel predominantly to and from a common zone, Zone 423, **indicating a concentrated mid-day period travel pattern with a single short-distance travel destination.** An analysis of Zone 423 indicates it contains the Mt. Shasta Mall and has 4,457 jobs, suggesting the observed travel patterns are reasonable.

### 4.3.1 Zone 412

An analysis of the top 20 weekday AM peak period origin-destination pairs in **Table 4-14** indicate travel to a common destination zone, Zone 412, which was the destination of five of top 20 origin-destination pairs (the boundary of Zone 412 is shown below). A land use review indicated Zone 412 has 752 jobs (including schools, a coffee shop, and a grocery store/commercial center), while the 2020 Shasta County Model forecasts roughly 2,300 AM peak period trip destinations in the zone. A review of trip origins and trip destinations is illustrated on **Figure 14** and **Figure 15**, respectively.

A review of the data for Zone 412 suggests that trips from nearby zones travel to Zone 412 in the morning likely for coffee and to drop kids off at school, and then proceed to Downtown Redding and other parts of Shasta County for work.

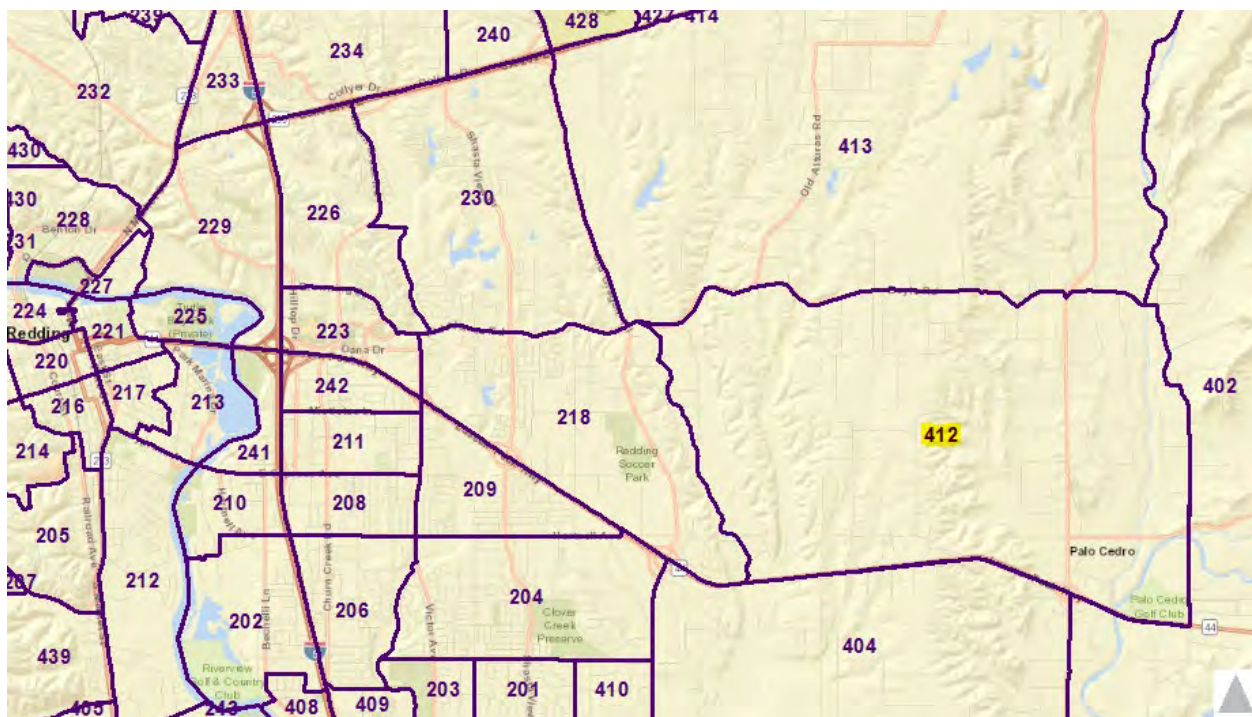




Figure 14: Shasta LRTP Zone 412 AM Trip Origins

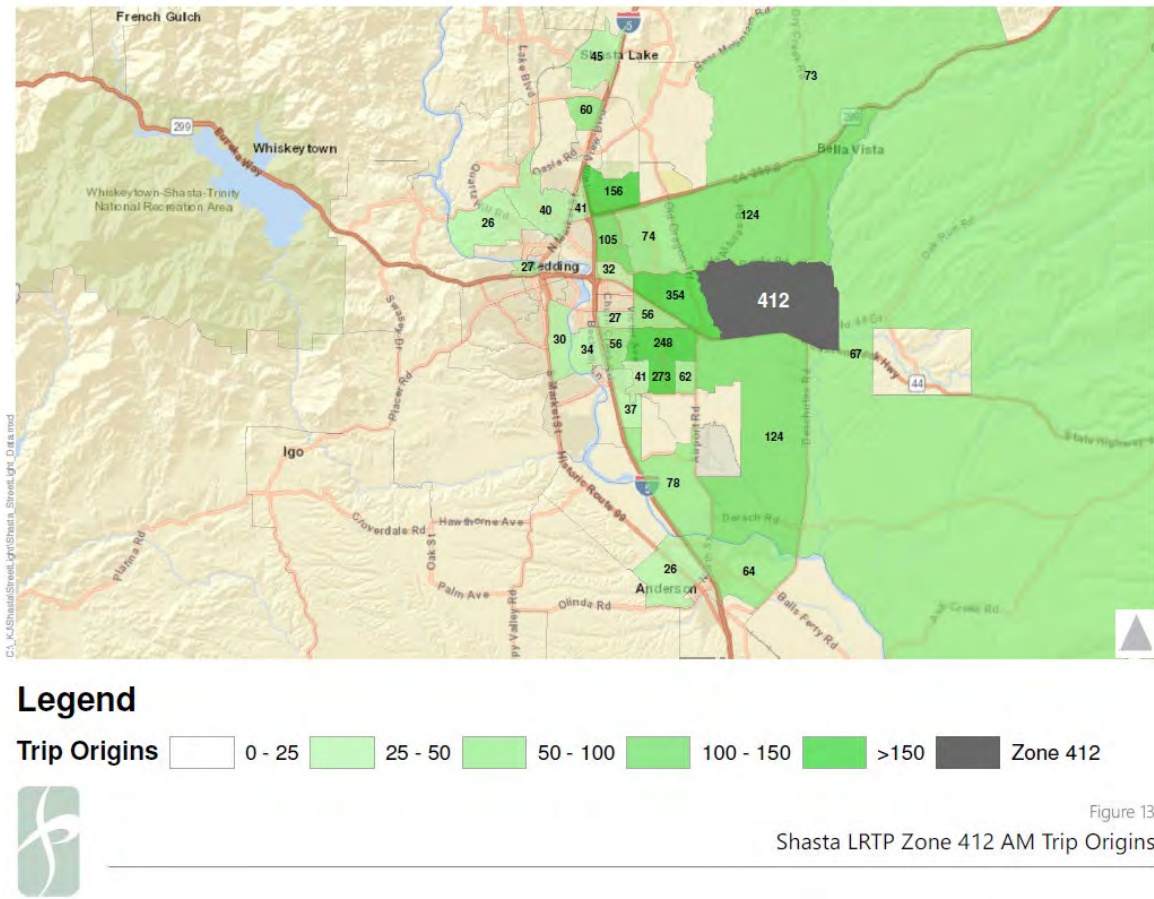
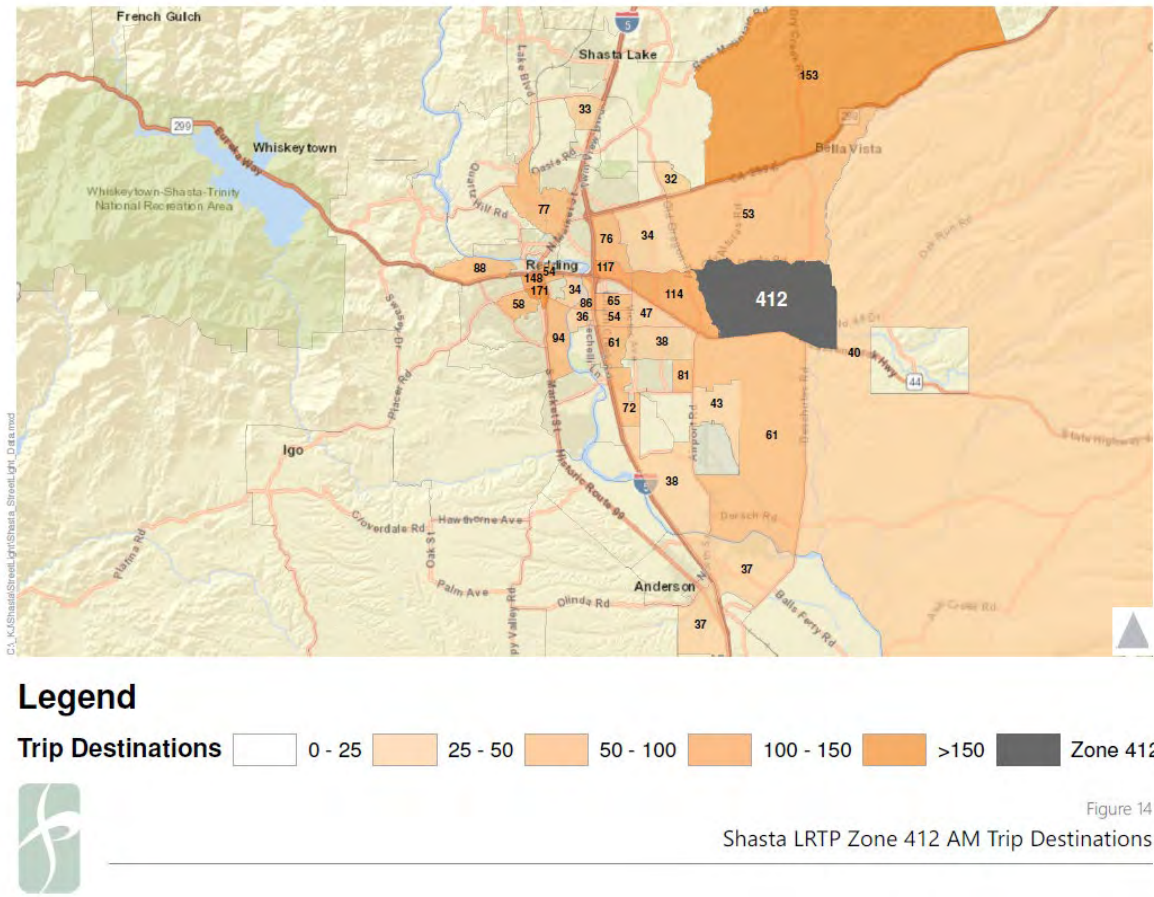




Figure 15: Shasta LRTP Zone 412 AM Trip Destinations





## 4.4 What are the travel characteristics?

The final step in the travel markets assessment process is to determine the demographic profile of the key travel markets identified in Section 4.3. Premium trip and traveler metrics tagged to the Cuebiq-based origin-destination data from StreetLight were used, including trip length, trip purpose, and demographic data based on 2010 ACS data, to obtain trip making and demographic characteristics of current travelers. These characteristics will be used in the Shasta LRTP to help determine how likely the identified travel markets are to use transit if it were expanded/provided.

Trip purpose information for all Shasta County-generated trips was obtained for the following three trip purposes.

- Home-based work (HBW) trips are trips that are made between a home and work location.
- Home-based other (HBO) trips are trips that are made between a home and non-work location such as a grocery store, restaurant, or school.
- Non-home-based (NHB) trips are trips that are made between two non-home locations such as trips made between two retail stores or between a work location and a restaurant.

It is important to note that the trip purpose percentages presented below are derived from individual trips made by devices, with each trip analyzed independently of the others along the tour. For instance, if a vehicle commuted for work from Oak Run to Redding but stopped in Palo Cedro for coffee along the way, this would be reported as a home-based other trip to get coffee (from Oak Run to Palo Cedro) and a non-home-based trip to travel from coffee to work (from Palo Cedro to Redding).

Trip demographic information including income and percentage of households “with kids” and “without kids” was obtained for all Shasta County-generated trips based on 2010 ACS data.

Trip length information for all Shasta County-generated trips was obtained from the Cuebiq-based data from StreetLight.

### 4.4.1 AM Peak Period Travel Market Characteristics

**Table 4-16** presents the travel characteristics for the 20 largest origin-destination travel markets identified in the analysis of the AM peak period StreetLight data.

**Table 4-16: Weekday AM Peak Period Top 20 Origin-Destination Pair Characteristics**

| Rank | Origin Zone | Destination Zone | Final StreetLight Trips | With No Kids % | Work Trips % | Work Trips | Income <\$20K % | Income \$20K to \$35K % | Average Trip Length |
|------|-------------|------------------|-------------------------|----------------|--------------|------------|-----------------|-------------------------|---------------------|
| 1    | 402         | 412              | 333                     | 64%            | 49%          | 33         | 14%             | 16%                     | 8.3                 |
| 2    | 423         | 422              | 213                     | 66%            | 49%          | 335        | 17%             | 17%                     | 4.3                 |
| 3    | 218         | 412              | 354                     | 60%            | 54%          | 192        | 15%             | 12%                     | 7.4                 |
| 4    | 302         | 304              | 312                     | 67%            | 42%          | 132        | 24%             | 22%                     | 4.0                 |
| 5    | 204         | 211              | 275                     | 63%            | 45%          | 124        | 13%             | 17%                     | 3.8                 |
| 6    | 302         | 301              | 276                     | 62%            | 38%          | 105        | 20%             | 22%                     | 2.8                 |
| 7    | 204         | 206              | 240                     | 55%            | 61%          | 147        | 15%             | 15%                     | 2.7                 |
| 8    | 207         | 214              | 240                     | 72%            | 71%          | 170        | 6%              | 6%                      | 4.5                 |
| 9    | 215         | 222              | 237                     | 61%            | 48%          | 114        | 5%              | 18%                     | 3.0                 |
| 10   | 302         | 305              | 250                     | 66%            | 37%          | 93         | 24%             | 23%                     | 3.3                 |
| 11   | 201         | 412              | 273                     | 63%            | 65%          | 177        | 3%              | 7%                      | 9.3                 |
| 12   | 215         | 224              | 210                     | 60%            | 63%          | 131        | 5%              | 11%                     | 2.5                 |
| 13   | 413         | 412              | 124                     | 70%            | 57%          | 70         | 8%              | 16%                     | 4.7                 |
| 14   | 218         | 206              | 208                     | 61%            | 58%          | 120        | 16%             | 13%                     | 4.3                 |
| 15   | 218         | 230              | 208                     | 64%            | 18%          | 37         | 16%             | 13%                     | 3.1                 |
| 16   | 422         | 101              | 234                     | 59%            | 32%          | 75         | 20%             | 16%                     | 4.3                 |
| 17   | 101         | 428              | 511                     | 63%            | 31%          | 157        | 29%             | 23%                     | 22.5                |
| 18   | 304         | 302              | 226                     | 65%            | 39%          | 89         | 30%             | 19%                     | 3.1                 |
| 19   | 206         | 208              | 200                     | 58%            | 44%          | 88         | 23%             | 29%                     | 2.1                 |
| 20   | 204         | 412              | 248                     | 64%            | 51%          | 127        | 14%             | 15%                     | 7.7                 |

Source: Fehr & Peers.

As show in in **Table 4-16**, the weekday AM peak period top 20 travel markets are comprised of predominantly work trips by households without kids that have a household income greater than \$35,000 per year.

## 4.4.2 Mid-Day Period Travel Market Characteristics

**Table 4-17** presents the travel characteristics for the 20 largest origin-destination travel markets identified in the analysis of the mid-day period StreetLight data.

**Table 4-17: Weekday Mid-Day Period Top 20 Origin-Destination Pair Characteristics**

| Rank | Origin Zone | Destination Zone | Final StreetLight Trips | With No Kids % | Work Trips % | Work Trips | Income <\$20K % | Income \$20K to \$35K % | Average Trip Length |
|------|-------------|------------------|-------------------------|----------------|--------------|------------|-----------------|-------------------------|---------------------|
| 1    | 402         | 412              | 1,986                   | 68%            | 2%           | 34         | 20%             | 18%                     | 2.3                 |
| 2    | 423         | 422              | 1,527                   | 68%            | 3%           | 50         | 19%             | 18%                     | 2.4                 |
| 3    | 218         | 412              | 1,188                   | 67%            | 7%           | 78         | 20%             | 18%                     | 1.7                 |
| 4    | 302         | 304              | 1,172                   | 67%            | 2%           | 20         | 21%             | 18%                     | 3.5                 |
| 5    | 204         | 211              | 963                     | 70%            | 6%           | 59         | 18%             | 16%                     | 2.3                 |
| 6    | 302         | 301              | 866                     | 67%            | 4%           | 32         | 21%             | 20%                     | 3.2                 |
| 7    | 204         | 206              | 853                     | 70%            | 7%           | 61         | 18%             | 17%                     | 2.3                 |
| 8    | 207         | 214              | 843                     | 64%            | 11%          | 90         | 18%             | 14%                     | 3.8                 |
| 9    | 215         | 222              | 841                     | 67%            | 9%           | 75         | 20%             | 19%                     | 1.7                 |
| 10   | 302         | 305              | 841                     | 70%            | 12%          | 97         | 25%             | 23%                     | 5.1                 |
| 11   | 201         | 412              | 933                     | 66%            | 17%          | 161        | 25%             | 20%                     | 3.0                 |
| 12   | 215         | 224              | 915                     | 66%            | 10%          | 91         | 25%             | 20%                     | 3.2                 |
| 13   | 413         | 412              | 813                     | 70%            | 6%           | 46         | 25%             | 23%                     | 5.4                 |
| 14   | 218         | 206              | 758                     | 68%            | 4%           | 33         | 20%             | 19%                     | 4.3                 |
| 15   | 218         | 230              | 736                     | 63%            | 11%          | 83         | 20%             | 25%                     | 3.6                 |
| 16   | 422         | 101              | 731                     | 64%            | 6%           | 47         | 17%             | 14%                     | 3.7                 |
| 17   | 101         | 428              | 726                     | 67%            | 7%           | 48         | 21%             | 19%                     | 2.0                 |
| 18   | 304         | 302              | 721                     | 67%            | 7%           | 48         | 22%             | 19%                     | 1.6                 |
| 19   | 206         | 208              | 708                     | 68%            | 9%           | 64         | 16%             | 17%                     | 3.7                 |
| 20   | 204         | 412              | 702                     | 64%            | 19%          | 133        | 15%             | 16%                     | 4.9                 |

Source: Fehr & Peers.

As show in in **Table 4-17**, the weekday mid-day period top 20 travel markets are comprised of predominantly non-work trips by households without kids that have a household income greater than \$35,000 per year. Compared to the AM peak period, the travel markets are comprised of trips that are much shorter, non-work-related, that mostly travel to and from Zone 223 which contains the Mt. Shasta Mall.



## 5. Conclusions

The Shasta LRTP Origin-Destination Report provides SRTA and its member jurisdictions with a comprehensive dataset of travel patterns and trip characteristics specific to Shasta County. The data put forth in this study is intended to provide origin and destination data from location-enabled mobile devices to help understand the demand and propensity to use transit within Shasta County.

The weekday AM peak period travel market analysis indicated a somewhat dispersed travel pattern with a few large short-distance travel markets that predominantly travel in the east-west directions in contrast to the existing Shasta County transit system that primarily serves longer distance north-south trips. The travel markets are comprised of predominantly work trips by households without kids that have a household income greater than \$35,000 per year.

The weekday mid-day period travel market analysis indicated a travel pattern with a single short-distance travel destination. Compared to the AM peak period, the travel markets are comprised of trips that are much shorter, non-work-related, that mostly travel to and from Zone 223 which contains the Mt. Shasta Mall.

# Appendix A – Mobile Device Data

## Limitations and Potential Biases

Below is a discussion of mobile device data limitations and potential biases.

- Due to privacy concerns and sampling rates, the indexed trip values in the origin-destination trip tables provided by StreetLight represent “relative” rather than “absolute” trips. In other words, the tables do not provide the total number of trips that occur on a daily basis but provide the relative relationship of trips from each zone to every other zone in the geographic layer based on a sample of devices moving around the network. Therefore, the mobile device data origin-destination trip tables are used as a starting point due to their large sample size and high level of confidence in the travel pattern data and refined using traffic count data to factor the relative trip data to represent a single period of absolute data.
- Analysis of mobile device data and determination of origin-destination points relies on computer algorithms to determine where a trip starts and ends rather than direct user input. Current algorithm parameters define the end of a trip and determine a trip’s destination if the mobile device travels no more than five meters for a five minute period of time. A trip may be missed if the device stops, the activity is performed, and the device begins moving again within five minutes.
- App-based locational information is derived from a combination of cellular, GPS, and Wi-Fi sources, reducing the spatial resolution and accuracy to roughly 20 to 30 meters when compared with GPS data alone which has a spatial resolution of rough 3 to 5 meters.
- App-based mobile device data typically represents persons traveling as the algorithms are currently not sophisticated enough to differentiate mode of travel. For instance, a typical transit trip may consist of a drive or walk trip to a transit station, wait time for a train, stops at stations along the way, transfers, and a walk trip to the destination. Auto trips are usually much less complex as people generally drive directly from their origin to their destination. Person trips are then factored using vehicular traffic count data as it represents the most readily available, robust, and reliable source of absolute magnitude of travel data.
- Mobile fact sheet data provided by the Pew Research Center<sup>3</sup> estimates that “the vast majority of Americans – 96% – now own a cellphone of some kind. The share of Americans that own smartphones is now 81%, up from just 35% in Pew Research Center’s first survey of smartphone ownership conducted in 2011.” Additionally, although “a substantial majority of Americans are cellphone owners across a wide range of demographic groups. By contrast, smartphone ownership exhibits greater variation based on age, household income and educational attainment,” which presents potential biases in the app-based mobile device data. For instance, only 53 percent of U.S.

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<sup>3</sup> <https://www.pewresearch.org/internet/fact-sheet/mobile/>

adults over the age of 65 own a smartphone, compared to 96 percent of U.S. adults ages 18-29, while only 71 percent of U.S. adults with a household income less than \$30,000 own a smartphone, compared to 95 percent of U.S. adults with a household income greater than \$75,000. Pew Research Center<sup>4</sup> also estimates that “a growing share of online adults now access the internet with a mobile device” and that many “may even be supplanting home broadband subscriptions.” They also state that Americans who say they use a mobile device to access the internet “is higher among Hispanic (94%) and black (94%) internet users than among white internet users (85%),” which presents additional potential biases in the app-based data.

- Due to privacy concerns, trips made by the same device are unable to be linked and each trip is analyzed independently of the others along the tour. Trip purpose information is therefore derived solely from each individual trip made by devices, which likely leads to an incomplete understanding of the purposes of trips within, to, and from Shasta County. For instance, if a vehicle commuted for work from Oak Run to Redding but stopped in Palo Cedro for coffee along the way, this would be reported as a home-based other trip to get coffee (from Oak Run to Palo Cedro) and a non-home-based trip to travel from coffee to work (from Palo Cedro to Redding). In reality, the vehicle entered Redding for work but was analyzed as a non-home-based rather than a work-related trip. When comparing this data to travel model data, it is important to understand that an activity-based model would classify the entire tour as home-based work as it understands the stop for coffee was an intermediate trip. A trip-based model such as the Shasta County Model would report two trips with the same trip purposes as the StreetLight algorithms as the individual trips comprising the tour are not linked.
- Mobile device data has a potential bias towards trips made by persons over the age of 16 due to privacy regulations requiring the non-inclusion of data associated with mobile devices registered to persons under the age of 16.
- Mobile device data has a potential bias towards non-school-related trips made by persons over the age of 16. Home and work location data analysis will ignore school-related trips as the algorithms only track the inferred “home” and “work” location of mobile devices. Origin-destination trip table data analysis may miss school drop-off trips as the algorithms determine a trip to end only when the mobile device has moved less than five meters in five minutes. However, school-related trips associated with students who drive themselves to school will likely be captured as the mobile device will remain relatively stationary while at school.
- Mobile device data has a potential bias towards traditional “9 to 5” workers as the home and work location algorithms assign work locations based on where the device is at rest between 11 AM and 4 PM and home locations based on where the device is at rest between 7 PM and 8 AM.

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<sup>4</sup> <https://www.pewresearch.org/hispanic/2016/07/20/3-hispanics-and-mobile-access-to-the-internet/>

## **Appendix B – Origin and Destination Data**

# **Appendix D Virtual Community Workshop Summary Report**



### Introduction

In December 2020, as part of the 2040 Long-Range Transit Plan, the Shasta Regional Transportation Agency (SRTA) implemented a month-long community education and awareness campaign that included collaborating with community partners, a social media campaign, an informational video, and a media relations effort. Community members were also encouraged to participate in a Virtual Community Workshop to provide their thoughts about five proposed strategies to promote a sustainable transit system in the Shasta Region. The community workshop was open to the public from Friday, December 11, 2020 to Friday, January 8, 2021. The project team reached more than **29,000 people** through the Education and Awareness campaign and received more than **30 responses** from community members.



*A Redding Area Bus Authority (RABA) bus*

### Planning Process Overview

The Shasta Regional Transportation Agency's Long-Range Transit Plan will be the 2040 blueprint for a sustainable, safe, innovative, integrated, and efficient transit system. It will also help prioritize future transit projects and create a holistic transit system that meets the needs of current and future residents.

When SRTA began the first phase of the 2040 Long-Range Transit Plan process, the planning team compiled a report of the [existing background conditions](#), [initiated engagement with the community](#), and completed an assessment of the region's travel patterns. Based on these findings, the planning team created a set of proposed strategies that would address the emerging mobility trends. These potential strategies were presented to the public for consideration during the Virtual Community Workshop.

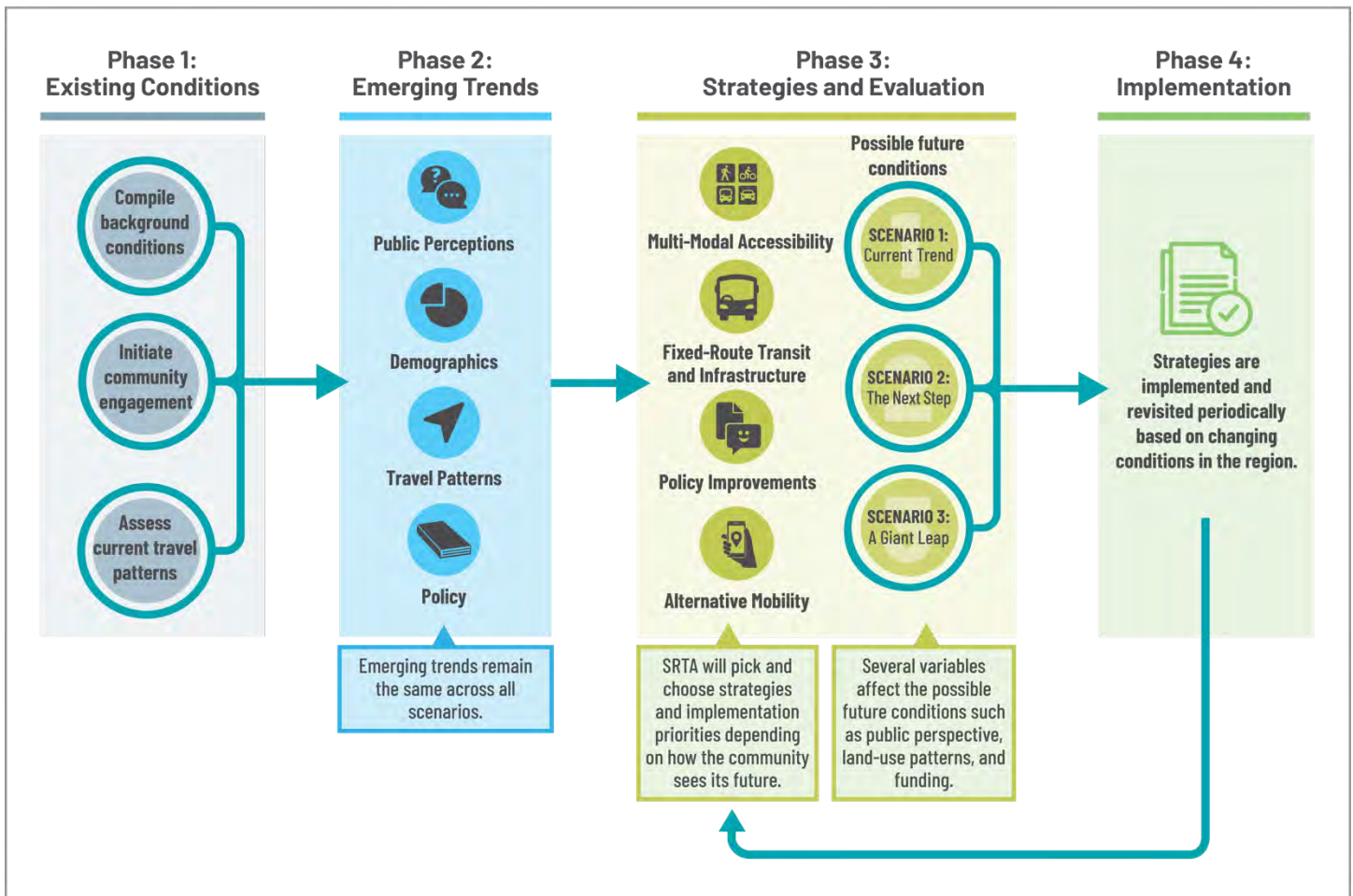
With the input gathered from this Virtual Community Workshop, SRTA will evaluate and determine the most appropriate strategies based on possible future conditions, including public perspective, land-use patterns, and funding availability. During implementation, SRTA will revisit the potential strategies periodically and respond to changes in the region as they are experienced. By design, the plan is adaptable to changes in funding, travel patterns, mobility options, community needs and other considerations.

The flow-chart graphic on the following page provides an overview of the 2040 Long-Range Transit Plan process.



# Virtual Community Workshop

2040 Long-Range Transit Plan  
December 2020 - January 2021



## Methodology

When participants visited the [project webpage](#), they were able to learn more about how the Shasta region is changing over the next 20 years and why the Long-Range Transit Plan is important. Participants also had the option to review prior technical work completed by the planning team during the first phase of the project.

The Virtual Community Workshop consisted of a [short informational video](#), an overview of emerging trends for the Shasta Region, and five proposed strategies. The strategies presented are based on earlier findings and public input gathered through stakeholder interviews, and an online survey. Participants were asked to share their input on the five proposed strategies and whether or not they could work in the



Thumbnail of the short Informational Video



# Virtual Community Workshop

2040 Long-Range Transit Plan  
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Shasta region. Participants also had the option to submit open-ended comments about each emerging trend and strategy

Approximately 33 households participated in the Virtual Community Workshop, resulting in 30 comments and responses. A full list of the submitted comments is available in the Appendix.

The emerging trends presented in the Virtual Community Workshop are as follows:

1. Population growth is expected to be higher in Shasta's urban areas
2. People who rely on transit mostly live in urban areas
3. The public's perception and willingness to try new modes are important considerations when creating alternative transportation options
4. Community attitudes are shifting to prioritize nature preservation and sustainability when planning for the future
5. The COVID-19 pandemic may significantly change how and where people choose to live, work and travel in the future.
6. Existing transit service does not fully meet the public's needs
7. Most trips are short, traffic congestion is low, and parking is available and affordable
8. The Shasta region has many new transportation services (i.e., ShastaConnect and the future SalmonRunner intercity bus), which could be confusing for passengers

The proposed strategies were developed based on earlier findings and public input (stakeholder interviews and online questionnaire) gathered during the 2040 Long-Range Transit Plan process:

1. Make it easier to walk and bike to transit stops
2. Adjusting Transit Service to meet anticipated population growth
3. Establish a process for planning and developing pilot programs for new mobility services
4. Expand on-demand transit service to neighborhoods with fewer mobility options
5. Provide clear information and promotion of travel options in the Shasta region

The full documents for the emerging trends and strategies are available in the Appendix.

## Education & Awareness Campaign

During the month-long outreach process, the project team implemented an education and awareness campaign to increase community participation. To help spread the word about the virtual community workshop, the project team created a series of informational graphics with unique digital messaging. Full-sized versions of the graphics and flier are available in the



*Social media graphic used to increase awareness*



Appendix of this document. Below is a summary of the outcomes and metrics garnered by the education and awareness campaign.

### Outreach to Community Partners

Community partners were identified and contacted to discuss SRTA's planning efforts for the long-range plan and its corresponding public outreach opportunity. These partners included local jurisdictions, transit agencies, school districts, public health organizations, tribal organizations, chambers of commerce, and community-based organizations representing the needs of youth, seniors and disadvantaged communities. As a result of this outreach, the following organizations shared information about the questionnaire with the public through social media or email:

- RABA
- City of Shasta Lake
- City of Redding
- City of Anderson
- Shasta County
- Redding Chamber of Commerce
- Providence International
- Tri County Community Network
- Shasta Economic Development Corporation
- Shasta College
- Shasta Living Streets
- Simpson College
- Redding Parks and Trails Foundation

### Earned Media

In addition to partnering with local organizations, the project team sent a media release sharing information about the virtual community workshop to 18 local news outlets. As a result, the following media outlets published the media release:

- Intermountain News
- Shasta County News Source
- Riverside County News Source

### Social Media

The project team also shared information about the virtual community workshop through several targeted Facebook and Instagram posts. The project team used messaging targeted towards specific cities in the Shasta region to build public interest in the Long-Range Transit Plan and the virtual community workshop. The following social media analytics include reach, post engagement, and link clicks. Reach refers to the total number of people who have viewed the social media advertisement. Post engagement includes all actions that people take involving ads while they are running. Post engagements can include actions such as reacting to, commenting on or sharing the ad, claiming an offer, viewing a photo or video, or clicking on a link. Below is a summary of the results:

- [Post #1](#): Anderson targeted messaging – Dec. 11
  - 1,612 impressions (views)
  - 43 engagements (post clicks)
  - 11 link clicks
- [Post #2](#): Redding targeted messaging – Dec. 11
  - 1,606 impressions (views)



# Virtual Community Workshop

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- o 102 engagements (post clicks)
- [Post #3](#): Shasta Lake targeted messaging – Dec. 11
  - o 1,750 impressions (views)
  - o 102 engagements (post clicks)
  - o 3 link clicks
- [Post #4](#): Burney targeted messaging – Dec. 15
  - o 1,770 impressions (views)
  - o 127 engagements (post clicks)
  - o 49 link clicks
- [Post #5](#): Cottonwood targeted messaging – Dec. 15
  - o 3,107 impressions (views)
  - o 71 engagements (post clicks)
  - o 47 link clicks
- [Post #6](#): Shingletown targeted messaging – Dec. 15
  - o 2,443 impressions (views)
  - o 46 engagements (post clicks)
  - o 37 link clicks
- [Post #7](#): Redding targeted messaging (extended deadline) – Dec. 22
  - o 3,815 impressions (views)
  - o 113 engagements (post clicks)
  - o 74 link clicks
- [Post #8](#): Anderson targeted messaging (extended deadline) – Dec. 22
  - o 4,117 impressions (views)
  - o 61 engagements (post clicks)
  - o 54 link clicks
- [Post #9](#): Shasta Lake targeted messaging (extended deadline) – Dec. 22
  - o 3,788 impressions (views)
  - o 74 engagements (post clicks)
  - o 66 link clicks
- [Post #10](#): Cottonwood targeted messaging (extended deadline) – Dec. 22
  - o 2,498 impressions (views)
  - o 51 engagements (post clicks)
  - o 46 link clicks
- [Post #11](#): Shingletown targeted messaging (extended deadline) – Dec. 22
  - o 2,045 impressions (views)
  - o 34 engagements (post clicks)
  - o 31 link clicks





# Virtual Community Workshop

2040 Long-Range Transit Plan  
December 2020 - January 2021

## Email

The Shasta Regional Transportation Agency also sent an email notification about the virtual community workshop to a public distribution list of more than 250 contacts.

Additionally, the project team sent a personal email to residents who participated in the previous community engagement event asking them to provide input on the virtual workshop and to share with their friends, family, neighbors and colleagues.

## Workshop Results

As a result of the education and awareness efforts, more than **29,074 people** were informed of SRTA's 2040 Long-Range Transit Plan through social media, email, and website views and engagements. The campaign garnered 33 individual responses on the workshop, 824 engagements on social media, and nearly 50 views on YouTube.

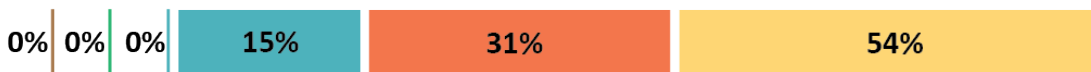
Below is a summary of community members responses to the workshop, represented by graphs and a synopsis of the open-ended comments. The raw open-ended comments and responses are available in the appendix.

### Strategy 1: Make it easier to walk and bike to transit stops

#### Do you think this could work in the Shasta region?

Some participants expressed their agreement with this strategy stating if improvements were made, they would feel safer and would walk or bike more often. Respondents suggested that SRTA should add bike racks on buses, more street lighting, better pedestrian crossing signals in residential neighborhoods, and increased maintenance on roadways. Other participants stated that they do not see the bike paths utilized and would rather have more parking downtown and repaved roads. In total, 54% of respondents said Yes, they think this could work in the Shasta Region, 31% said Maybe Yes and 15% were Neutral.

Strategy 1





## Strategy 2: Adjusting transit services to meet anticipated population increase

### Do you think this could work in the Shasta region?

Many participants agreed that Strategy 2 could work in the Shasta region and offered suggestions including: more advertising and clearer transit schedules, and different routes and frequency. Another participant thinks that the buses are not ridden enough. In total, 55% of participants said Yes, and 45% said Maybe Yes, they think this could work in the Shasta region.

Strategy 2



## Strategy 3: Establish a process for planning and developing pilot programs for new mobility services

### Do you think this could work in the Shasta region?

More than half (55%) of participants stated Yes, they think establishing a process for planning and developing pilot programs for new mobility services would work in the Shasta region. 44% of participants responded Maybe Yes, this could work in the Shasta region.

Strategy 3

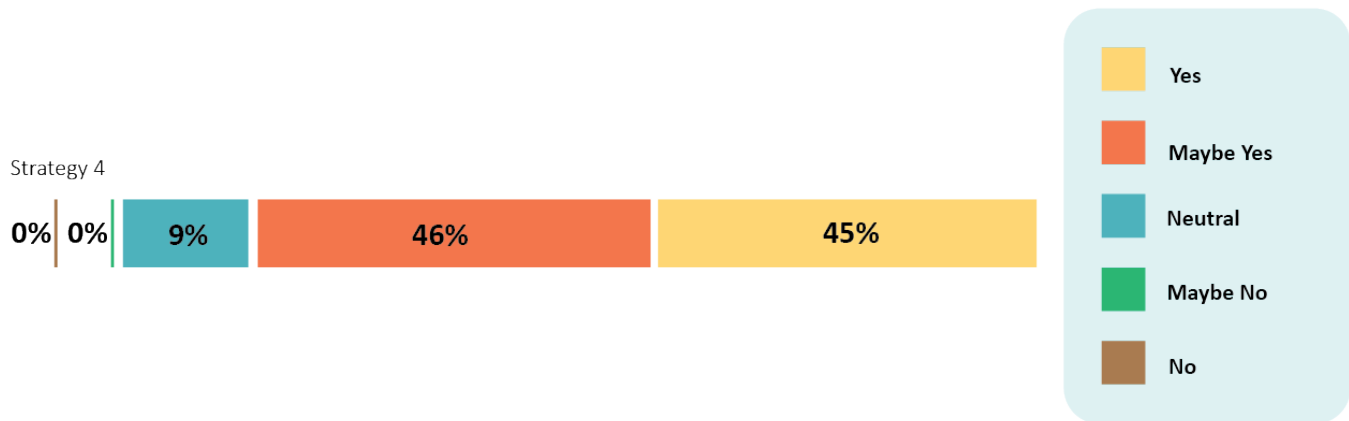




### Strategy 4: Expand on-demand transit service to neighborhoods with less public transit

#### Do you think this could work in the Shasta region?

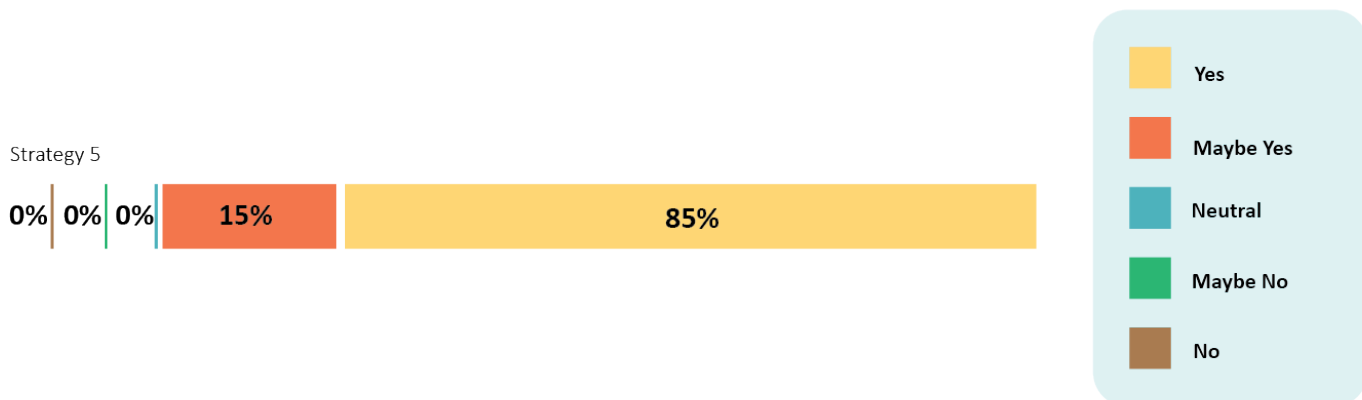
In total 45% of participants responded Yes, 46% responded Maybe Yes, and 9% were Neutral when asked if they thought expanding on-demand transit services to neighborhoods with less public transit would work in the Shasta region.



### Strategy 5: Provide clear information and promotion of travel option in the Shasta region

#### Do you think this could work in the Shasta region?

When asked if they thought providing clear information and promotion of travel options would work in the Shasta region, 85% of participants responded Yes, 15% said Maybe Yes.





# Virtual Community Workshop

2040 Long-Range Transit Plan  
December 2020 - January 2021

- o Raw community member comments
- o Workshop Document: 2040 Long-Range Transit Plan Process
- o Workshop Document: Emerging Trends
- o Workshop Document: Proposed Strategies
- o Awareness Fliers and Social Media Graphics
- o Media Release



## ***Strategy 1: Make it easier to walk and bike to transit stops***

### Workshop Comments

- Bike Racks on front of bus, needed.
- We need downtown parking and all the pothole filled roads repaved. Not just patched.... repaved! And all the trash on every road in town cleaned up!
- Continuing to fill in sidewalk gaps and adding bike lanes to streets should be a high priority. Most of my trips in town are under 5 miles each way, and taking a bus is rarely convenient. I live 3 miles from my workplace, but it would take a 40 minute bus ride to get there. Redding is too low-density and multi-nodal for fixed-route buses to be the most efficient alternative transportation solution. Having more buffered bike lanes will encourage people to trade their car for a bike.
- On the east side, the biggest impediment to safely using a bicycle, or even walking, from residential areas east of Churn Creek to the commercial district around Target is the narrow bridge over Churn Creek. Provide a safe bike-way separated from car traffic on that bridge, and you'll increase non-motorized transport on Old Alturas Road.
- Seems like there ought to be maybe two more crosswalks on the Placer "hill" - the fancy ones with buttons to push for warning lights. That several block stretch seems way too long given the residential neighborhoods on both sides of the street and the inability of those residents to safely cross Placer conveniently.
- I think it will be absolutely beneficial to the Shasta Region. Not only to those that walk or bike but to those that are Disabled. I've experienced personally how difficult it can be crossing some streets, or just trying to actually use some pedestrian walkways around Redding and Anderson.
- I support more bike trails. I live in the Girvan neighborhood and there are no good options for going on a bike ride right now.
- I have never seen a bicycle in the bike paths they made downtown.... parking is needed downtown
- Solar floor to charge while biking just like Netherlands project, will bring more visitors or make them stop here to enjoy a unique and different city. Let's be the first on every sustainable project that can harness the power of sun we have here.
- I support they need to install lights like they have on hilltop down by Shasta regional both crosswalks.
- It would be nice if when enough suitable roads have bike paths, that bikes could be prohibited on the dangerous, narrow roads like Airport Rd and Old Alturas Rd and Deschutes Rd.

### Social Media Comments

- We need parking downtown!
- One exception (Please do not close Riverside Dr. in Redding) ... otherwise, good.
- The Churn Creek bridge on Old Alturas Road should have been widened for bicycles years ago.
- I support they need to install lights like they have on hilltop down by Shasta regional both crosswalks.

## ***Strategy 2: Adjusting Transit Service to meet anticipated population growth***

### Workshop Comments



- I see busses driving around Redding all day long with one or two passengers on it or no passengers at all. Seems like all that money spent on fancy busses that drive around empty every day, could be put to a better use
- Yes, but it needs to be advertised. Last, time they tried it no one knew anything about it.
- Fixed routes are good for urban, but our area is suburban and fixed route hasn't been very efficient. I can typically bike faster than take the bus as our area is so spread out and buses only run 1x hour in most cases. That's not enough...buses should run every 20-30 min at a minimum.
- I think Shasta Connect has done a good job marketing and attracting people to use public transport.
- Would be nice to explore use of train connecting these towns along the train track corridor with shuttles/bike share getting people to where they need to go.
- Include schools in public transportation talks/workshops. Would be great to integrate school transportation with public as they do in cities. Several of the charter schools don't offer busing. In town Shasta and enterprise students could use bus service and bike share as many of the students live too close to ride school bus but too far to walk in a reasonable amount of time.
- Yes, coordinating numerous transport services would be great: senior transportation, schools, private, etc.!!
- Add wayfinding for peds/bikes in a coordinated manner. Let bikes/peds know how many miles/minutes to certain destinations.
- Expand Shasta Connect! Also, Redding DASH is a great idea and service area could be expanded. It's ridiculously small and an area most people could easily walk. Redding Dash could be like crosstown express and run constantly back and forth across town for people.
- Currently, I feel like it's really difficult to view and figure out bus schedules in Redding. Real time would be great. I hate the 2 E/W route as I can never keep track what hours it runs clockwise and what hours it runs counterclockwise.
- I'm in Whitmore. I would love it if it came through here. Thought I saw it here not too long ago

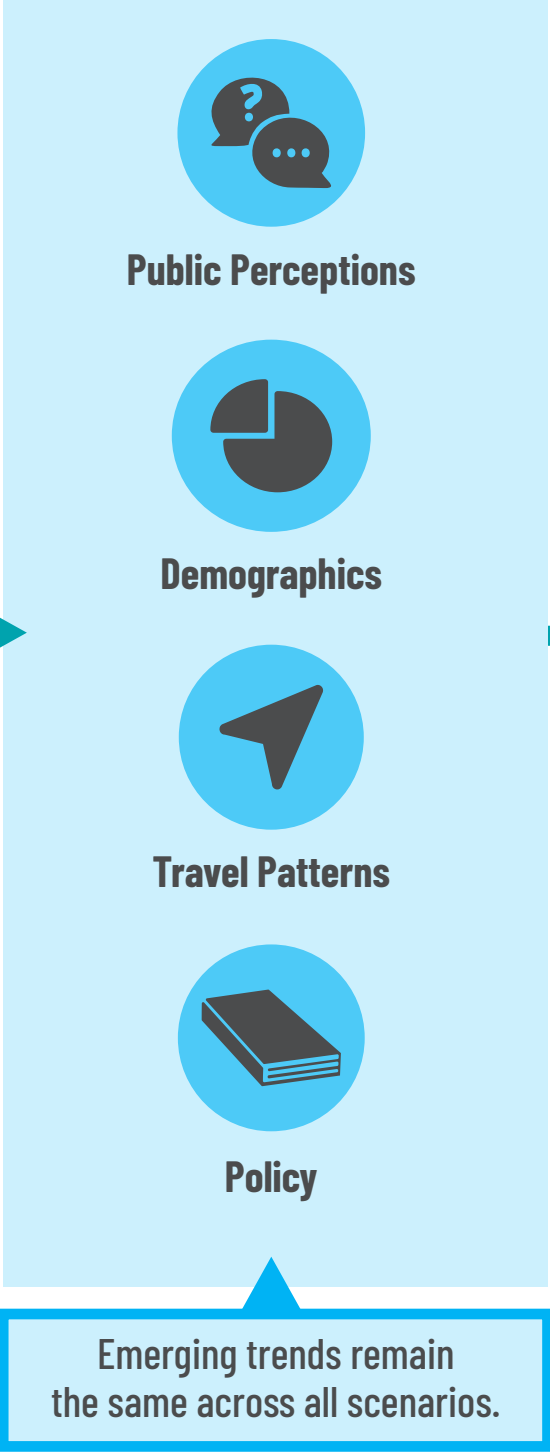
### Social Media Comments

- They ought to eliminate it waste of money no ridership
- I see busses driving around Redding all day long with one or two passengers on it or no passengers at all. Seems like all that money spent on fancy busses that drive around empty every day, could be put to a better use
- Walk I'm tired of paying millions of dollars for empty buses. Walking is great for your health.

**Phase 1:  
Existing Conditions**



**Phase 2:  
Emerging Trends**



**Phase 3:  
Strategies and Evaluation**



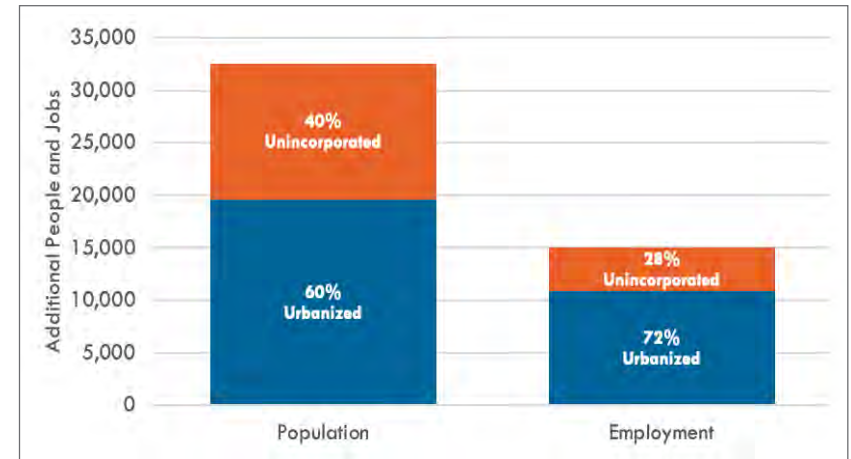
**Phase 4:  
Implementation**





### Population growth is expected to be higher in Shasta's urban areas

- The Shasta region is expected to see a 17% increase in population (32,500 people) and a 21% increase in employment (15,000 jobs) by 2040.
- Much of the population growth (60%) and employment growth (72%) is expected in the urban areas of Redding, Anderson, and Shasta Lake.
- Improving transit frequency on key corridors with other mobility options in lower density areas will improve the convenience and reliability of the transportation system.



### People who rely on transit mostly live in urban areas

- Fixed-route transit and micro-mobility (e.g. bikeshare, carshare) are best suited for the urban areas of the region, while alternative transit options, such as on-demand service, may better meet the needs of rural communities.
- New and innovative travel options could be explored in lower density urban areas and rural communities where traditional public transportation is not an effective option.





### **The public's perception and willingness to try new modes are important considerations when creating alternative transportation options**

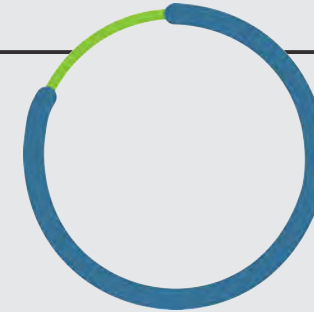
- To get more people who currently drive cars to choose another form of transportation, effective marketing and outreach may increase the percentage of residents choosing an alternative transportation option to driving a single-occupancy vehicle.

### **Community attitudes are shifting to prioritize nature preservation and sustainability when planning for the future**

- This change in outlook can help support land use strategies that make transit, walking, biking, and other travel options more attractive.

**Cars are the most commonly used mode of travel in the Shasta region**

**17%** of residents use modes like public transit, walking, bicycling, or app-based rideshare



**83%** of residents drive a car as their primary mode of transportation



Photo credit: Slipshod Photog



Photo credit: Mike LaB



### **The COVID-19 pandemic may significantly change how and where people choose to live, work, and travel in the future**

- Public travel patterns and changes in population should be examined closely as they continue to evolve post-COVID.

### **Existing transit service does not meet the public's needs**

- The existing transit network between Redding, Anderson and Shasta Lake does not match the current travel patterns of Shasta residents.
- The transit system needs to be evaluated and adjusted to match current and future travel patterns.

### **Most trips are short, traffic congestion is low, and parking is available and affordable**

- As more people move to Shasta's urban areas, there may be more opportunities to offer new travel options besides driving.





### The Shasta region has many different transportation services, which can be confusing for passengers

- There are numerous transportation services throughout the region (public, private, non-profit, tribal, etc.) which are each uniquely branded.
- Coordinating some or all of these services under a single brand may reduce confusion and improve public perceptions of services in the region.





## Key Elements

- Walking and biking were identified as key priorities for community members.
- Safe, comfortable, and convenient bicycle and pedestrian connections help improve access to public transit. These connections may include:
  - Sidewalks and crosswalks
  - Bike lanes and bike trails
  - Secure bike parking

## Key Benefits

- Frequent, well-placed street crossings allow pedestrians to easily reach transit stops.
- Bike lanes, paths, and trails that provide safe connections for travelers of all ages and abilities help complete trips to transit stops.
- Secure bike parking at transit stops and stations helps reduce demand for bicycle racks on transit vehicles.



### Share your input!

Do you think this could work in the Shasta Region? Click the speech bubble to answer.

Share any other comments or questions you may have about this strategy by clicking anywhere in the document.



## Key Elements

- The existing RABA routes operate every 60 minutes and provide mostly north-south service with some commuter express routes during busy time periods.
- As the population changes and grows over time, transit networks should be adjusted on a regional scale to be more responsive to significant changes in travel patterns and meet the community's travel needs.

## Key Benefits

- Adjusting the transit network to meet the needs of the community will ensure that all residents will be able to use public transportation.
- Evaluating and adjusting the region's transit network would benefit residents who are transit-dependent (rely on public transportation to get around).



Source: Redding Area Bus Authority



### Share your input!

Do you think this could work in the Shasta Region? Click the speech bubble to answer.

Share any other comments or questions you may have about this strategy by clicking any where in the document.



## Establish a process for planning and developing pilot programs for new mobility services



### Key Elements

- Pilot programs provide a way to plan, develop, and test mobility services, such as on-demand transit service, subsidies for rideshare companies, and bike or scooter sharing.
- Establishing a process for planning and evaluating pilot programs, such as ShastaConnect, will help identify programs that are more successful or meet the community's needs.

### Key Benefits

- Pilot programs are useful for:
  - Making effective use of limited transportation funds
  - Experimenting with and implementing new service types and technologies
- Pilot programs are able to be scaled up or down based on public response, program performance, or changes in funding availability.

### Pilot Program Process



### Share your input!

Do you think this could work in the Shasta Region? Click the speech bubble to answer.

Share any other comments or questions you may have about this strategy by clicking any where in the document.



### Key Elements

- Transit service must be balanced between certain factors such as demand, frequency or location.
- There is an opportunity to expand the ShastaConnect program to replace the transit service in less populated areas with on-demand transit services
- Shasta's urban areas have mostly low-frequency transit routes with some express routes for commuters. While this type of service may be the simplest to coordinate, it may not be the most effective way to serve the community.

### Key Benefits

- SRTA could coordinate to provide high-frequency service in well-traveled areas and expand ShastaConnect to provide on-demand service in areas where people ride transit less. This is likely to result in a more cohesive and effective transit system for the community.



### Share your input!

Do you think this could work in the Shasta Region? Click the speech bubble to answer.

Share any other comments or questions you may have about this strategy by clicking anywhere in the document.

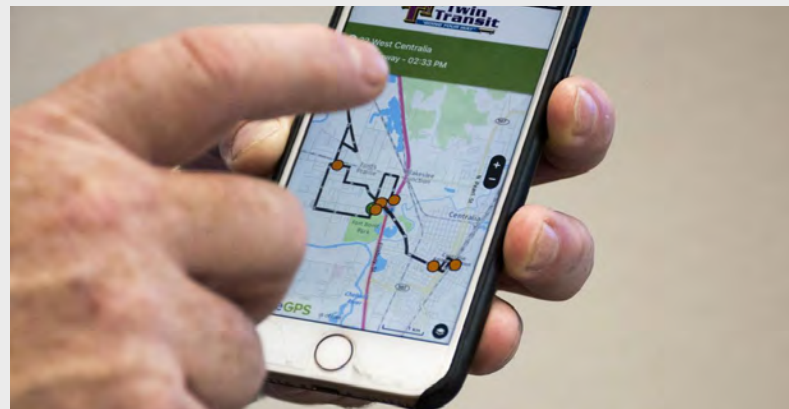


## Key Elements

- It is becoming more difficult for people to understand what public transportation services are available.
- This strategy would provide clear information about transportation services and how they work through marketing campaigns, online information, and mobile applications with service information.

## Key Benefits

- Providing information for all transit services in a single application would simplify and educate people about travel options available in the region.
- Real-time information would be provided to riders, as well as information about alternate means of transportation available to reach their destination.



### Share your input!

Do you think this could work in the Shasta Region? Click the speech bubble to answer.

Share any other comments or questions you may have about this strategy by clicking any where in the document.



# Planning for Shasta's Future Travel Needs!



Go to the link below and find out about some of the strategies we are evaluating that will help us meet the future public transportation needs of our region. Then, provide your thoughts on each of these strategies.



This **Virtual Community Workshop** will be live and available from



**December 10 –  
January 8**

**Deadline extended!**



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

## 2040 Long-Range Transit Plan

The **Shasta Regional Transportation Agency** wants to create a reliant and resilient transportation system that serves our regional needs now and for the next 20 years. Last spring, we evaluated current transit services and asked for your thoughts on challenges and opportunities to improve our travel options within the Shasta region. Now, we've developed some ideas we want to share with you.

For more information or questions about the Shasta Regional Transportation Agency or the Long-Range Transit Plan:



[www.srta.ca.gov](http://www.srta.ca.gov)



530-262-6190



[srta@srta.ca.gov](mailto:srta@srta.ca.gov)

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**BICYCLES,**

**BUSES,**



**& SCOOTERS...**



**OH MY!**



## Virtual Community Workshop

The **Shasta Regional Transportation Agency** wants to create a reliant and resilient transportation system that serves our regional needs now and for the next 20 years. Last spring, we evaluated current transit services and asked for your thoughts on challenges and opportunities to improve our travel options within the Shasta region. Now, we've developed some ideas we want to share with you.

**Deadline  
extended!**

**DEC. 10  
- JAN. 8**

Go to the link below and find out about some of the strategies we are evaluating that will help us **meet the future public transportation needs of our region**. Then, provide your thoughts on each of these strategies.

This **Virtual Community Workshop** will be live and available from December 10-24

**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

For more information about the Shasta Regional Transportation Agency:

[www.srta.ca.gov](http://www.srta.ca.gov) 530-262-6190 [srta@srta.ca.gov](mailto:srta@srta.ca.gov)

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Do you support  
making it easier to  
walk and bike in  
the Shasta region?



Share your thoughts in the **Virtual Community Workshop** now until Friday, January 8



[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)



Should SRTA adjust  
transit service to  
address future  
population increase?

Share your thoughts in the **Virtual Community Workshop** now until Friday, January 8

[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)



Do you support  
testing more  
transportation pilot  
programs in the  
Shasta region?

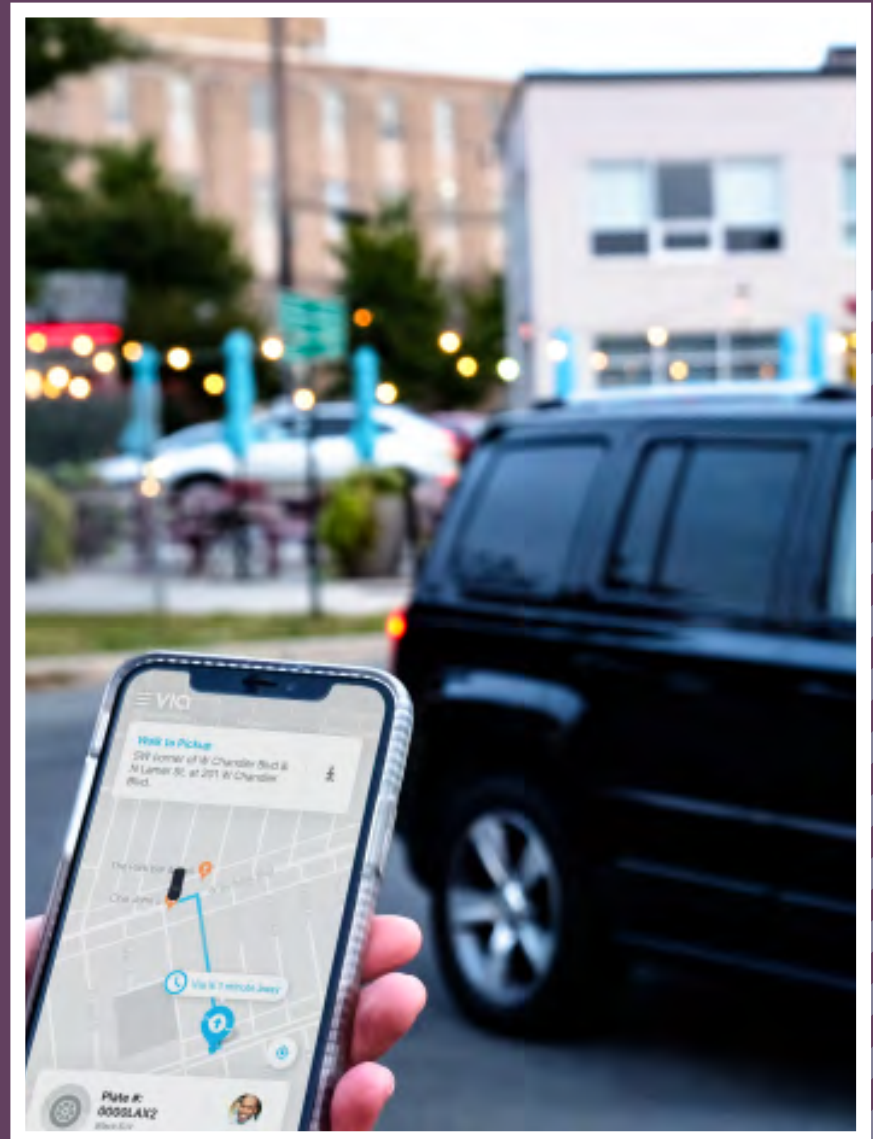


Share your thoughts in the **Virtual Community Workshop** now until Friday, January 8

[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)



Do you support adding  
on-demand transit  
services to areas with  
less public transit?



Share your thoughts in the **Virtual Community Workshop** now until Friday, January 8



[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)



# Should SRTA provide more information about travel options?



Share your thoughts in the **Virtual Community Workshop** now until Friday, January 8



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**



# WE NEED YOUR FEEDBACK, SHINGLETOWN!

Join the **Virtual Community Workshop** for  
the 2040 Long-Range Transit Plan. Go to



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

Now until December 24, 2020



# COTTONWOOD! WE NEED TO HEAR FROM YOU!



Join the **Virtual Community Workshop** for  
the 2040 Long-Range Transit Plan. Go to



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

Now until December 24, 2020



# WE NEED TO HEAR FROM YOU, BURNLEY!



Join the **Virtual Community Workshop** for  
the 2040 Long-Range Transit Plan. Go to



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

Now until December 24, 2020



# WHAT'S UP SHASTA LAKE?



Join the **Virtual Community Workshop** for  
the 2040 Long-Range Transit Plan. Go to



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

Now until December 24, 2020



# REDDING, WE NEED YOUR INPUT!



Join the **Virtual Community Workshop** for  
the 2040 Long-Range Transit Plan. Go to



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

Now until December 24, 2020



# WE NEED TO HEAR FROM YOU, ANDERSON!

Join the **Virtual Community Workshop** for  
the 2040 Long-Range Transit Plan. Go to



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

Now until December 24, 2020



PLANNING FOR

## Shasta's Future Travel Needs!



Click on the link and find out about some of the strategies we are evaluating that will help us meet the future public transportation needs of our region. Then, provide your thoughts on each of these strategies.



This **Virtual Community Workshop** will be live and available for your comments from December 10-24.



**[www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com)**

**DECEMBER 10-24**



## MEDIA RELEASE

FOR IMMEDIATE RELEASE  
December 10, 2020

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### Community is invited to share input on key transportation strategies for Shasta's future

*The Shasta Regional Transportation Agency is hosting a Virtual Community Workshop to obtain public feedback on five proposed strategies as part of the 2040 Long-Range Transit Plan.*

Over the next 20 years, the Shasta region is changing significantly due to its growing population, the COVID-19 pandemic, and major development in Shasta's urban areas. That is why the Shasta Regional Transportation Agency (SRTA) is seeking input from the community on how best to strategize and plan for these changes.

From December 11 – December 24, SRTA is hosting a Virtual Community Workshop as part of the 2040 Long-Range Transit Plan. Participants can share their thoughts on five proposed transportation strategies to address future transportation challenges and anticipated needs. Community members can join the workshop by going to [www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com).

The 2040 Long-Range Transit Plan will serve as the blueprint for a sustainable, safe, innovative, integrated, and efficient public transit system over the next 20 years. Earlier in August 2020, SRTA kicked off initial public engagement for the Long-Range Transit Plan with an online community questionnaire to better understand how Shasta residents want to travel over the next 20 years. After identifying key emerging trends that may affect mobility within the region, SRTA is now presenting a set of five strategies for the public to review.

"The 2040 Long-Range Transit Plan is flexible and will allow us to implement a range of strategies based on changing conditions in the community as they are experienced," says Daniel Wayne, Senior Transportation Planner with the Shasta Regional Transportation Agency. "This flexibility of the plan will help SRTA better respond to the needs of Shasta residents, and ensure that our public transportation system is best serving our unique urban and rural communities."



SRTA is inviting community members to review five key strategies around multi-modal accessibility, fixed-route transit and infrastructure, policy improvements and alternative mobility by going to [www.2040LongRangeTransitPlan.com](http://www.2040LongRangeTransitPlan.com). Participants can share their feedback from December 11 – 24, 2020.

Questions about the Virtual Community Workshop can be directed to Elise Brockett at [ebrockett@aimconsultingco.com](mailto:ebrockett@aimconsultingco.com).

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The Shasta Regional Transportation Agency (SRTA) is a legally separate public agency with its own governing board of directors. SRTA studies the region's transportation needs, pursues all potential funding sources, and determines what improvements will be made. SRTA represents Shasta County and the cities of Anderson, Redding, and Shasta Lake.



